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County Executive

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July 28, 2023

Mr. Andrew Grenzer, Chief  
Solid Waste Operations Division  
Land Management Administration  
Maryland Department of the Environment (MDE)  
1800 Washington Boulevard, Suite 605  
Baltimore, Maryland 21230-1718

RE: Eastern Sanitary Landfill Solid Waste Management Facility (ESL)  
Refuse Disposal Permit #2020-WMF-0052A  
January – June 2023 Semi-Annual Environmental Report

Dear Mr. Grenzer:

In accordance with Eastern Sanitary Landfill Solid Waste Management Facility's Refuse Disposal Permit (2020-WMF-0052A), enclosed is the ESL Semi-Annual Environmental Report for the period of January - June 2023. This report was prepared by Maryland Environmental Service and Baltimore County Bureau of Solid Waste Management and includes the results for groundwater and surface water sampling, landfill gas monitoring, in addition to other refuse disposal permit requirements.

Please contact Laura Russell at [lrussell@baltimorecountymd.gov](mailto:lrussell@baltimorecountymd.gov) or 410-887-4560 should you have any questions.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "N. Rodricks", is written over a light blue horizontal line.

Nicholas Rodricks, MPH  
Chief, Bureau of Solid Waste Management

LMR

Enclosed: ESL Semi-Annual Rpt. Jan-June 2023 REPORT FINAL

cc: Eastern Sanitary Landfill e-file; Laura Russell (Balt Co, electronic copy); John Agnoli and Kelsey Pearce (MES, electronic copy); Bowerman-Loreley Beach Community Assoc. (Office); The Homeowners and Property Rights Association of Loreley Road (c/o Campbell Williams)

**Baltimore County**  
**Department of Public Works and Transportation**  
**Bureau of Solid Waste Management**



**EASTERN SANITARY LANDFILL**  
**SEMI-ANNUAL ENVIRONMENTAL REPORT**

**Refuse Disposal Permit #2020-WMF-0052A**

**January – June 2023**

**Prepared by:**

**Maryland Environmental Service**



**and**

**Baltimore County Bureau of Solid Waste Management**

**July 27, 2023**

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## **1.0 INTRODUCTION**

### **1.1 Purpose**

Baltimore County Bureau of Solid Waste Management (BSWM) and Maryland Environmental Service (MES) has prepared this Semi-Annual Environmental Report for the Eastern Sanitary Landfill Solid Waste Management Facility (ESL) located at 6259 Days Cove Road in White Marsh, Maryland. The purpose of this report is to present a summary of groundwater, surface water, and landfill gas (LFG) monitoring performed at the ESL during the period of January through June 2023 and to provide other site information in accordance with Refuse Disposal Permit (2020-WMF-0052A).

### **1.2 Facility Description**

ESL is owned and operated by Baltimore County Department of Public Works and Transportation, BSWM. Bordering the facility property is Pulaski Highway (US 40) on the west side, Loreley Beach Road North and Bowerman Road on the south side, Gunpowder Falls State Park, and Wirtz and Daughters (composting facility) on the east and north side. Days Cove Rubble Landfill abuts the eastern property line.

The site encompasses 375 acres with a permitted disposal area footprint of 195 acres, which includes approximately 182 acres for current Phases I thru XII and 13 acres for a future phase (Phase XIII). Phase XII began accepting waste in April 2021. ESL is the only publicly-owned and operated municipal sanitary landfill facility in Baltimore County. Refer to Figure 1-1 for a location map.

**Functions, activities, and features at ESL include:**

- Residents’ Drop-off Center (RDOC) with limited Household Hazardous Waste (HHW) Pavilion (waste anti-freeze, gasoline, and oil only)
- Yard Materials Processing Center (YMPC)
- Waste Transfer Station (WTS)
- Recycle Transfer Station (RTS)
- Fueling Station
- Current active landfill Phase XI and XII as of June 2022 (Phase XI has not yet reached final permitted elevations)
- Area for Future Phases
- Landfill areas uncapped
- Landfill areas capped
- Asbestos and special waste disposal area (Phase I)
- Ash disposal area (Phases V & VI)
- Earth borrow and stockpile areas
- Landfill gas air curtain control building (18 air injection wells)
- Landfill Gas to Energy Facility (LFGTE) (4 megawatt)
- Landfill gas collection flare station (rated 2500 scfm)
- Candlestick Flare (750 scfm)
- Liquid Petroleum Hydrocarbon (LPH) Monitoring & Recovery Wells (40 wells)
- Sediment Basins (3)
- Water Quality Basin
- Forebays (3)
- Leachate sump (Phase XI)
- Leachate/Sewage manhole
- Leachate and gravity sewer duplex pumping station
- Landfill gas collection wells and trenches (160 wellheads)
- Landfill gas monitoring probes (58 on-site, 4 off-site)
- Groundwater monitoring wells (21)
- Operations Office Trailer
- Administration/Maintenance Building
- Salt Barn
- Scalehouse
- Storage trailer, barn, and sea containers

Refer to Figure 1-2 for a site map.

**2.0 PERMIT REQUIREMENTS**

In accordance with Refuse Disposal Permit #2020-WMF-0052A; leachate, precipitation, groundwater, and landfill gas are monitored, recorded, and analyzed on a routine basis.



## 2.1 Leachate

Permit requirements are summarized below, and the leachate monitoring data is presented in Table 2-1.

- **III.D.5** Leak detection monitoring: In November 2014, the leachate lagoon was decommissioned in accordance with an approval letter from the Maryland Department of Environment (MDE), dated September 25, 2014.
- **III.D.8.a** Volume of leachate or other contaminated liquid collected monthly: Since October 25, 2018, all leachate generated from the landfill (Phases I-XII) flows to the pump station and is combined with wastewater from the administration buildings and transfer stations; then pumped to the sanitary sewer. The total volume is recorded monthly from the pump station flowmeter totalizer and reported as a combined volume of leachate and wastewater.

With the addition of the pump station in November 2016, there is no longer a need for the underground storage tank (UST), previously used to collect leachate from Phases I-IV, although it remains to serve as an emergency backup.

- **III.D.8.b** The total volume of leachate and other contaminated liquids disposed of in the sanitary sewer is equivalent to the flowmeter totals from the pump station described in III.D.8.a.
- **III.D.8.c** All leachate collected is discharged to the sanitary sewer. See III.D.8.a. The total volume of leachate and waste water discharged is reported from the pump station totalizer; this includes leachate from the landfill, wastewater from the administration building, and wastewater from the transfer stations.
- **III.D.8.d** No leachate has been disposed of by any means other than specified in III.D.8.c.

- **III.D.8.e** Monthly leachate samples are collected from the leachate influent pipe located at the pump station. The leachate is analyzed on a monthly basis by the Baltimore County Bureau of Utilities Engineering and Regulation Division Laboratory for the constituents listed in Table 2-1 (III.D.8.e).

## 2.2 Precipitation

- **III.D.8.f** Precipitation is monitored and recorded routinely from a rain gauge located at the ESL. The total cumulative rainfall for this reporting period is 13.40 inches. The total precipitation amounts calculated for each month during this reporting period are presented in Table 2-1.

## 2.3 Groundwater

- **III.E.1** The depth to water in all existing monitoring wells and one piezometer are measured monthly, and all levels for this reporting period are included in Table 2-1. Figure 2-1 shows the location of all groundwater monitoring wells and one piezometer.

Groundwater contour maps are presented for the Patapsco and Patuxent Aquifer as Figures 2-2 and 2-4, respectively and for the Arundel Formation as Figure 2-3. Groundwater contours are based on the March 2023 water level gauging event.

- **III.F.2** A summary and interpretative discussion for all chemical analyses of groundwater collected from monitoring wells specified in the 2023 ESL Environmental Monitoring Plan (EMP) is included in Tables 3-2 and 3-3 of this report.

## 2.4 Landfill Gas

- **III.Q** The EMP for the ESL includes a section for LFG monitoring. The compliance level for methane concentrations at the landfill property boundary is 100 percent of the lower explosive limit (LEL) (5.0 percent CH<sub>4</sub>). Twenty-nine (29) LFG monitoring probes located around the landfill property perimeter are utilized for compliance purposes. These 29 perimeter probes are monitored on, at least, a quarterly basis. The results for this reporting period are discussed in a separate section of this report and also summarized in Table 2-2. Figure 2-5 presents the Landfill Gas Monitoring Probes Location Map.

## 3.0 GROUNDWATER SAMPLING

### 3.1 Groundwater Monitoring Program

Groundwater sampling is conducted in accordance with Refuse Disposal Permit #2020-WMF-0052A and the 2023 Environmental Monitoring Plan (EMP) for the ESL. Additionally, the County has submitted the Hydrogeological Assessment Study and Monitoring Well Network Optimization Recommendations to the MDE, both prepared by EA Engineering, Science, and Technology Inc., PBC (EA).

Groundwater sampling is performed twice a year, between January-March and July-September, and is performed by qualified groundwater scientists or environmental technicians. Seventeen (17) groundwater monitoring wells and two (2) supply wells are sampled semi-annually for volatile organic compounds (VOCs), water quality parameters, and metals. Monitoring well GWM-7, located north-northeast of the landfill is not sampled as part of the sampling program since this well is historically dry or does not contain sufficient volume for collecting samples. Likewise, monitoring well GWM-16S has been a non-producing well since well installation and is not included in the sampling program. Water levels in these wells are monitored during monthly gauging events at the ESL, which can be found in Table 2-1. No wells on site are utilized for potable water.

The current ESL monitoring well network consists of groundwater monitoring wells representative of the Patapsco aquifer, Arundel formation, and the Patuxent aquifer:

<u>Patapsco</u>	<u>Arundel</u>	<u>Patuxent</u>
GWM-2*	GWM-1	GWM-15D
GWM-3	GMW-8	GWM-16D*
GWM-4	GWM-10	GWM-17D
GWM-5A	GWM-11	GWM-19D
GWM-6	GWM-12	SMW-13
GWM-9*		SMW-32
GWM-14		
GWM-17S		

\* = background well

In a letter dated November 17, 2016, the County submitted to the MDE the Hydrogeological Assessment Study. The purpose of the assessment was to obtain a better understanding of the aquifer system(s) underlying the ESL and establish geospatial extent of these aquifer systems within the confining clay layers, and to also provide an understanding of monitoring well connectivity. The assessment study determined that the Arundel formation exhibits very low hydraulic conductivity due to dense clays that create a confining layer between the shallow (Patapsco) and deep (Patuxent) aquifers. Low hydraulic conductivity inhibits the adequate monitoring of contaminant migration for groundwater samples collected in the Arundel formation. Furthermore, poor groundwater recharge is historically observed in several wells that are screened in the Arundel Formation; not in accordance with drawdown requirements for EPA low flow sampling procedures and confirming that the Arundel formation is not hydraulically conducive in this area.

The County submitted an updated ESL EMP to MDE on April 14, 2017 that identified three separate formations at the ESL: Patapsco, Arundel, and Patuxent. At that time the Patapsco aquifer included monitoring wells GWM-2, GWM-3, GWM-4, GWM-5A, GWM-6, GWM-9, and GWM-14. The Arundel formation included monitoring wells GWM-1, GWM-8, GWM-10, GWM-11, and GWM-12. The Patuxent aquifer included monitoring wells SMW-13, SMW-32 and GWM-15D. Furthermore, the updated EMP

identified monitoring wells GWM-2 and GWM-9 as background wells for the Patapsco aquifer.

In a letter dated October 25, 2017, the MDE requested a revision of the EMP be submitted and include any proposed well locations deemed necessary after review of the spring 2018 groundwater data and as required by 40.CFR.258.55(g).

In a letter dated September 5, 2018, the County submitted to the MDE the Final Monitoring Well Network Optimization Recommendation for the ESL, prepared by EA. This assessment was initiated with the intent of upgrading the groundwater monitoring well network to better define groundwater flow patterns and assess the potential for contaminant transport with considerations to the ESL property boundaries.

In a letter dated May 2, 2019, the County submitted to the MDE an updated plan for upgrading the existing groundwater monitoring well network at the ESL. The plan included the installation of five (5) two-inch diameter groundwater monitoring wells at the ESL. One well pair (GWM-16S/D) was designated as background wells for the Patapsco and Patuxent aquifers. Another well pair (GWM-17S/D) was located downgradient of GWM-4 and GWM-11 for use to determine downstream water quality in the Patapsco and Patuxent aquifers. Lastly, a single well (GWM-19D) was installed downgradient of SMW-13 and GWM-12 and adjacent to the property boundary. The proposal was approved by the MDE (email 6/18/19) and well installation was completed September 30, 2019.

The five (5) newly installed groundwater monitoring wells: GWM-16S/D, GWM-17S/D and GWM-19D were first sampled during the Fall 2019 sampling event. All wells were sampled successfully with the exception of GMW-16S; this well has not been sampled since installation due to an inadequate volume of ground water.

The County submitted an updated ESL EMP to the MDE on June 1, 2021. Since recently-installed background monitoring well GWM-16S does not contain an adequate volume of groundwater for sampling, background monitoring wells GWM-2 and GWM-9 were

reestablished as background monitoring wells for the Patapsco Aquifer. In addition, the updated plan added monitoring well pair GWM-17S/D to the assessment monitoring program to monitor the presence of organochloride pesticides downgradient of GWM-4 and GWM-11.

MDE requested that the ESL EMP be revised to clarify that data from wells screened in the Arundel formation would no longer be statistically analyzed. The County submitted an updated ESL EMP to the MDE on February 28, 2022. In the February 2022 revision of the ESL EMP, BSWM removed requirements to perform statistical analyses on data for monitoring wells located in the Arundel formation: GWM-1, GWM-8, GWM-10, GWM-11, and GWM-12. The Hydrological Assessment Study, performed by EA in 2016, reports that the Arundel formation exhibits exceptionally low vertical conductivity, high porosity, and contains large amounts of water storage as lenses. Monitoring wells that are screened in the Arundel formation are not considered representative of the landfill and are sampled during groundwater monitoring events; no statistical analysis of data shall be performed for these wells.

In the current groundwater monitoring program for ESL, each monitoring well is analyzed for the analytical parameters listed in Tables I and II of Appendix A with the referenced practical quantitation limits (PQL) established by MDE. Groundwater sample IDs and sampling parameters are listed in Table 3-1. Monitoring parameters for VOCs are listed in Table 3-2, and the monitoring parameters for water quality and metals are presented in Table 3-3. Tables 3-2 and 3-3 identify laboratory PQLs that are greater than the MDE approved PQLs. A letter from the reporting laboratory, ALS Environmental, acknowledging parameters with greater reporting limits than their MDE PQL is presented at the end of Appendix C. BSWM included a request for a PQL variance in their 2022 ESL EMP revision. In June 2022, MDE acknowledged the county's request for revised statistics via email correspondence. In February 2023, a revised EMP was submitted to MDE in February 2023 to incorporate comments from MDE, the County, and MES. While MDE acknowledged the 2023 ESL EMP submittal from February 2023, it has yet to be formally approved.

### Assessment Monitoring

In a letter dated July 18, 2014, the MDE recommended assessment monitoring for GWM-4 and GWM-11 as a result of a statistically significant increase (SSI) for benzene, 1,4-dichlorobenzene and methyl tert-butyl ether (MTBE). During the Fall 2014 sampling event, the County first performed assessment monitoring in accordance with 40 CFR 258.55 for monitoring wells GWM-4 and GWM-11. Groundwater from GWM-4 and GWM-11 was analyzed for the complete list of MDE Appendix II parameters except dioxin, which was granted exemption of analysis by the MDE, as requested by the County (08/19/2014, email).

Detections in these wells were limited to low-level “J” qualified detections of organochloride pesticides and their byproducts. These constituents are known for their environmental persistence and long-range transport capacity. Following the Fall 2014 sampling event, wells GWM-4 and GWM-11 were analyzed for only the organochlorides from the Appendix II parameter list. In the request letter dated November 14, 2014, the County also included upgradient groundwater monitoring well GWM-1 to be monitored for this list of constituents. This list was approved by the MDE in a letter dated January 12, 2015 and incorporated into the Spring 2015 and subsequent monitoring events.

Monitoring well GWM-1 has previously served as a background well for the Arundel Formation, while monitoring wells GWM-2 and GWM-9 are currently designated as background wells for the Patapsco Aquifer. Background well GWM-1 was monitored for organochlorides, to provide background data for downgradient monitoring well GWM-11. Background wells, GWM-2 and GWM-9, are monitored to establish background data for all wells located in the Patapsco aquifer; specifically, organochlorides for monitoring well GWM-4.

Newly installed downgradient monitoring well pair GWM-17S/D was added to the groundwater monitoring well network prior to the Fall 2019 monitoring event to further characterize the downstream water quality from GWM-4 and GWM-11. Monitoring wells

GWM-17S/D were first monitored for organochlorides during the Spring 2021 sampling event.

Beginning with the Fall 2021 sampling event, monitoring well GWM-1 and GWM-11 were not included in the assessment monitoring program since both monitoring wells are located in the Arundel formation and are no longer subjected to a statistical analysis of data. Background monitoring well GMW-16D was first added to the assessment monitoring program during the Fall 2021 sampling event and sampled for organochloride pesticides to establish background concentrations for the Patuxent aquifer. Patapsco aquifer monitoring well GWM-3 was included in the assessment monitoring program during the Fall 2021 sampling event to determine the presence of organochloride pesticides in the aquifer between monitoring wells GWM-2 and GWM-17S.

During the Spring 2022 sampling event, assessment monitoring parameters for organochlorides were analyzed with higher reporting limits that do not meet the established MDE clean-up standards and/or groundwater protection standards (GWPSs). Therefore, the non-detect concentrations reported for these parameters during the Spring 2022 monitoring event may not necessarily indicate they are greater or less than their respective MDE clean-up standard or GWPS.

During the Spring 2023 monitoring event, Assessment Monitoring was performed on Monitoring Wells GWM-2, GWM-4, GWM-9, GWM-16D, GWM-17S, and GWM-17D and all analytes were analyzed using the lower reporting limits. The monitoring parameters and results of these analyses are presented in Appendix D.

### **3.2 Monitoring Well Sampling Procedure**

During the Fall 2013 sampling event, low flow sampling techniques were first developed and utilized at the ESL. BSWM personnel continue to perform low flow groundwater sampling as outlined in the MDE approved EMP, described herein.



The goal of sampling at ESL is to obtain a representative aquifer sample to ensure that the groundwater has not been impacted by landfill activities. A dedicated positive displacement pump is positioned one foot from the well bottom to ensure its placement within the screened interval. The groundwater is pumped within a flow-through cell, containing airtight, daily calibrated meters to measure pH, temperature, specific conductance, oxidation-reduction potential, and dissolved oxygen. A separate field instrument is used to measure for turbidity. The low-stress stabilization protocol is followed at each monitoring well, as described in detail below.

Each day of sampling, all instruments are calibrated prior to field use. Instrument Calibration Logs are found at the end of Appendix B. Upon arrival at each well, a sampling log with well sampling information is completed including any new findings. After removing the well's protective covering, the preliminary water level is measured and recorded. Once the pump is turned on, a timer is started after groundwater begins to discharge from the flow-through cell. Depth to water is measured and recorded; and the flow rate is calculated and adjusted to maintain a flow rate of <500 mL/min and maintain a drawdown <0.33 feet. At each five (5) minute interval pH, temperature, specific conductance, oxidation-reduction potential, dissolved oxygen, turbidity, depth to water, and flow rate are recorded. The flow rate continues to be adjusted as necessary based on the drawdown and flow rate measurements calculated. Once three (3) successive readings adhere to the criteria for stabilizing parameters, a sample is collected. Samples for analyzing VOCs are collected first, followed by the inorganic parameter samples and concluding with the samples for metal parameters.

The stabilized condition of the aquifer is summarized on the following page:

<b>Stabilization Criteria</b>	
pH	+/- 0.1 pH units
Specific Conductance	< 3%
Oxidation-Reduction Potential (ORP)	< 10 millivolts (mV)
Turbidity	< 10% (when > 10 NTUs)
Dissolved Oxygen (DO)	+/- 0.3 milligrams per liter

- Drawdown < 0.33 feet
- Flow < 500 mL/min

In some cases, if 60 minutes of purge time elapses, and the indicator parameters have not met the stabilization criteria, a sample is collected. The details regarding are then noted and explained on the sample log (Appendix B).

### **3.3 Monitoring Well Field Quality Assurance / Quality Control (QA/QC) Samples**

BSWM has been contracted with a certified lab since the Fall 2014 sampling event. Subsequently, the use of data qualifiers permits low level of constituents to be detected with specific approved analyzation protocols. The “J” qualifier indicates that the concentration detected in the sample is above the laboratory method detection limit (MDL); however, it is below the laboratory practical quantitation limit (PQL). Parameter concentrations reported with a “J” qualifier are present in the sample but the reported concentrations are considered an estimated value, as the detection is below the PQL.

Trip blanks prepared by ALS Environmental Laboratory (ALS) accompanied field-collected samples each day of sampling. Each trip blank was analyzed for VOCs and prepared prior to field collection. Each trip blank was also sealed, labeled and never opened during any sampling activities.

Field blanks for VOC analysis were collected during each sampling day in the field using deionized water and vials provided by ALS. After collection, field blanks were placed inside sampling coolers, and were unopened until sample processing.

During the Spring 2023 sampling event there were no VOC detections in the trip or field blanks above their PQLs.

Any groundwater sample collected during the Spring 2023 sampling event that contained the same VOC constituent as that detected in the trip or field blank, are reported with a “B” qualifier. A “B” qualifier is assigned to a parameter concentration when that parameter is detected at a similar magnitude to the concentration detected in an associated blank sample.

A duplicate sample was also collected to evaluate the laboratory’s performance. During this sampling event, MW-15A was a duplicate of GWM-10. The duplicate sample was analyzed for the same parameters as the original and was collected simultaneously for proper QA/QC. Calculations were used to report the relative percent difference (RPD) between the original and duplicate sample analysis, to evaluate field sample collection and laboratory analysis method precision. Table 3-4 summarizes the RPD of the detected parameters. The agreement between the detected parameters in the duplicate and corresponding sample was within QC standards, apart from Chromium and Chemical Oxygen Demand. Chromium was detected at a concentration of 0.0036 mg/L in well GMW-10 and 0.0017 mg/L in the duplicate of MW-15A, thus the calculated RPD was greater than 20 percent. Chemical Oxygen Demand was detected at a concentration of 8 mg/L in well GMW-10 and 29 mg/L in the duplicate of MW-15A, thus the calculated RPD was greater than 20 percent. It should also be noted that 2-Butanone and Beryllium exhibited different concentrations in well GWM-10 and duplicate of MW-15A with one of the concentrations at non-detect. 2-Butanone was detected at a concentration of 12.8 µg/L in well GMW-10 and was non-detect in the duplicate of MW-15A. Beryllium was non-detect in well GMW-10 and was detected at a concentration of 0.00049 J mg/L in the duplicate of MW-15A.

Sample comments regarding laboratory analyses are included in the laboratory reports and are presented in Appendix C. MES communicates with ALS regarding QC samples being reported outside the control limits and works, collectively, to minimize data quality control concerns. It should be noted that reporting limits for various MDE Table I and II parameters do not meet their assigned PQLs, but the lab reports results with a parameter's Method Detection Limit (MDL) that is well under the reporting limit, noted with a J qualifier. A parameter's reporting limit and MDL is influenced by a multitude of factors including: the method, instrument, technician, etc. ALS Middletown, Pennsylvania is an accredited lab and approved by MDE to analyze drinking water samples using EPA-approved methodology.

#### **4.0 GROUNDWATER ANALYTICAL RESULTS**

Field and analytical data for groundwater samples has been reviewed and a summary of the results is presented in this section. Analytical results are presented in daily event summary tables in Appendix D. Concentrations of a parameter which exceed an established maximum contaminant level (MCL), action level, or other health standard are shaded in these tables. A full list of MDE established PQL(s) and the actual laboratory PQLs are presented in Tables 3-2 and 3-3.

Sample logs for groundwater monitoring wells are presented in Appendix B. ALS laboratory analytical results, laboratory validation, and sample chain of custody records for all samples are included in Appendix C. A time series table of all historical analytical data for each groundwater well is presented in Appendix E.

In accordance with the ESL EMP and Refuse Disposal Permit, leachate samples identified as L-1 and L-2 were collected, in addition to the groundwater monitoring and supply wells. All samples were analyzed for VOCs, water quality parameters, and metals listed in Tables I and II of Appendix A. The leachate results are not comparable to MCLs; instead, they are evaluated using the Maximum Concentration of Contaminants for Toxicity Characteristic in the Toxicity Characteristic Leaching Procedure (TCLP). No detected concentrations

exceeded the applicable TCLP limits during this monitoring event. Results are presented as Event Summary Tables in Appendix D; and time series tables of all historical analytical data for each leachate sampling location is presented in Appendix E.

#### **4.1 Volatile Organic Compounds**

Samples collected from groundwater monitoring wells were analyzed for volatile organic compounds (VOCs) using Methods 8260 and 8011. Since VOC method 8260 is not sensitive enough to detect DBCP and EDB at their MCLs, VOC method 8011 is utilized to demonstrate compliance. The list of reported VOCs has been established by MDE to comply with regulatory requirements of the Refuse Disposal Permit. Appendix D presents groundwater analytical results for VOCs and their respective concentrations, if detected. Copies of laboratory results are included in Appendix C.

During the Spring 2023 Environmental Monitoring Event, the laboratory analysis reported the following Volatile Organic Compound (VOC) detections summarized in Table 4-1 on the following page.

**Table 4-1: Summary of VOC Detections in Groundwater**

Parameter	MDE PQL	Compliance Limit	GWM-2*	GWM-4	GWM-6	GWM-9*	GWM-10
<i>Benzene</i>	1	<b>5</b>	--	--	11.1	--	--
Bromomethane	1	<b>0.75</b>	--	--	--	--	--
2-Butanone	5	700	--	--	--	--	12.8
<i>Chloroform</i>	1	<b>80</b>	--	--	--	20.3	--
<i>1,4-Dichlorobenzene</i>	1	<b>75</b>	--	1.3	--	--	--
<i>Ethyl Benzene</i>	1	<b>700</b>	--	--	11.9	--	--
Methyl t-Butyl Ether	2	20	1.1	1	4.8	--	--

Parameter	MDE PQL	Compliance Limit	GWM-11	GWM-12	GWM-16D	GWM-17S	GWM-17D
<i>Benzene</i>	1	<b>5</b>	--	--	--	--	--
Bromomethane	1	<b>0.75</b>	--	--	0.85 J	--	--
2-Butanone	5	700	--	--	--	--	--
<i>Chloroform</i>	1	<b>80</b>	--	--	--	--	--
<i>1,4-Dichlorobenzene</i>	1	<b>75</b>	2.4	--	--	1.9	1.4
<i>Ethyl Benzene</i>	1	<b>700</b>	--	--	--	--	--
Methyl t-Butyl Ether	2	20	1.1	2.3	--	--	--

- (1) All concentrations reported in µg/L
- (2) Dark shading indicates Compliance Limit exceedance
- (3) Compliance limit indicates a MCL, Secondary EPA MCL (SMCL) or Maryland Generic Numeric Cleanup Standard (MDE clean-up standard)
- (4) ***Bold and Italicized*** parameters indicates an MCL Compliance Limit
- (5) \* - Indicates a Background Well

Patapsco Aquifer (shallow)	Arundel Formation	Patuxent Aquifer (deep)
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All detections, with the exception of Benzene in GWM-6 and Bromomethane in GWM-16D were at or below the established MCL, secondary EPA MCL (SMCL), or Maryland Generic Numeric Cleanup Standard (MDE clean-up standard). In GWM-6, Benzene was detected above its MCL of 5 µg/L, and is readily attributable to the 1988 diesel fuel UST leak located near the maintenance building at ESL. Presently, liquid petroleum hydrocarbon (LPH) is monitored and recovered at the ESL semi-annually from several extraction and monitoring wells located within the area impacted by the 1998 diesel fuel UST leak. The MDE Oil Control Program (OCP) is provided with a summary of all monitoring activities performed concerning Case No. 90-2554 BA4 in the LPH Monitoring and Mitigation Semi-Annual Status Report. This Case is currently seeking closure. Benzene concentrations in GWM-6, background wells GWM-2 and GWM-9, and downgradient monitoring well GWM-14 are presented graphically in Figure 4-1.

## 4.2 Water Quality Parameters

Water quality parameters can be useful in determining the relative quality of groundwater and the impacts from sources of chemical constituents. This list includes pH, specific conductance, turbidity, total alkalinity, hardness, chloride, nitrate, total dissolved solids (TDS), and chemical oxygen demand (COD). Of this list, only nitrate and turbidity have established drinking water MCLs (10 mg/L and 5 NTU respectively). SMCLs are also monitored and include pH (6.5-8.5), chloride (250 mg/L), sulfate (250 mg/L) and TDS (500 mg/L). National Secondary Drinking Water Regulations (NSDWRs or secondary standards) are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. EPA recommends secondary standards but does not require water systems to comply with them.

Target holding times for water quality parameters are listed in Table 3-3; and all analyses were completed within the allowable holding times.

Appendix D presents daily event summaries of groundwater analytical results for water quality parameters for this monitoring event, in tandem with MDE Table II metal parameters. Copies of laboratory results are available in Appendix C. A summary of the Water Quality Parameters exceeding their MCL, SMCL, or MDE clean-up standard is found in Table 4-2 on the following page.

**Table 4-2: Summary of Water Quality Parameters Detected Above Compliance Limit in Groundwater**

Parameter	MDE PQL	Compliance Limit	GWM-1	GWM-2*	GWM-3	GWM-8
<i>Turbidity</i>	0.11	5	11.53	21.41	8.1	26.51
pH	0.1 (SU)	6.5 - 8.5 (SU)	--	Refer to report text below		

**Table 4-2 continued**

Parameter	MDE PQL	Compliance Limit	GWM-14	GWM-15D	GWM-16D*
<i>Turbidity</i>	0.11	5	7.59	15.85	16.23
pH	0.1 (SU)	6.5 - 8.5 (SU)	Refer to report text below		

- (1) All concentrations reported in µg/L
- (2) Dark shading indicates Compliance Limit exceedance
- (3) Compliance limit indicates a MCL, Secondary EPA MCL (SMCL) or Maryland Generic Numeric Cleanup Standard (MDE clean-up standard)
- (4) ***Bold and Italicized*** parameters indicates an MCL Compliance Limit
- (5) \* - Indicates a Background Well

Patapsco Aquifer (shallow)	Arundel Formation	Patuxent Aquifer (deep)
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pH readings were outside the SMCL range (6.5 to 8.5) in all groundwater wells except for GWM-1 of the Arundel formation. All numerical pH readings for the groundwater wells are presented in Appendix D Event Summary Tables.

### 4.3 Metals

Samples collected from groundwater wells during the Spring 2023 sampling event were analyzed for MDE Table II metal parameters by ALS Environmental Laboratories. Laboratory reports are provided in Appendix C. Appendix D presents daily Event Summaries of groundwater analytical results for metal and water quality parameters.

During the 2023 Spring Environmental Monitoring Event, the laboratory analysis reported the following MDE Table II metal detections above their MDE clean-up standard, or SMCL, summarized in Table 4-3 on the following page.



**Table 4-3: Summary of Metal Parameters Detected Above Compliance Limit in Groundwater**

Parameter	MDE PQL	Compliance Limit	GWM-1*	GWM-2*	GWM-4	GWM-5A	GWM-6
<i>Cadmium</i>	0.004	<b>0.005</b>	--	--	--	--	--
Iron	0.056	0.3	--	--	1.8	2	82.1
<i>Lead</i>	0.002	<b>0.015</b>	--	--	--	--	--
Manganese	0.01	0.043	--	0.15	0.76	1	0.48
<i>Mercury</i>	0.0002	<b>0.002</b>	--	--	--	--	--
<i>Nickel</i>	0.011	<b>0.039</b>	--	0.087	--	--	--
<i>Vanadium</i>	0.01	<b>0.0086</b>	0.014	--	--	--	--

**Table 4-3 Continued**

Parameter	MDE PQL	Compliance Limit	GWM-8	GWM-9*	GWM-10	GWM-11	GWM-12
<i>Cadmium</i>	0.004	<b>0.005</b>	--	--	0.0052	--	--
Iron	0.056	0.3	0.95	--	--	69.2	--
<i>Lead</i>	0.002	<b>0.015</b>	--	--	--	--	--
Manganese	0.01	0.043	0.045	0.068	0.11	2.5	--
<i>Mercury</i>	0.0002	<b>0.002</b>	--	--	--	--	0.0026
<i>Nickel</i>	0.011	<b>0.039</b>	--	--	0.06	--	--
<i>Vanadium</i>	0.01	<b>0.0086</b>	--	--	--	--	--

**Table 4-3 Continued**

Parameter	MDE PQL	Compliance Limit	GWM-14	GWM-15D	GWM-17D	GWM-17S	GWM-19D
<i>Cadmium</i>	0.004	<b>0.005</b>	--	--	--	--	--
Iron	0.056	0.3	55.6	--	--	102	--
<i>Lead</i>	0.002	<b>0.015</b>	--	--	--	--	--
Manganese	0.01	0.043	2.9	0.98	3.4	7.6	0.058
<i>Mercury</i>	0.0002	<b>0.002</b>	--	--	--	--	0.0023
<i>Nickel</i>	0.011	<b>0.039</b>	--	--	0.065	--	--
<i>Vanadium</i>	0.01	<b>0.0086</b>	--	--	--	--	--

**Table 4-3 Continued**

Parameter	MDE PQL	Compliance Limit	SMW-13	SMW-32
<i>Cadmium</i>	0.004	<b>0.005</b>	--	--
Iron	0.056	0.3	--	--
<i>Lead</i>	0.002	<b>0.015</b>	0.02	--
Manganese	0.01	0.043	0.046	0.068
<i>Mercury</i>	0.0002	<b>0.002</b>	--	0.0034
<i>Nickel</i>	0.011	<b>0.039</b>	0.051	0.07
<i>Vanadium</i>	0.01	<b>0.0086</b>	--	--

(1) All concentrations reported in µg/L

(2) Dark shading indicates Compliance Limit exceedance

(3) Compliance limit indicates a MCL, Secondary EPA MCL (SMCL) or Maryland Generic Numeric Cleanup Standard (MDE clean-up standard)

(4) **Bold and Italicized** parameters indicates an MCL Compliance Limit or Action Level

(5) \* - Indicates a Background Well

Patapsco Aquifer (shallow)      Arundel Formation      Patuxent Aquifer (deep)

Historically, Mercury has been detected in wells downgradient from the landfill. All wells with historical Mercury detections are presented as a time-series graph in Figure 4-2. The figure shows increased concentrations in all wells after switching to low flow sampling in Fall 2013, then generally decreasing concentrations over time except for well GWM-15D, located at the Relative Point of Compliance (RPOC). Monitoring well GMW-15D, near the RPOC, has always been non-detect.

#### 4.4 Assessment Monitoring

In accordance with 40 CFR 258.55, samples were collected during the Spring 2023 monitoring event from groundwater monitoring wells:

<b>Patapsco Aquifer</b>	<b>Patuxent Aquifer</b>
GWM-2 (background)	GWM-16D (background)
GWM-4	GWM-17D
GWM-9 (background)	
GWM-17S	

Samples collected from these wells were analyzed for the following organochlorides (as approved by the MDE):

4,4'-DDD	alpha-BHC	Dieldrin	Endrin	Heptachlor Epoxide
4,4'-DDE	beta-BHC	Endosulfan I	Endrin Aldehyde	Methoxychlor
4,4'-DDT	Chlordane	Endosulfan II	gamma-BHC	Toxaphene
Aldrin	delta-BHC	Endosulfan Sulfate	Heptachlor	

Background monitoring well GMW-16D was first added to the assessment monitoring program during the Fall 2021 sampling event and sampled for organochloride pesticides to establish background concentrations for the Patuxent aquifer.

Wells GWM-1, GWM-3, and GWM-11 are no longer sampled for assessment monitoring parameters of organochloride pesticides. Wells GWM-1 and GWM-11 of the Arundel

formation were no longer sampled, beginning with the Fall 2021 sampling event. Monitoring well GWM-3 was analyzed once for organochloride pesticides during the Fall 2021 sampling event to determine a presence of constituents between background well GWM-2 and downgradient wells GWM-4 and GWM-17S of the Patapsco aquifer monitoring network. Monitoring well GWM-3 was non-detect for all organochloride pesticides during the Fall 2021 monitoring event and is therefore no longer monitored for organochloride pesticides. Historical groundwater analytical results for organochloride pesticides for GWM-1, GWM-3, and GWM-11 are presented in Appendix E.

During the 2023 Spring Environmental Monitoring Event, the laboratory analysis reported the following organochloride pesticide detections above their MDE clean-up standard summarized in Table 4-4 below.

**Table 4-4: Summary of Organochloride pesticide Parameters Detected Above Compliance Limit in Groundwater**

Parameter	MDE PQL	Compliance Limit	GWM-2*	GWM-4	GWM-17D	GWM-17S
Dieldrin	0.023	0.0018	0.0189	0.00669	0.00488	0.00408

(1) All concentrations reported in µg/L

(2) "Compliance Limit" indicates MDE Clean-up Standard/Groundwater protection standard

(3) \* - Indicates a Background Well

Patapsco Aquifer (shallow)	Arundel Formation	Patuxent Aquifer (deep)
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There is no established MCL for dieldrin; however, the MDE clean-up standard for dieldrin is 0.0018 µg/L. In accordance with 40 CFR 258.55, a groundwater protection standard (GWPS) is equivalent to the MDE clean-up standard (0.0018 µg/L) and has been established for dieldrin at the ESL.

Dieldrin concentrations by well are presented in a time-series graph in Figure 4-3. The graph in Figure 4-3 suggests that background well GWM-2 generally has higher Dieldrin concentrations than compliance wells, and that there are two (2) overall patterns of decreasing Dieldrin concentrations throughout time. Historically, the pattern of Dieldrin concentrations appear to have two (2) downward decreasing patterns; the first decreasing pattern of Dieldrin concentrations range from 2015 to 2019, the second decreasing pattern

occurred in 2020 to present, when concentrations increased in 2020 then began to steadily decrease. It should be noted that the graph shows a dramatic decrease in Dieldrin for all wells during the Spring 2022 sampling event because the samples were analyzed at a higher reporting limit this monitoring event, resulting in non-detect values. During this monitoring event, Dieldrin was analyzed using the lower reporting limits, which is evident in Figure 4-3.

Results for all organochloride pesticide analyses are summarized in daily Event Summary Tables in Appendix D. Copies of laboratory results are included in Appendix C of this report.

## **5.0 SURFACE WATER**

### **5.1 Surface Water Monitoring**

During the Spring 2023 sampling event, one (1) surface water location (SW-1) was sampled. SW-1 is located adjacent to the outfall for Basin 1. See Figure 2-1.

This section summarizes the results from the Spring 2023 sampling event for SW-1.

### **5.2 Surface Water Sampling Procedure**

BSWM personnel performed surface water sampling at ESL during the Spring 2023 sampling event. Turbidity, pH, and specific conductance were measured in the field during the sampling. The SW-1 sample was obtained using containers that contained preservative that were not filled to overflowing and were thoroughly mixed after filling. SW-1 was analyzed for Table I VOCs and Table II Dissolved Metals and Water Quality Parameters with the referenced PQL established by MDE, found in Appendix A. The surface water sample ID and sampling parameters are listed in Table 3-1. The monitoring parameters for VOCs are listed in Table 3-2, and the monitoring parameters for Water Quality Parameters and Dissolved Metals are presented in Table 3-3.

### **5.3 Surface Water Analytical Results**

Samples collected from surface water sampling location, SW-1, during the Spring 2023 sampling event were analyzed by ALS Environmental Laboratories. Per the request of MDE, surface water samples are analyzed for dissolved metals instead of total metals, beginning with the Fall 2022 monitoring event. However, the surface water sample collected during the Spring 2023 monitoring event was mistakenly analyzed for total metals. Further explanation can be found in a lab letter at the end of Appendix C.

All Table I and Table II parameters will be compared to the standards listed in COMAR 26.08.02.03-2 - Numerical Criteria for Toxic Substances (NCTS) in Surface Waters. Laboratory reports are provided in Appendix C. Surface water analytical data for the Spring 2023 sampling event is summarized in Appendix D. Historical time series tables for surface water sample, SW-1, are presented in Appendix E.

#### **5.3.1 Volatile Organic Compounds**

During the Spring 2023 Surface Water Monitoring Event, no VOC detections were reported above their MDE PQL in the surface water sample, SW-1.

#### **5.3.2 Water Quality Parameters**

During the Spring 2023 Surface Water Monitoring Event, the laboratory analysis reported no detections in water quality parameters above their NCTS in the surface water sample, SW-1.

#### **5.3.3 Metals**

During the Spring 2023 Surface Water Monitoring Event, the laboratory analysis reported one (1) metal detection above its NCTS in surface water sample, SW-1, as shown in Table 5-3 on the following page.

**Table 5-3: Summary of Metals Detected Above Compliance Limit in Surface Water**

<b>Parameter</b>	<b>MDE PQL</b>	<b>NCTS</b>	<b>SW-1</b>
Total Arsenic	0.023	0.00018	0.0014 J

(1) All concentrations reported in µg/L

During the Spring 2023 Surface Water Monitoring Event, no water quality parameters were detected above their NCTS in the surface water sample, SW-1.

## **6.0 STATISTICAL EVALUATION**

The statistical evaluation was performed on the wells screened in the Patapsco (shallow) and Patuxent (deep) aquifers using analytical data obtained with low-flow sampling techniques from the Fall 2013 sampling event through the Spring 2023 sampling event. The Spring 2023 sampling event was the twentieth consecutive event where low-flow sampling techniques were employed for groundwater sampling at the ESL. The evaluation was performed by Maryland Environmental Service (MES) in general accordance with 40 CFR, Part 258.53. Specific methods used in this analysis are outlined in the most recent update to the EMP (2023). A commercially available software package (ChemStat) was utilized to statistically evaluate the data. Flow charts for the inter-well and updated intra-well statistical analyses as well as completed statistical analysis results are available in Appendix F.

### **6.2 Data Analysis and Treatment**

Statistical analysis was performed on all parameters that were detected above the practical quantitation limit (PQL) during the most recent sampling event with the exception of VOCs. Any VOC detection without a J qualifier was also included in the statistical analysis and treated as an estimated concentration. The data was not transformed and only parent samples were used; duplicate samples were not incorporated into the analysis.

Inter-well evaluations used the Wilcoxon Non-Parametric Inter-Well Test for hypothesis testing. This Wilcoxon Non-Parametric Inter-Well Test is a version of the nonparametric generalized Wilcoxon rank sum test (also known as the Gehan modification) which can handle datasets that have non-detects with multiple RLs without having to substitute an arbitrary value such as one-half the RL.

Intra-well evaluations used a modified statistical method that was described in the ESL 2022 EMP that is still consistent with USEPA recommendations (USEPA 2015 and USEPA 2009) and was approved by MDE in correspondence from June 10, 2022. For baseline data consisting of non-detects, intra-well UPLs were computed by setting all non-detects to zero.

## **6.4 Statistical Test Methods**

### **6.4.1 The Generalized Wilcoxon Rank Sum Non-Parametric Inter-Well Test**

The generalized Wilcoxon rank sum non-parametric (i.e., Gehan) inter-well test was used to compare compliance wells against background by comparing the mean/median of each compliance well to its designated background well(s). This nonparametric comparison is based on the ranks of sample measurements rather than actual sample concentrations; therefore, there are no assumptions made regarding the distribution of the sample data. The Gehan test is also useful when a high percentage of the data is non-detect and the amount of available background data is limited. The test statistic ( $G$ ) consists of the normalized sum of the ranks (adjusted for ties and non-detects) of the compliance well measurements and is compared against a right-tailed p-value at the 99 percent (%) significance level (i.e., type I error rate  $\alpha = 1\%$ ). If the p-value is less than 0.01, the null hypothesis of equal means/medians was rejected, demonstrating a statistically significant increase (SSI) in a parameter concentration over the background concentration. Consistent with the Unified Guidance (USEPA 2009), a Type I error rate of 1% was used to control the site-wide false positive error rate associated with conducting multiple comparisons of approximately 10 monitoring wells to approximately 5%.

Analytical data from GWM-2 and GWM-9 were used as the background data set for this test for wells screened in the Patapsco Aquifer and GWM-16D for the Patuxent Aquifer.

#### **6.4.2 Intra-Well Test**

Intra-well tests were performed on the dataset to determine if parameter concentrations at downgradient or cross-gradient wells were elevated with respect to the historical concentrations measured for that well (baseline). This is of particular importance as several factors not attributable to a suspected release from the landfill, can cause downgradient data to be statistically significantly elevated with respect to background. These include natural geographic variations in geochemistry, the cut-off of groundwater recharge to the area where the landfill cell is situated, relic contamination, or the presence of an alternate source. At the ESL, a documented diesel fuel leak occurred in 1988, constituting an alternate source of contamination. Corrective measures addressing the contamination associated with this leak are currently being implemented. A number of volatile organic compound (VOC) detections, particularly in monitoring well GWM-6, are associated with this alternate source.

Intra-well baseline data was defined as the first eight (8) samples since low flow sampling was initiated (Fall 2013). The distribution of the detected baseline data was characterized as normally distributed or not-normally distributed using the Shapiro/Wilks-Francia Test for Normality at the 95% UPL in USEPA's ProUCL Technical Guidance (version 5.1). This portion of the statistical process differs from the process outlined in the 2022 EMP. MDE has been notified of these modifications in an email correspondence dated on June 7, 2022 and was accepted on June 10, 2022. These modifications will be incorporated into a revised version of the EMP once the review of the February 2022 EMP is completed.

For parametric data sets, the 95% UPL was calculated based on the normal distribution. In accordance with USEPA recommendations (USEPA 2015 and USEPA 2009), the Normal-Parametric Prediction Limit (Intra-well) test using the USEPA 1989/1992 Formula at 95% was used to determine an SSI for a parameter in a monitoring well. For nonparametric data



sets, the Non-Parametric Predictions Limit (Intra-well) test was used to determine an SSI for a parameter in a monitoring well.

Intra-well analysis for GWM-17S, screened in the Patapsco Aquifer, and for wells GWM-17D and GWM-19D, screened in the Patuxent Aquifer was performed during this monitoring event, as the required eight data sets have been obtained.

## **6.5 Statistical Analysis Results**

The results of the statistical analysis are summarized in this section, where SSIs above background or potential SSIs above baseline are indicated. A tabular summary of the statistical analysis can be found at the end of this section in Table 6-1.

### **6.5.1 Volatile Organic Compounds**

Inter-well analyses were not required for VOCs, as most VOCs are not naturally occurring and are not influenced by spatial variation in natural groundwater quality. It is assumed that any legitimate VOC detection in the downgradient or cross-gradient monitoring wells represents an SSI over background. An exception is for MTBE in the Patapsco Aquifer wells. Inter-well analyses were performed for in the Patapsco aquifer for MTBE because it is regularly detected in background well GWM-2. Inter-well analyses were also performed for chloroform in the Patapsco Aquifer because it was detected in background well GWM-9 during this monitoring event. An Inter-well analysis was performed for bromomethane in the Patuxent Aquifer because it was detected in background well GWM-16D during this monitoring event. SSIs over background were observed for the following VOCs during the Spring 2023 sampling event below:

#### ***Patapsco Aquifer***

- MTBE in well GWM-4.
- Benzene, ethylbenzene, and MTBE, in well GWM-6.

### *Patuxent Aquifer*

- 1-4 Dichlorobenzene in well GWM-17D.

#### **6.5.1.1 Patapsco Aquifer**

Inter-well analyses for background wells GWM-2 and GWM-9 and compliance wells GWM-3, GWM-4, GWM-5A, GWM-6, GWM-14, and GWM-17S screened in the Patapsco Aquifer were performed for MTBE and Chloroform. All other listed inter-well SSIs are considered SSIs from current VOC detections in the downgradient or cross-gradient monitoring wells.

Intra-well analyses for compliance wells GWM-3, GWM-4, GWM-5A, GWM-6, and GWM-14 screened in the Patapsco Aquifer were performed for benzene, chloroform ethylbenzene, and MTBE. The results of the statistical analysis for Patapsco Aquifer VOCs are summarized in Table 6-1 at the end of this section.

There were four (4) inter-well SSIs and zero (0) intra-well SSIs in the Patapsco Aquifer for VOCs. The inter-well statistical analysis confirmed the SSIs for MTBE in wells GWM-4 and GWM-6 and confirmed that there were no SSIs for chloroform that was detected in upgradient well GWM-9 this monitoring event. While inter-well SSIs were detected over background, the absence of intra-well SSIs in background monitoring wells during this monitoring period may indicate that VOC concentrations within background wells have not significantly increased in the Patapsco Aquifer background wells over time.

#### **6.5.1.2 Patuxent Aquifer**

Inter-well analyses for background wells GWM-16D and compliance wells GWM-15D, GWM-17D, GWM-19D, SMW-13, and SMW-32 screened in the Patuxent Aquifer were performed for bromomethane, as it was detected above its MDE clean-up standard in background well GWM-16D during this monitoring event.

Intra-well analyses for compliance wells GWM-15D, GWM-17D, GWM-19D, SMW-13, and SMW-32 screened in the Patuxent Aquifer were performed for bromomethane and 1-4 dichlorobenzene. The results of the statistical analysis for Patuxent Aquifer VOCs are summarized in Table 6-1 at the end of this section.

There were no inter-well SSIs or intra-well SSIs in the Patuxent Aquifer for VOCs. The inter-well statistical analysis confirmed that there were no SSIs for Bromomethane that was detected in upgradient well GWM-16D during this monitoring event. While inter-well SSIs were detected over background, the absence of intra-well SSIs in background monitoring wells during this monitoring period may indicate that VOC concentrations within background wells have not significantly increased in the Patuxent Aquifer background wells over time.

### **6.5.2 Assessment Monitoring for Organochloride Pesticides**

An SSI for organochloride pesticides was determined by assessing the presence of a constituent between downgradient or cross-gradient wells and upgradient wells. To clarify, neither inter-well nor intra-well statistics were analyzed on the organochloride pesticide parameters, however detections were compared in downgradient or cross-gradient wells to background conditions. The following wells were analyzed for organochloride pesticides during this monitoring event: background wells GWM-2, and GWM-9 in the Patapsco Aquifer, GWM-16D in the Patuxent Aquifer, and compliance wells GWM-4, and GWM-17S in the Patapsco Aquifer, and GWM-17D in the Patuxent Aquifer.

One (1) SSI was detected in well GWM-17D in the Patuxent Aquifer for Dieldrin during this monitoring event. Dieldrin was detected above its groundwater protection standard in the compliance well GWM-17D but was non-detect in background well GWM-16D and is therefore considered an SSI over background in the Patuxent Aquifer. The SSI is noted in Table 6-1 at the end of this section.

### **6.5.3 Water Quality Parameters**

Statistical analyses were performed on each of the water quality parameters monitored under the detection monitoring program because these parameters were detected during the Spring 2023 sampling event. Inter-well SSIs over background geochemical concentrations were identified for all water quality parameters. In general, the identified groundwater SSIs are attributable to spatial variability and are not necessarily indicative of ongoing impacts related to the landfill.

Intra-well SSIs over baseline geochemical concentrations indicate that the most recent concentration for a given well is statistically elevated with respect to historical data from that well. Intra-well SSIs are generally indicative of increasing concentrations over time; however, with small data sets, these increases may be due to natural or seasonal variations in groundwater geochemistry. Increases over time may also be attributable to a cutoff in groundwater recharge over the area of the landfill or periodic landfill construction activities.

Of particular concern are parameters that exhibit both inter-well (background) SSIs and intra-well (baseline) SSIs, as these may indicate a degradation of groundwater quality, largely independent of natural spatial variability in the formation.

#### **6.5.3.1 Patapsco Aquifer**

Inter-well analyses for background wells GWM-2 and GWM-9 and compliance wells GWM-3, GWM-4, GWM-5A, GWM-6, GWM-14, and GWM-17S screened in the Patapsco Aquifer were performed for all water quality parameters.

Intra-well analyses for compliance wells GWM-3, GWM-4, GWM-5A, GWM-6, and GWM-14 screened in the Patapsco Aquifer were performed for all water quality parameters.

The results of the statistical analysis for Patapsco Aquifer water quality parameters are summarized in Table 6-1 at the end of this section.

The statistical analyses detected forty (40) inter-well SSIs and twelve (12) intra-well SSIs in the Patapsco Aquifer for water quality parameters. There were four (4) parameters that exhibited both inter-well and intra-well SSIs in three (3) monitoring wells during this monitoring event (chemical oxygen demand and specific conductivity in well GWM-4, chemical oxygen demand in well GWM-6, and ammonia nitrogen, chemical oxygen demand, hardness, and specific conductivity in well GWM-17S).

### **6.5.3.2 Patuxent Aquifer**

Inter-well analyses for wells screened in the Patuxent Aquifer were performed for all water quality parameters since four required data sets for background well GWM-16D have been obtained. Background well GWM-16D was used in the inter-well analysis with compliance wells GWM-15D, GWM-17D, GWM-19D, SWM-13, and SWM-32.

Intra-well analyses were performed for wells GWM-15D, GWM-17D, GWM-19D, SWM-13, and SWM-32. The results of the statistical analysis for the Patuxent Aquifer water quality parameters are summarized in Table 6-1 at the end of this section.

The statistical analyses detected nine (9) inter-well SSIs and eleven (11) intra-well SSIs in the Patuxent Aquifer for water quality parameters. There were two (2) parameters that exhibited both inter-well and intra-well SSIs in two (2) monitoring wells during this monitoring event (specific conductivity in well GWM-15D, and hardness and specific conductivity in well GWM-17D). None of these SSIs were detected above their compliance limit in their respective wells during this monitoring event.

## **6.5.4 Metals**

Statistical analyses were performed on all metal parameters listed in MDE Table II. In general, inter-well SSIs are more attributable to spatial variability in a formation and may not necessarily be indicative of ongoing impacts related to the landfill. However, a specific list of inorganic constituents listed in Appendix I in 40 CFR 258 are considered noteworthy for detection monitoring for inter-well analyses, according to 40 CFR 258.54(c). The list of inorganic parameters in Appendix I 40 CFR 258 includes: Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc.

Intra-well SSIs represent concentrations where the more recent sampling data are statistically elevated compared to historical data from a particular well and are generally indicative of increasing concentrations over time. This can be attributable to a cutoff in groundwater recharge over the area of the landfill or periodic landfill construction activities. With the smaller data set of baseline data, SSIs over baseline may be triggered even where metal concentrations are consistent with historical levels. Of particular concern are parameters that exhibit both inter-well SSIs and intra-well SSIs, as this may indicate a degradation of groundwater quality, largely independent of natural spatial variability in the formation. Most SSIs over background are consistent with the historical record. The results from the inter-well analysis and intra-well analysis on MDE Table II parameters from the Spring 2023 sampling event are presented below and compared to the Appendix I 40 CFR 258 list of inorganic constituents.

### **6.5.4.1 Patapsco Aquifer**

Inter-well analyses for background wells GWM-2 and GWM-9 and compliance wells GWM-3, GWM-4, GWM-5A, GWM-6, GWM-14, and GWM-17S screened in the Patapsco Aquifer were performed for all MDE Table II metal parameters.

Intra-well analyses for compliance wells GWM-3, GWM-4, GWM-5A, GWM-6, and GWM-14 screened in the Patapsco Aquifer were performed for all MDE Table II metal parameters.

The results of the statistical analysis for Patapsco Aquifer MDE Table II metal parameters are summarized in Table 6-1 at the end of this section.

The statistical analyses detected thirty-nine (39) inter-well SSIs and nine (9) intra-well SSIs in the Patapsco Aquifer for metal parameters listed in MDE Table II. Of the thirty-nine (39) inter-well SSIs, ten (10) were found on the 40 CFR 258 Appendix I list for Arsenic, Barium, and Cobalt. Of the nine (9) intra-well SSIs, three (3) were found on the 40 CFR 258 Appendix I list for barium, cobalt, and thallium. Barium, cobalt, and thallium in well GWM-17S were the Appendix I parameters that exhibited SSIs in both the inter-well and intra-well analyses. Non-Appendix I parameters exhibited SSIs in both inter-well and intra-well analyses include: calcium, iron, magnesium, and manganese in well GWM-17S. It should also be noted that none of the parameters detected in wells with Appendix I SSIs exceeded their compliance limit during this monitoring event; the only SSIs with a compliance limit exceedance during this monitoring event are for iron and manganese in wells GWM-4, GWM-5A, GWM-6, GWM-14, and GWM-17S.

#### **6.5.4.2 Patuxent Aquifer**

Inter-well analyses for wells screened in the Patuxent Aquifer were performed for metals using background well GWM-16D and compliance wells GWM-15D, GWM-17D, GWM-19D, SWM-13, and SWM-32.

Intra-well analyses have been performed for compliance wells GWM-15D, GWM-17D, GWM-19D, SWM-13, and SWM-32.

The results of the statistical analysis for Patuxent Aquifer metals are included below and are summarized in Table 6-1 at the end of this section.

The statistical analyses detected twenty-eight (28) inter-well SSIs and eleven (11) intra-well SSIs in the Patuxent Aquifer for metal parameters listed in MDE Table II. Of the twenty-eight (28) inter-well SSIs, eighteen (18) were found on the 40 CFR 258 Appendix I list for barium, beryllium, cobalt, copper, lead, nickel, vanadium, and zinc. Of the seven (7) intra-well SSIs, four (4) were found on the 40 CFR 258 Appendix I list for barium, beryllium, cobalt, copper, lead, nickel, thallium, and zinc. It should be noted that cobalt had both intra-well and inter-well SSIs in wells GMW-17D and GMW-19D and nickel had both intra-well and inter-well SSIs in well SMW-32. While not Appendix I parameters, calcium was both an inter and intra-well SSI in well GMW-15D, manganese was both an inter and intra-well SSI in well GWM-15D and GMW-17D, and mercury was both an inter and intra-well SSI in well SMW-32. The following Appendix I parameter SSIs exceeded their compliance limit during this monitoring event: lead in well SMW-13, and nickel in wells GWM-17D, SMW-13, and SMW-32. Other SSIs with compliance limit exceedances during this monitoring event are for mercury in wells GMW-19D and SMW-32, and manganese in wells GWM-15D, GWM-17D, and SMW-32.



**Table 6-1 - Summary of Inter-well Statistical Results**

Parameter	GROUNDWATER MONITORING WELLS										
	Patapsco Aquifer (shallow)						Patuxent Aquifer (deep)				
	GWM-3	GWM-4	GWM-5A	GWM-6	GWM-14	GWM-17S	GWM-15D	GWM-17D	GWM-19D	SMW-13	SMW-32
<b>VOC's</b>											
Benzene				↑							
Bromomethane											
Chloroform											
1-4-Dichlorobenzene								↑			
Ethylbenzene				↑							
MTBE		↑*		↑*							
<b>Assessment Monitoring Parameters</b>											
Dieldrin								↑			
<b>Water Quality Parameters</b>											
Alkalinity	↑	↑	↑	↑	↑	↑		↑			
Ammonia Nitrogen		↑			↑	↑					
Chemical Oxygen Demand		↑		↑	↑	↑					
Chloride		↑									
Hardness		↑	↑	↑	↑	↑	↑	↑		↑	
Nitrate	↑									↑	
pH		↑	↑	↑	↑	↑					
Specific Conductivity		↑	↑		↑	↑	↑	↑			
Sulfate, total	↑	↑	↑		↑	↑	↑				
Total Dissolved Solids		↑	↑		↑	↑		↑			
Turbidity					↑	↑					
<b>Metals</b>											
Antimony, total											
Arsenic, total		↑		↑	↑	↑					
Barium, total		↑	↑			↑		↑			
Beryllium, total											↑
Cadmium, total											
Calcium, total		↑	↑	↑	↑	↑	↑	↑			
Chromium, total											
Cobalt, total				↑	↑	↑	↑	↑	↑	↑	↑
Copper, total									↑	↑	
Iron, total		↑	↑	↑	↑	↑					
Lead, total									↑		
Magnesium, total	↑	↑	↑	↑	↑	↑	↑	↑			
Manganese, total		↑	↑	↑	↑	↑	↑	↑			↑
Mercury, total	↑		↑					↑	↑	↑	↑
Nickel, total								↑		↑	↑
Potassium, total		↑	↑								
Selenium, total											
Silver, total											
Sodium, total		↑						↑			
Thallium, total								↑			
Vanadium, total						↑					
Zinc, total									↑	↑	

Notes:

1. ↑ = Well exhibits an inter-well SSI for analyte
2. Blank cell = No SSI
3. Parameter not analyzed
4. \* = VOC SSI confirmed by inter-well statistical analysis

**Table 6-2 Summary of Intra-well SSIs**

Parameter	GROUNDWATER MONITORING WELLS										
	Patapsco Aquifer (shallow)						Patuxent Aquifer (deep)				
	GWM-3	GWM-4	GWM-5A	GWM-6	GWM-14	GWM-17S	GWM-15D	GWM-17D	GWM-19D	SMW-13	SMW-32
<b>VOC's</b>											
Benzene											
Bromomethane											
Chloroform											
1-4-Dichlorobenzene											
Ethylbenzene											
MTBE											
<b>Water Quality Parameters</b>											
Alkalinity											
Ammonia Nitrogen						↑		↑			
Chemical Oxygen Demand	↑	↑	↑	↑		↑					
Chloride					↑			↑			
Hardness						↑		↑			
Nitrate											
pH											
Specific Conductivity		↑		↑		↑	↑	↑		↑	↑
Sulfate, total									↑		
Total Dissolved Solids				↑			↑				
Turbidity							↑				↑
<b>Metals</b>											
Antimony, total											
Arsenic, total											
Barium, total						↑				↑	
Beryllium, total											
Cadmium, total											
Calcium, total						↑	↑				
Chromium, total						↑		↑			
Cobalt, total						↑		↑	↑		
Copper, total											
Iron, total											
Lead, total											
Magnesium, total						↑					
Manganese, total						↑	↑	↑	↑		
Mercury, total											↑
Nickel, total											↑
Potassium, total											
Selenium, total											
Silver, total											
Sodium, total					↑	↑				↑	
Thallium, total						↑					
Vanadium, total											
Zinc, total											

Notes:

1. ↑ = Well exhibits an intra-well SSI for analyte
2. Blank cell = No SSI
3. Parameter not analyzed

## **7.0 LANDFILL GAS MONITORING**

### **7.1 Perimeter Monitoring Network**

Quarterly landfill gas (LFG) probe readings at the Eastern Sanitary Landfill (ESL) were performed during the months of January and April 2023. Landfill gas readings for this reporting period are presented in Table 2-2.

Landfill gas is not detected in perimeter probes; however, interior LFG probes ESLF006A, ESLF006B, and ESLF008A (located on the southwest side of ESL between the landfill footprint and the perimeter probes along Lorely Beach Road North or Bowerman Road), are monitored monthly, as high methane conditions have been known to be present there. In these probes, the methane readings typically fluctuate above and below the 5% methane concentration as they are thought to be impacted by the performance of the LFG collection system and/or the changing meteorological conditions at the time of LFG sampling. Perimeter probes that are surrounding the area of the aforementioned interior probes are LFG probes ESLF0005, ESLF005A, ESLF0006 and ESLF0009. There were no methane concentrations detected in these probes during the quarterly monitoring events for this reporting period. This confirms that the high methane readings that fluctuate in this area do not reach the perimeter probes.

On the opposite side of the site are landfill gas Probe No. ESLF0025 and ESLF025A, that are located north of the Residents' Drop-Off Center and along the property boundary with Days Cove Road Reclamation Center. This area had previously exhibited LFG migration from the adjacent rubble landfill. Days Cove Road Reclamation Center installed static wells within the landfill footprint in accordance with their Remediation Plan dated July 2009. The January 2010 Addendum to this plan included installing four passive landfill gas vents outside the perimeter of the landfill near Probes ESLF0025 and ESLF0025A; which was completed on July 24, 2012. During this reporting period, methane was not detected in Probes ESLF0025 or ESLF0025A. This improvement in methane concentrations is

likely a positive result from the remediation plan of the adjacent rubble landfill and will continue to be evaluated during future monitoring events.

The Bureau of Solid Waste Management (BSWM) generally meets with the community associations bimonthly. During these meetings the residents are brought up to date on landfill activity and reminded to contact the landfill in the event of any landfill odors. Any community issues are also discussed. BSWM provides six (6) homes with methane detectors and recommends that they are tested twice a year. At these meetings, community associations are reminded to schedule an appointment with the BSWM to have their methane detectors checked. The community associations are also provided with up-to-date contact information for the BSWM for their community bulletins.

## **7.2 On-Site Structures**

Quarterly building scans for on-site structures at the Eastern Sanitary Landfill (ESL) were performed January 31 and June 9, 2023 by BSWM personnel; except for the LFTGE building scan, which was performed on February 20 and May 18, 2023 by SCS Field Services. The on-site structures that are monitored by BSWM include the administration building, maintenance building, operations' trailer, scale house, waste/recycling transfer stations, fire pump room, and water supply shed.

During the 1<sup>st</sup> quarter 2023 monitoring event, methane was detected in the LFGTE facility engine room and office trailer at low concentrations of 690 ppm and 440 ppm, respectively. During the 2<sup>nd</sup> quarter 2023 monitoring event, methane was detected by BSWM personnel in the administration building, maintenance building, operations trailer, and the waste/recycling transfer stations. All concentrations detected were below the compliance limit, and cleaning solutions in several areas were observed, that may have caused cross-contamination of the combustible gas detector's sensor during the building scan. During the 2<sup>nd</sup> quarter 2023 monitoring event, methane was detected again in the LFGTE facility engine room at a low concentration of 120 ppm. The LFGTE facility is well ventilated, and the levels detected are well below the need for corrective action.

In accordance with COMAR 26.04.07.03B(9), the compliance limit for methane concentrations in facility structures is 25% of the lower explosive limit (LEL) (1.25% CH<sub>4</sub> by volume in air or 12,500 ppm). All detections during the 1<sup>st</sup> and 2<sup>nd</sup> quarter monitoring events at ESL were well below the compliance limit.

Additionally, plug-in detectors located in the administration building level 1 hallway and inside the scale house are bump tested during the monitoring events with a concentrate consisting of 50% LEL (2.5% CH<sub>4</sub>). Both detectors were tested and deemed operational during the quarterly monitoring events.

The results for the monitoring of on-site structures during this reporting period are presented in Table 2-3.

## **8.0 SUMMARY**

The monitoring results were reviewed for compliance with the regulatory benchmarks established by MDE. The following section presents a discussion of the results from the 2023 Spring Monitoring Event.

### **8.1 Groundwater**

There were fourteen (14) Volatile Organic Compound (VOC) detections in ten (10) groundwater wells for seven (7) parameters, with one (1) detection above its EPA MCL, and one (1) detection above its Maryland Generic Numeric Cleanup Standard (MDE clean-up standard) during the Spring 2023 monitoring event.

- Benzene was detected above its EPA MCL (5 µg/L) in well GWM-6 (11.1 µg/L).
- Bromomethane was detected above its MDE clean-up standard (0.75 µg/L) in background well GWM-16D (0.85 µg/L).

- 2-Butanone was detected above its MDE PQL (5.0 µg/L) in well GWM-10 (12.8 µg/L).
- Chloroform was detected above its MDE PQL (1.0 µg/L) in background well GWM-9 (20.3 µg/L).
- 1,4-Dichlorobenzene was detected above its MDE PQL (1.0 µg/L) in wells GWM-4 (1.3 µg/L), GWM-11 (2.4 µg/L), GWM-17S (1.9 µg/L), and GWM-17D (1.4 µg/L).
- Ethylbenzene was detected above its MDE PQL (1.0 µg/L) in well GWM-6 (11.9 µg/L).
- MTBE was detected in background well GWM-2 (1.1 µg/L), and wells GWM-4 (1.0 µg/L), and GWM-11 (1.1 µg/L), and was detected above its MDE PQL (2.0 µg/L) in wells GWM-6 (4.8 µg/L) and GWM-12 (2.3 µg/L).

The benzene MCL exceedance, and detections of ethylbenzene, and MTBE in GWM-6 have regularly been detected over the historical record and are attributable to the 1988 underground storage tank (UST) leak. While these detections are considered SSIs over background, none of these detections exhibited SSIs over baseline in well GWM-6 during this monitoring event. The lack of intra-well SSIs indicates that these VOC detections in well GWM-6 are not increasing over time. The VOC detections in well GWM-6 are not directly attributable to the landfill cells.

It is possible that the Bromomethane detection in background well GWM-16D is not attributable to the landfill, as well GWM-16D is hydraulically located upgradient to the landfill cells, and is screened in the deep Patuxent Aquifer. This is the first detection of bromomethane in background well GWM-16D since the well was installed in 2019. Bromomethane was not an SSI in any of the downgradient wells. Additionally, bromomethane was detected in the field blank for that sampling day. Bromomethane is a byproduct of landfill gas, but is also a byproduct of pesticide fumigants. Bromomethane does not have an established MCL but has an MDE clean-up standard (0.75 µg/L) that

below its MDE PQL (1.0 µg/L). It is therefore possible that the Bromomethane detection in background well GWM-16D could be from another source than the landfill cells.

2- Butanone was first detected in well GWM-10 during this monitoring event. Well GWM-10 is screened in the Arundel Formation, and is located near well GWM-3 that is screened in the shallow Patapsco Aquifer. Nearby well GWM-3 has never had a 2-Butanone detection as well. 2-Butanone will continue to be closely monitored during future monitoring events.

The chloroform detection in background well GWM-9 may likely originate from another source other than the landfill cells. There is no established MCL for chloroform, but there is an MDE clean-up standard of 80 µg/L. Historically, background well GWM-9 had few low-level detections above and below chloroform's MDE PQL, but nowhere near its MDE clean-up standard, but was detected above its PQL during the previous monitoring event. Chloroform was not an SSI after performing an inter-well statistical analysis for wells screened in the Patuxent Aquifer. Also, background well GWM-9 is technically located cross-gradient from the landfill and receives runoff from an industrial parking lot. Chloroform is commonly found in tap water and is also a common lab contaminant. The constituent will continue to be closely monitored during future monitoring events but is likely not emanating from the landfill cells.

1,4-Dichlorobenzene was detected in wells screened in the shallow Patapsco Aquifer (GWM-4 and GWM-17S), the deep Patuxent Aquifer (GWM-17D), and in the Arundel Formation (GWM-11). Historically, 1,4-dichlorobenzene has been detected in low concentrations in Patapsco Aquifer wells GWM-4 and GWM-17S since the 2000's, and in Patuxent Aquifer well GWM-17D since it was first installed in Fall 2019. However, the constituent was not a SSI over baseline in any of the Patapsco or Patuxent Aquifer wells during this monitoring event, meaning that concentrations within either well have not been increasing over time. Historically, 1,4-dichlorobenzene was detected in well GWM-11 of the Arundel Formation since the start of low-flow sampling during Fall 2013. The concentration of 1,4-dichlorobenzene has fluctuated in all aforementioned wells over time,

but has been detected well below its MCL of 75 µg/L. It should be noted that all wells detected with 1,4-dichlorobenzene during this monitoring event are located near the southern portion of the property less than four-hundred (400) feet, upgradient or cross-gradient from the Bird River Dredge Spoils Lagoon. 1,4-dichlorobenzene will continue to be closely monitored during future monitoring events.

MTBE was detected in wells screened in the shallow Patapsco Aquifer (GWM-2, GWM-4, and GWM-6), and wells screened in the Arundel Formation (GWM-11 and GWM-12). There is no established MCL for MTBE, but there is an MDE clean-up standard of 20 µg/L. All MTBE detections were well below its MDE clean-up standard this monitoring event. MTBE detections in well GWM-6 have been attributed to the 1988 underground storage tank (UST) leak, as previously explained in the paragraph above. Historically, low-level concentrations of MTBE have been detected in well GWM-11 since Fall 2013 when low-flow sampling began at the landfill. Historically, low-level concentrations of MTBE have been detected in well GWM-12 since the early 2000's. It should be noted that MTBE has also been detected in a background well, which is hydraulically upgradient to the landfill. MTBE will continue to be closely monitored during future monitoring events.

There were two (2) water quality parameters that exceeded their compliance limit in groundwater wells during this monitoring event: turbidity, and pH. Turbidity was detected above its MCL (5 NTU) in wells GWM-1, background well GWM-2, GWM-3, GWM-8, GWM-14, GWM-15, and background well GWM-16D. Elevated turbidity levels are generally typical in groundwater samples due to a variety of factors, including the direct contact between groundwater and parent material. pH readings were outside the SMCL range (6.5 to 8.5) in all groundwater wells except for well GWM-1 of the Arundel Formation. Low pH levels are historically typical for groundwater wells at ESL. All groundwater wells outside this range were below the SMCL pH range with the exception of GWM-8. During this event and since low-flow sampling was first implemented at ESL, the pH in GWM-8 has been above the SMCL pH range. Prior to low-flow sampling, the pH in GWM-8 of the Arundel Formation was historically below the SMCL pH range.



There were thirty-three (33) MDE Table II metal detections above their MDE clean-up standard, MCL, or Action Level in seventeen (17) groundwater monitoring wells for seven (7) parameters during the Spring 2023 monitoring event.

- Cadmium was detected at or above its MCL (0.005 mg/L) in well GWM-10 (0.0067 mg/L).
- Iron was detected above the MDE clean-up standard (0.3 mg/L) in wells GWM-4 (1.8 mg/L), GWM-5A (2 mg/L), GWM-6 (82.1 mg/L), GWM-8 (0.95 mg/L), GWM-11 (69.2 mg/L), GWM-14 (55.6 mg/L), and GWM-17S (102 mg/L).
- Lead was detected above its Action Level (0.015 mg/L) in well SMW-13 (0.02 mg/L).
- Manganese was detected above the MDE clean-up standard (0.043 mg/L) in background well GWM-2 (0.15 mg/L), and wells GMW-4 (0.76 mg/L), GWM-5A (1 mg/L), GWM-6 (0.48 mg/L), GWM-8 (0.045 mg/L), background well GWM-9 (0.045 mg/L), and wells GWM-10 (0.11 mg/L), GWM-11 (2.5 mg/L), GWM-14 (2.9 µg/L), GWM-15D (0.98 mg/L), GWM-17D (3.4 mg/L), GWM-17S (7.6 mg/L), GWM-19D (0.058 mg/L), SMW-13 (0.046 mg/L) and SMW-32 (0.068 mg/L).
- Mercury was detected at or above the MCL (0.002 mg/L) in wells GWM-12 (0.0026 mg/L), GWM-19D (0.0023 mg/L), and SMW-32 (0.0034 mg/L).
- Nickel was detected above the MDE clean-up standard (0.073 mg/L) in background well GWM-2 (0.087 mg/L), wells GWM-10 (0.06 mg/L), GWM-17D (0.065 mg/L), SMW-13 (0.051 mg/L), and SMW-32 (0.07 mg/L).
- Vanadium was detected above the MDE Clean-up standard (0.0086 mg/L) in background well GWM-1 (0.014 mg/L).

Cadmium was detected above its MCL in well GWM-10. Historically, cadmium regularly exceeded its MCL in well GWM-10 since Fall 2015. It's important to note that well GWM-10 is screened in the Arundel Formation which is mostly dense clay and pockets of groundwater stored in lenses. Also, the groundwater in well GWM-10 is acidic. Cadmium is generally regarded as one of the most mobile heavy metals in the environment because of its elevated mobilization potential through competition and ligand induced desorption. These slow-moving, acidic conditions make it possible for naturally occurring cadmium in

the soil to mobilize into groundwater. It is therefore probable that the landfill cells may not be attributed to the Cadmium exceedance in well GWM-10.

Iron was detected at concentrations greater than its MDE clean-up standard in wells GWM-4, GWM-5A, GWM-6, GWM-8, GWM-11, GWM-14, and GWM-17S. Historically, iron has exceeded the MDE clean-up standard in all aforementioned monitoring wells. Wells GWM-4, GWM-5A, GWM-6, GWM-14, and GWM-17S of the Patapsco Aquifer have a confirmed inter-well SSI for Iron, but no intra-well SSI. Wells with inter-well SSIs indicate that iron concentrations spatially vary throughout the aquifer but have not significantly changed over time within each well. It should be noted that iron is naturally occurring in the geological area and is generally tied to manganese, and iron does not have an established MCL. Iron shall continue to be monitored during subsequent sampling events.

Manganese was detected at reported concentrations greater than its MDE clean-up standard in background well GWM-2, wells GMW-4, GWM-5A, GWM-6, GWM-8, background well GWM-9, and wells GWM-10, GWM-11, GWM-14, GWM-15D, GWM-17D, GWM-17S, GWM-19D, SMW-13, and SMW-32. Historically, manganese has exceeded the MDE clean-up standard in all aforementioned monitoring wells. Wells GWM-4, GWM-5A, GWM-6, GWM-14, and GWM-17S of the Patapsco Aquifer have a confirmed inter-well SSI for Manganese, but no intra-well SSIs with the exception of GWM-17S. These SSIs indicate that Manganese concentrations are spatially variable throughout the aquifer but have not significantly changed over time within each well. Well GWM-17S exhibited both and inter and intra well SSI. Wells GWM-15D and GWM-17D from the Patuxent Aquifer has a confirmed SSI for Manganese over background and baseline. Well GMW-19D has a confirmed intra-well SSI. Well SMW-13 of the Patuxent Aquifer has a confirmed inter-well SSI. It should be noted that Manganese is generally tied to iron, and iron is naturally occurring in the overall geological area. There is no MCL for manganese, only an MDE clean-up standard. Manganese shall continue to be monitored during subsequent sampling events.

Mercury was detected above its MCL in wells GWM-12, GWM-19D, and SMW-32 during this monitoring event. Historically, mercury was detected above its MCL in well GWM-12 since Spring 2013, and in well SMW-32 since Fall 2013, the start of low-flow sampling, while it has been detected just above and just below its MCL in monitoring well GWM-19D. Mercury was a confirmed inter-well SSI for well GWM-19D indicating that mercury concentrations have not significantly increased over time. Mercury was both an inter-well and intra-well SSI for well SMW-32 indicating that mercury concentrations significantly increased over time. Sentinel well GWM-15D was installed in January 2016 to serve as a downgradient well with respect to wells GWM-12, SMW-13, and SMW-32 and to ensure the reported mercury concentrations in samples collected from these wells are isolated to the same deep aquifer. During November 2016, a Hydrological Assessment Study was performed by a third-party hydrologist, which confirmed that samples collected from groundwater monitoring well GWM-15D are representative of the same deep aquifer (Patuxent), as are samples from wells SMW-13 and SMW-32. While well GWM-12 is screened in the Arundel Formation, samples collected from this well are likely influenced by the Patuxent Aquifer. Mercury has been non-detect in well GWM-15D since it was first installed, including this monitoring event, indicating that mercury has likely been confined within the property. It should be noted that GWM-15D's well screen is between forty-three (43) and fifty-eight (58) feet below surface. All wells with Mercury concentrations detected at or above its MCL during this monitoring event are screened between ninety-four (94) and one-hundred twenty-five (125) feet below surface. All wells that are screened ~100 feet below surface in this portion of the property, including Wells GWM-12, GWM-19D, SMW-13, and SMW-32 have had historical mercury exceedances. Therefore, it is likely mercury is present one-hundred feet below surface, mainly in the Patuxent (deep) Aquifer. Because there have been no detections of mercury in wells screened above ninety-four (94) feet below surface (i.e. within the surficial Patapsco Aquifer) in this region of the property, it is unlikely the source of mercury is emanating from the landfill's cells.

It should be noted that wells SMW-13 and SMW-32 are supply monitoring wells for various non-potable landfill activities on-site including staff buildings. Mercury detections in a supply monitoring well create non-potable conditions on-site. BSWM has non-potable

signs posted on all faucets that are used by general staff and is seeking opportunities to connect to the municipal drinking water supply. All mercury exceedances will continue to be monitored and further investigated during subsequent sampling events.

Nickel was detected greater than its MDE clean-up standard in background well GWM-2, and wells GWM-10, GWM-17D, SMW-13, and SMW-32. Historically, Nickel has regularly exceeded the MDE clean-up standard in all aforementioned wells. Wells GWM-17D and SMW-13 of the Patuxent Aquifer showed an inter-well SSI for nickel. Well SMW-32, also screened in the Patuxent Aquifer, showed both inter-well and intra-well SSIs for nickel. These inter-well SSIs in the Patuxent Aquifer indicate that nickel concentrations vary spatially throughout the aquifer in upgradient and downgradient wells. The intra-well SSIs in well SMW-32 show nickel concentrations increasing over time. It should be noted that nickel concentrations above the MDE clean-up standard are also prevalent in background well GWM-2, which is hydraulically cross-gradient to the landfill cells and is used as a background well in statistical analyses. The persistent nickel detections in background well GWM-2 suggest that it is highly unlikely the groundwater quality is impacted by the landfill. It is possible that elevated nickel concentrations in the groundwater are influenced by other industrial activity in the surrounding area. Nickel does not have an established MCL, only an MDE clean-up standard (0.039 mg/L) and an EPA recommended level (0.1 mg/L). Nickel shall continue to be monitored during subsequent sampling events.

Vanadium was detected greater than its MDE clean-up standard in background well GWM-1. Historically, vanadium has regularly exceeded its MDE clean-up standard in background well GWM-1. It should be noted that well GWM-1 is a background well that is located hydraulically upgradient from the landfill cells and is positioned in the Arundel Formation. The persistent vanadium detections and hydraulically upgradient location of background well GWM-1 suggest that it is highly unlikely the groundwater quality is impacted by the landfill. It is possible that elevated vanadium concentrations in the groundwater are influenced by other industrial activity in the surrounding area and the Formation's lower

transmissivity rate. There is no MCL for vanadium, only an MDE clean-up standard. Vanadium shall continue to be monitored during subsequent sampling events.

There was one (1) organochloride pesticide parameter detected above its groundwater protection standard (GWPS) in four (4) groundwater monitoring wells during the Spring 2023 monitoring event.

- Dieldrin was detected at concentrations greater than its GWPS (0.0018 µg/L) in background well GWM-2 (0.0189 µg/L), and wells GWM-4 (0.00669 µg/L), GWM-17D (0.00488 µg/L) and GWM-17S (0.00408 µg/L).

Dieldrin concentrations detected over time are generally concentrated in one portion of the site and are mostly detected in wells screened in the Patapsco Aquifer, where the highest concentrations are found upgradient to the landfill cells. During this monitoring period, there were no SSIs for dieldrin in the sampled wells that are screened in the Patapsco Aquifer and Arundel Formation because dieldrin was detected in background well, GWM-2 of the Patapsco Aquifer. There was one SSI over background in well GWM-17D, screened in the Patuxent aquifer. Historically, dieldrin has been detected in monitoring wells that are situated in the western portion of the property, including background well GWM-2. Whenever background well GWM-2 is sampled, it always has the highest concentrations of dieldrin compared to other wells at the site, including this monitoring event. It is therefore suggested that the source of dieldrin is not emanating from the landfill cells.

While it is suggested that dieldrin concentrations are not emanating from the landfill cells, it is important to consider the local and historical land use and know that dieldrin was an insecticide applied to farmland. Dieldrin is also a breakdown product of another insecticide called Aldrin. Dieldrin and aldrin were widely used on crops (i.e., cotton and corn) from the 1950s to 1970 until it was banned in 1970. Dieldrin was also used to kill termites from 1972 to 1987. Since then, dieldrin has not been used in the United States. Historically, the land use of the property and surrounding area was farmland. It is probable the historical

land use of the surrounding area and the landfill property may be attributed to the detected dieldrin concentrations; however, further investigation may be necessary.

All reported concentrations and exceedances during this monitoring event are comparable with results from previous sampling events.

## **8.2 Surface Water**

VOCs, total metals, and water quality parameters concentrations in SW-1 were compared to the standards listed in COMAR 26.08.02.03-2 - Numerical Criteria for Toxic Substances (NCTS) in Surface Waters. Total metals were analyzed for surface water sample SW-1 during this monitoring event. Future monitoring events will ensure that dissolved metals will be analyzed for any surface water sample that is collected at ESL.

There were no VOC parameters that exceeded their NCTS in surface water sampling location, SW-1 during this monitoring event.

There was one (1) metal detection that exceeded its NCTS in surface water sampling location, SW-1 during this monitoring event. Total arsenic was detected above its NCTS (0.00018 mg/L) in surface water sampling location SW-1 (0.0014 mg/L). Historically, arsenic (total and dissolved) has been detected above its NCTS in SW-1 since it was first sampled during Fall 2015. It should be noted that surface water location SW-1 is a natural artesian location of the Patuxent Aquifer.

There were no water quality parameters that exceeded their NCTS in surface water sampling location, SW-1 during this monitoring event.

The Spring 2023 surface water detections for SW-1 are generally comparable with results from previous sampling events. Future monitoring events will continue to analyze dissolved metals and compare all analytes to their NCTS.

### 8.3 Landfill Gas

- High methane concentrations were observed along the southwest side of ESL in the interior landfill gas probe Nos. ESLF006A, ESLF006B, and ESLF008A.
- Methane was detected at low concentrations during 1<sup>st</sup> and/or 2<sup>nd</sup> quarter 2023 structure monitoring events in the engine room/office trailer of the LFGTE Building, administration building, maintenance building, operations trailer, and the waste transfer station. All detected concentrations were well below the regulatory requirements for facility structures.
- There are no other concerns to note regarding the landfill gas data.

## 9.0 CONCLUSION

The groundwater and surface water potentially influenced by the Eastern Sanitary Landfill, are not utilized as potable water supply sources; all communities in the vicinity of the Eastern Sanitary Landfill are connected to the public drinking water system. The Spring 2023 groundwater and surface water results indicate no impact to local groundwater and surface water except in the area of the previously reported fuel oil UST release. It is likely that some of these detections may be attributed to another source than the landfill cells.

The MDE clean-up standard exceedances of iron and manganese, along with pH readings below the SMCL pH range for many wells, have historically been attributed to natural background levels. Sentinel monitoring well GWM-15D and downgradient monitoring well GWM-19D are used to investigate groundwater mercury concentrations above the MCL for wells GWM-12 and SMW-32 at the relative point of compliance (RPOC). Organochloride pesticides will continue to be assessed for monitoring wells GWM-2, GWM-4, GWM-9, GWM-16D, GWM-17S, and GWM-17D.

Interior LFG probes ESLF006A, ESLF006B, and ESLF008A typically have high methane readings that fluctuate and are monitored on a monthly occurrence. Perimeter LFG probes in this area did not have methane when monitored during this reporting period, and confirm

that high methane readings in this area do not reach the property boundary. LFG perimeter probes will continue to be monitored on a quarterly occurrence.

The February 2023 submission of the ESL EMP is currently under review by MDE.



## 10.0 REFERENCES

United States Environmental Protection Agency (USEPA). 2009. *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance*. EPA 530/R-09-007. Office of Resource Conservation and Recovery, Washington D.C. March.

———. 2015. *ProUCL Version 5.1.002 Technical Guide, Statistical Software for Environmental Applications for Data Sets with and without Nondetect Observations*. October.

# **TABLES**

Tables 4-1 through 4-4, 5-3, 6-1 and 6-2 are located in report text

**Table 2-1**  
**Refuse Disposal Permit #2020-WMF-0052A Requirements**  
**January - June 2023**

Per permit requirement:

**III.D.5** Leak Detection: In November 2014 the leachate lagoon was decommissioned in accordance with MDE's approval letter dated, September 25, 2014.

**III.D.8.a** Total volume of leachate and other contaminated liquids collected and disposed of in the sanitary sewer.

<b><u>Month</u></b>	<b><u>Gallons</u></b>
January	595,000
February	414,000
March	510,000
April	456,000
May	818,000
June	744,000

**Note:**

A newly constructed pump station began operation November 21, 2016. It collects and pumps leachate from Phases I-IV, wastewater from the administration buildings, and wastewater from the transfer stations to the sanitary sewer. The total volume reported is calculated from the pump station flow meter.

**III.D.8.c** See 111.D.8.a

**III.D.8.e** Summary of chemical analyses of Eastern Sanitary Landfill leachate, performed by Baltimore County Bureau of Utilities' laboratory:

<b><u>Date</u></b>	<b><u>Total Iron</u></b>	<b><u>Zinc</u></b>	<b><u>pH</u></b>	<b><u>BOD</u></b>	<b><u>COD</u></b>	<b><u>TSS</u></b>	<b><u>Ammonia</u></b>
<b>1/12/23023</b>	6.473	0.01	7.23	34	494	31	509.1
<b>2/13/2023</b>	9.75	0.02	7.18	C	531	65	349.9
<b>3/6/2023</b>	6.445	0.01	7.13	C	417	39	290.1
<b>4/12/2023</b>	5.701	0.01	7.06	59	658	41	396.6
<b>5/10/2023</b>	14.299	0.02	7.15	35	611	36	<0.5
<b>6/6/2023</b>	9.74	0.01	7.22	227	635	21	149.7

Notes:

- 1) All values are expressed in mg/L, except pH
- C - BOD did not meet depletion requirements for method.

**III.D.8.f** Data presented for cumulative precipitation is gathered from a rain gauge.

Total precipitation (inches): 13.40

<u>Month</u>	<u>Inches</u>
January	2.10
February	1.81
March	2.02
April	3.65
May	0.43
June	3.39

**III.E.1** Monitoring well levels from January - June 2023

<b>Well ID/Date</b>	<b>1/9/2023</b>	<b>2/2/2023</b>	<b>3/2/2023</b>	<b>4/7/2023</b>	<b>5/11/2023</b>	<b>6/9/2023</b>
<b>GWM-1</b>	60.43	60.40	60.22	60.32	60.31	60.36
<b>GWM-2</b>	49.51	49.25	49.06	48.98	49.07	49.21
<b>GWM-3</b>	31.90	31.91	31.80	31.86	31.76	31.80
<b>GWM-4</b>	24.69	24.63	24.70	25.02	25.20	25.41
<b>GWM-5A</b>	26.03	26.05	26.08	26.28	26.40	26.52
<b>GWM-6</b>	41.05	40.95	41.02	41.15	41.14	41.11
<b>GWM-7</b>	63.87	63.90	63.86	63.87	63.85	63.84
<b>GWM-8</b>	26.16	26.18	26.00	26.09	26.05	26.09
<b>GWM-9</b>	19.88	19.90	19.99	20.16	20.19	20.31
<b>GWM-10</b>	49.17	49.11	48.97	53.08	50.65	49.97
<b>GWM-11</b>	23.40	23.34	23.37	23.67	23.83	24.26*
<b>GWM-12</b>	47.50	47.60	47.26	47.62	47.63	47.57
<b>GWM-14</b>	11.00	10.93	10.90	11.12	11.08	11.07
<b>GWM-15D</b>	8.18	8.21	8.03	8.30	8.27	8.25
<b>GWM-16S</b>	49.31	49.35	49.34	49.36	49.36	49.37
<b>GWM-16D</b>	94.10	94.40	93.74	94.50	94.32	93.82
<b>GWM-17S</b>	9.58	9.55	9.59	9.82	10.01	10.24
<b>GWM-17D</b>	12.25	12.27	12.17	12.44	12.52	12.61
<b>GWM-19D</b>	43.02	43.20	42.78	43.17	43.10	42.93
<b>Piezometer 3</b>	33.85	33.79	33.84	33.90	33.99	34.04

Notes:

- 1) All readings are in feet, from top of protective casing to water surface.
- 2) \* = GWM-11 reading taken on 6/30 in order to avoid wildlife disturbance on 6/9

**Table 2-2**  
**Landfill Gas Probe Monitoring Results**  
**1st Quarter 2023**

Device ID	Date/Time	CH4 (%)	CO2 (%)	O2 (%)	Balance (%)	Barometric Pressure (Hg)	Relative Pressure (H2O)
ESLF0004	1/24/2023 9:24	0	0.1	21.2	78.7	30.2	0.01
ESLF0005	1/24/2023 10:57	0	0.8	20.4	78.8	30.16	0.01
ESLF005A	1/24/2023 10:52	0	0.3	20.7	79	30.12	0.01
ESLF0006	1/24/2023 10:41	0	0.1	21.1	78.8	30.07	-0.98
ESLF006A*	1/24/2023 10:44	0.1	0.5	20.8	78.6	30.15	-0.29
ESLF006B*	1/24/2023 10:47	0	0.3	20.7	79	30.13	-0.3
ESLF0008*	1/24/2023 11:14	0	0.8	20.2	79	30.11	0.01
ESLF008A*	1/24/2023 11:09	55.4	44.6	0	0	30.09	0.03
ESLF0009	1/24/2023 11:05	0	6.5	15.2	78.3	30.16	0.04
ESLF0010	1/24/2023 11:29	0	4.3	17.2	78.5	30.11	0
ESLF011A	1/24/2023 11:34	0	0.1	20.6	79.3	30.12	0.09
ESLF0013	1/24/2023 12:01	0	2.5	18.6	78.9	30.09	0.02
ESLF0014	1/24/2023 12:11	0	1.9	19.8	78.3	30.04	0.01
ESLF015A	1/24/2023 12:14	0	8	12.8	79.2	30.05	0.02
ESLF0016	1/24/2023 10:29	0	2.7	19.4	77.9	30.05	0.01
ESLF0017	1/24/2023 10:26	0	0.1	21.3	78.6	30.05	-0.06
ESLF017A	1/24/2023 10:22	0	0.1	21.3	78.6	30.04	-0.1
ESLF0018R	1/24/2023 10:20	0	0.1	21.2	78.7	30.07	-0.31
ESLF0019	1/24/2023 10:16	0	0.5	20.9	78.6	30.06	0.05
ESLF0020R	1/24/2023 10:11	0	0.1	21	78.9	30.04	-0.17
ESLF0021	1/24/2023 10:03	0	0.9	17.3	81.8	30.11	-0.01
ESLF0022	1/24/2023 9:57	0	0.2	21.1	78.7	30.14	0.02
ESLF0023	1/24/2023 9:53	0	0.1	21.1	78.8	30.11	0.01
ESLF0024	1/24/2023 9:49	0	0.8	20.4	78.8	30.1	-0.01
ESLF0025	1/24/2023 9:45	0	6	15.6	78.4	30.12	0.02
ESLF025A	1/24/2023 9:41	0	0.7	20.5	78.8	30.12	-0.99
ESLF0026	1/24/2023 9:30	0	0.1	20.9	79	30.21	0.03
ESLF0038R	1/24/2023 11:32	0	0.1	20.3	79.6	30.11	0.25
ESLFTB10	1/24/2023 11:48	0	0.5	20.5	79	30.08	0.02
ESLF00X1	1/24/2023 11:22	0	0.3	20.6	79.1	30.14	0.22
ESLF00X2	1/24/2023 11:23	0	4.4	17	78.6	30.13	0.05
ESLF00X3	1/24/2023 11:25	0	0.3	20.4	79.3	30.12	0.22
ESLF00X4	1/24/2023 11:26	0	0.2	20.6	79.2	30.12	0.03

\* - Interior probes

Highlighted Cells - LFG >= 5%

**Table 2-2 cont.**  
**Landfill Gas Probe Monitoring Results**  
**2nd Quarter 2023**

Device ID	Date/Time	CH4 (%)	CO2 (%)	O2 (%)	Balance (%)	Barometric Pressure (Hg)	Relative Pressure (H2O)
ESLF0004	4/11/2023 9:36	0	0.1	21	78.9	30.16	0.01
ESLF0005	4/11/2023 11:23	0	2.4	18.8	78.8	30.16	0.02
ESLF005A	4/11/2023 11:18	0	5.1	13.6	81.3	30.18	0.02
ESLF0006	4/11/2023 11:06	0	6.2	12.7	81.1	30.09	0.07
ESLF006A	4/11/2023 11:10	42.7	35.4	0.4	21.5	30.17	0.02
ESLF006B	4/11/2023 11:13	42.8	35.1	0.4	21.7	30.17	0.06
ESLF0008	4/11/2023 11:43	0	0.4	20.5	79.1	30.12	-0.01
ESLF008A	4/11/2023 11:38	51.1	42.2	0.4	6.3	30.11	0.06
ESLF0009	4/11/2023 11:33	0	4.5	16.3	79.2	30.18	0.05
ESLF0010	4/11/2023 12:06	0	1.3	19.3	79.4	30.12	0.01
ESLF011A	4/11/2023 12:14	0	0	21.1	78.9	30.1	0.04
ESLF0013	4/11/2023 12:45	0	4.5	16.3	79.2	30.06	0.05
ESLF0014	4/11/2023 12:52	0	2.5	19	78.5	30.03	-0.02
ESLF015A	4/11/2023 12:56	0	8.6	13	78.4	30.03	-0.05
ESLF0016	4/11/2023 10:50	0	7.7	14.6	77.7	30.06	-0.02
ESLF0017	4/11/2023 10:54	0	9.1	12.2	78.7	30.07	0
ESLF017A	4/11/2023 10:46	0	10.7	13.6	75.7	30.08	0.03
ESLF0018R	4/11/2023 10:43	0	0.1	21	78.9	30.07	0
ESLF0019	4/11/2023 10:37	0	2.3	19	78.7	30.07	-0.01
ESLF0020R	4/11/2023 10:27	0	6.4	15.8	77.8	30.13	0.04
ESLF0021	4/11/2023 10:21	0	1.1	18.7	80.2	30.13	0.01
ESLF0022	5/4/2023 10:36	0	0.2	20.8	79	29.76	0.05
ESLF0023	4/11/2023 10:06	0	10.7	10.8	78.5	30.13	0.05
ESLF0024	4/11/2023 10:02	0	3.4	17.8	78.8	30.13	0.03
ESLF0025	4/11/2023 9:59	0	6.9	15.5	77.6	30.15	0.02
ESLF025A	4/11/2023 9:55	0	12.5	9.9	77.6	30.21	0.09
ESLF0026	4/11/2023 9:42	0	4	17.5	78.5	30.22	0.02
ESLF0038R	4/11/2023 12:11	0	0	21.1	78.9	30.12	0.06
ESLFTB10	4/11/2023 12:06	0	1.3	19.3	79.4	30.12	0.01
ESLF00X1	4/11/2023 11:56	0	0.2	20.7	79.1	30.1	0.51
ESLF00X2	4/11/2023 11:57	0	4	17	79	30.14	0.01
ESLF00X3	4/11/2023 11:58	0	0.3	20.8	78.9	30.14	0.7
ESLF00X4	4/11/2023 12:02	0	2.6	18.8	78.6	30.13	0.02

\* - Interior probes

Highlighted Cells - LFG >= 5%

**Table 2-3**  
**On-Site Structures Monitoring**  
**1st and 2nd Quarters 2023**

**Date:** 1/31/2023  
**Sampler:** Brooke Zibell  
**Time:** 11:20  
**Weather:** Wintry mix, upper 30s

Structure ID	CH <sub>4</sub> (ppm)	Comments
Administration Building	0 ppm	
Maintenance Building	0 ppm	
Operations Trailer	0 ppm	
Scalehouse	0 ppm	
Transfer Stations	0 ppm	
Fire Pump Room	0 ppm	
Water Supply Shed	0 ppm	
LFGTE Building <sup>1</sup>	690 ppm	Engine Room
	440 ppm	Office Trailer

**Date:** 06/09/23  
**Sampler:** Brooke Zibell  
**Time:** 12:00  
**Weather:** Partly cloudy, upper 60s

Structure ID	CH <sub>4</sub> (ppm)	Comments
Administration Building	1150 ppm	Lunch/break room
	80 ppm	Mens restroom
Maintenance Building	450 ppm	Crystal clean sink (middle island)
Operations Trailer	20-50 ppm	Throughout trailer
Scalehouse	0 ppm	
Transfer Stations	130 ppm	IT Room
	100 ppm	Fire Suppression Room
Fire Pump Room	0 ppm	
Water Supply Shed	0 ppm	
LFGTE Building <sup>2</sup>	120 ppm	Engine Room

**Notes:**

- 1) LFGTE = Landfill Gas to Energy
- 2) 1 = LFGTE Building scan performed on 2/20/23 by SCS Field Services.
- 3) 2 = LFGTE Building scan performed on 5/18/23 by SCS Field Services.

**Table 3-1**  
**Sampling Location IDs and Parameters**

Sampling Location				
	VOCs	Water Quality	Metals	Pesticides
GWM-1	*	*	*	*
GWM-2	*	*	*	*
GWM-3	*	*	*	
GWM-4	*	*	*	*
GWM-5A	*	*	*	
GWM-6	*	*	*	
GWM-8	*	*	*	
GWM-9	*	*	*	*
GWM-10	*	*	*	
GWM-10 (DUP)	*	*	*	
GWM-11	*	*	*	*
GWM-12	*	*	*	
GWM-14	*	*	*	
GWM-15D	*	*	*	
GWM-16D	*	*	*	
GWM-17S	*	*	*	
GWM-17D	*	*	*	
GWM-19D	*	*	*	
SMW-13	*	*	*	
SMW-32	*	*	*	
SW-1	*	*	**	

\*\* = Dissolved Metals



**Table 3-2  
Monitoring Parameters for Volatile Organic Compounds and Pesticides**

<b>Volatile Organic Compounds</b>	<b>Method</b>	<b>MDE PQLs (µg/L)</b>	<b>Actual PQLs (µg/L)</b>	<b>Holding Time</b>
Acetone	SW846 8260B	5	10	14 days
Acrylonitrile	SW846 8260B	5	5	14 days
Benzene	SW846 8260B	1	1	14 days
Bromochloromethane	SW846 8260B	1	1	14 days
Bromodichloromethane	SW846 8260B	1	1	14 days
Bromoform	SW846 8260B	1	1	14 days
Bromomethane	SW846 8260B	1	1	14 days
2-Butanone	SW846 8260B	5	10	14 days
Carbon disulfide	SW846 8260B	1	1	14 days
Carbon tetrachloride	SW846 8260B	1	1	14 days
Chlorobenzene	SW846 8260B	1	1	14 days
Chloroethane	SW846 8260B	1	1	14 days
Chloroform	SW846 8260B	1	1	14 days
Chloromethane	SW846 8260B	1	1	14 days
Dibromochloromethane	SW846 8260B	1	1	14 days
1,2-Dibromo-3-chloropropane	SW846 8011	0.04	0.02	14 days
1,2-Dibromoethane (EDB)	SW846 8011	0.04	0.02	14 days
Dibromomethane	SW846 8260B	1	1	14 days
1,2 - Dichlorobenzene	SW846 8260B	1	1	14 days
1,4 - Dichlorobenzene	SW846 8260B	1	1	14 days
Trans-1,4-dichloro-2-butene	SW846 8260B	5	3	14 days
1,1-Dichloroethane	SW846 8260B	1	1	14 days
1,2-Dichloroethane	SW846 8260B	1	1	14 days
1,1-Dichloroethene	SW846 8260B	1	1	14 days
Cis-1,2-Dichloroethene	SW846 8260B	1	1	14 days
Trans-1,3-Dichloropropene	SW846 8260B	1	1	14 days
Cis-1,3-Dichloropropene	SW846 8260B	1	1	14 days
Ethylbenzene	SW846 8260B	1	1	14 days
2-Hexanone	SW846 8260B	5	5	14 days
Iodomethane	SW846 8260B	1	1	14 days
4-Methyl-2-pentanone	SW846 8260B	5	5	14 days
Methyl Tertiary Butyl Ether	SW846 8260B	2	1	14 days
Methylene Chloride	SW846 8260B	1	1	14 days
Styrene	SW846 8260B	1	1	14 days
1,1,1,2-Tetrachloroethane	SW846 8260B	1	1	14 days
1,1,2,2-Tetrachloroethane	SW846 8260B	1	1	14 days
Tetrachloroethene	SW846 8260B	1	1	14 days
Toluene	SW846 8260B	1	1	14 days
1,1,1-Trichloroethane	SW846 8260B	1	1	14 days

**Table 3-2 (continued)**  
**Monitoring Parameters for Volatile Organic Compounds and Pesticides**

<b>Volatile Organic Compounds</b>	<b>Method</b>	<b>MDE PQLs (µg/L)</b>	<b>Actual PQLs (µg/L)</b>	<b>Holding Time</b>
1,1,2-Trichloroethane	SW846 8260B	1	1	14 days
Trichloroethene	SW846 8260B	1	1	14 days
Trichloroflouromethane	SW846 8260B	1	1	14 days
1,2,3-Trichloropropane	SW846 8260B	1	2	14 days
Vinyl acetate	SW846 8260B	1	5	14 days
Vinyl chloride	SW846 8260B	1	1	14 days
mp-Xylene	SW846 8260B	1	2	14 days
o-Xylene	SW846 8260B	1	1	14 days
4,4'-DDD	SW846 8081B	0.023	0.0037	7 days*
4,4'-DDE	SW846 8081B	0.023	0.0037	7 days*
4,4'-DDT	SW846 8081B	0.023	0.0037	7 days*
Aldrin	SW846 8081B	0.023	0.0037	7 days*
alpha-BHC	SW846 8081B	0.023	0.0037	7 days*
beta-BHC	SW846 8081B	0.023	0.0037	7 days*
Chlordane	SW846 8081B	0.46	0.093	7 days*
delta-BHC	SW846 8081B	0.023	0.0037	7 days*
Dieldrin	SW846 8081B	0.023	0.0037	7 days*
Endosulfan I	SW846 8081B	0.023	0.0037	7 days*
Endosulfan II	SW846 8081B	0.023	0.0037	7 days*
Endosulfan Sulfate	SW846 8081B	0.023	0.0037	7 days*
Endrin	SW846 8081B	0.023	0.0037	7 days*
Endrin Aldehyde	SW846 8081B	0.023	0.0037	7 days*
gamma-BHC	SW846 8081B	0.023	0.0037	7 days*
Heptachlor	SW846 8081B	0.023	0.0037	7 days*
Heptachlor Epoxide	SW846 8081B	0.023	0.0037	7 days*
Methoxychlor	SW846 8081B	0.023	0.0037	7 days*
Toxaphene	SW846 8081B	0.93	0.19	7 days*

Notes:

- 1) \* = 7 days after sampling then 40 days after sample extraction
- 2) PQL = Practical Quantitation Limit
- 3) Shading = Actual Lab PQL is greater than MDE PQL

**Table 3-3  
Monitoring Parameters for Water Quality Parameters and Metals**

<b>Water Quality and Metals</b>	<b>Method</b>	<b>MDE PQLs (mg/L)*</b>	<b>Actual PQLs (mg/L)*</b>	<b>Holding Time</b>
pH	Field	0.1 (SU)	0.1 (SU)	15 minutes
Temperature	Field	1°C/F	1°C/F	NA
Alkalinity	S2320B-97	1	5	14 days
Hardness	S2340C-97	0.5	0.73	180 days
Chloride	EPA 300.0	0.39	2	28 days
Specific Conductance	Field/EPA 120.1	1	1	28 days
Nitrate	EPA 300.0	0.06	0.2	48 hours
Chemical Oxygen Demand	EPA 410.4	10	15	28 days
Turbidity	Field/EPA 180.1	0.11 (NTU)	0.11 (NTU)	48 hours
Ammonia	D6919-09	1	0.1	28 days
Sulfate	EPA 300.0	0.38	2	28 days
Total Dissolved Solids	S2540C-97	10	25	7 days
Total Antimony	SW846 6020A	0.002	0.0022	180 days
Total Arsenic	SW846 6020A	0.002	0.0033	180 days
Total Barium	SW846 6020A	0.01	0.0056	180 days
Total Beryllium	SW846 6020A	0.002	0.0011	180 days
Total Cadmium	SW846 6020A	0.004	0.0011	180 days
Total Chromium	SW846 6020A	0.01	0.0022	180 days
Total Calcium	SW846 6020A	0.08	0.11	180 days
Total Cobalt	SW846 6020A	0.01	0.0056	180 days
Total Copper	SW846 6020A	0.01	0.0056	180 days
Total Iron	SW846 6020A	0.005	0.056	180 days
Total Lead	SW846 6020A	0.002	0.0022	180 days
Total Nickel	SW846 6020A	0.011	0.0056	180 days
Total Magnesium	SW846 6020A	0.004	0.11	180 days
Total Manganese	SW846 6020A	0.01	0.0056	180 days
Total Mercury	SW846 7470A	0.0002	0.0005	28 days
Total Potassium	SW846 6020A	0.39	0.11	180 days
Total Selenium	SW846 6020A	0.035	0.0056	180 days
Total Silver	SW846 6020A	0.01	0.0022	180 days
Total Sodium	SW846 6020A	0.2	0.11	180 days
Total Thallium	SW846 6020A	0.002	0.0011	180 days
Total Vanadium	SW846 6020A	0.01	0.0022	180 days
Total Zinc	SW846 6020A	0.01	0.0056	180 days
Dissolved Antimony	EPA 200.7	0.002	0.020	180 days
Dissolved Arsenic	EPA 200.7	0.002	0.0080	180 days
Dissolved Barium	EPA 200.7	0.01	0.010	180 days
Dissolved Beryllium	EPA 200.7	0.002	0.0040	180 days

*All Dissolved parameters are filtered in the lab*

*"Actual PQLs" are the Laboratory Reporting Limit*

**Table 3-3 Continued**  
**Monitoring Parameters for Water Quality Parameters and Metals**

<b>Water Quality and Metals</b>	<b>Method</b>	<b>MDE PQLs (mg/L)*</b>	<b>Actual PQLs (mg/L)*</b>	<b>Holding Time</b>
Dissolved Cadmium	EPA 200.7	0.004	0.0020	180 days
Dissolved Chromium	EPA 200.7	0.01	0.0050	180 days
Dissolved Calcium	EPA 200.7	0.08	0.11	180 days
Dissolved Cobalt	EPA 200.7	0.01	0.0050	180 days
Dissolved Copper	EPA 200.7	0.01	0.010	180 days
Dissolved Iron	EPA 200.7	0.005	0.060	180 days
Dissolved Lead	EPA 200.7	0.002	0.0060	180 days
Dissolved Nickel	EPA 200.8	0.011	0.0050	180 days
Dissolved Magnesium	EPA 200.7	0.004	0.10	180 days
Dissolved Manganese	SW846 6010C	0.01	0.0050	180 days
Dissolved Mercury	EPA 200.8	0.0002	0.00020	28 days
Dissolved Potassium	EPA 200.7	0.39	0.50	180 days
Dissolved Selenium	EPA 200.7	0.035	0.020	180 days
Dissolved Silver	EPA 200.7	0.01	0.0040	180 days
Dissolved Sodium	EPA 200.7	0.2	0.50	180 days
Dissolved Thallium	EPA 200.8	0.002	0.0010	180 days
Dissolved Vanadium	EPA 200.7	0.01	0.0050	180 days
Dissolved Zinc	EPA 200.8	0.01	0.0050	180 days

*All Dissolved parameters are filtered in the lab*

*"Actual PQLs" are the Laboratory Reporting Limit*

## Table 3-4 - Relative Percent Difference (RPD) for Detected Parameters Blind Duplicate Sample Analysis

Name: Eastern Sanitary Landfill

Sampling Event

3/15/2023

Parameter Name	Units	GWM-10	MW-15A	RPD
2-Butanone	µg/L	12.8	ND	NA
Barium, Total	mg/L	0.028	0.029	3.45%
Beryllium, Total	mg/L	ND	0.00049	NA
Cadmium, Total	mg/L	0.0052	0.0058	10.34%
Calcium, Total	mg/L	2.3	2.2	4.55%
Chromium, Total	mg/L	0.0036	0.0017	111.76%
Cobalt, Total	mg/L	0.033	0.032	3.13%
Copper, Total	mg/L	0.046	0.046	0.00%
Iron, Total	mg/L	0.078	0.07	11.43%
Magnesium, Total	mg/L	1.1	1.1	0.00%
Manganese, Total	mg/L	0.11	0.11	0.00%
Nickel, Total	mg/L	0.06	0.06	0.00%
Potassium, Total	mg/L	1.6	1.6	0.00%
Sodium, Total	mg/L	3	3.1	3.23%
Zinc, Total	mg/L	0.049	0.05	2.00%
Ammonia-N	mg/L	0.156	0.144	8.33%
Chemical Oxygen Demand (COD)	mg/L	8	29	72.41%
Hardness	mg/L	9.5	9.5	0.00%
Sulfate	mg/L	16.8	17.1	1.75%
Total Dissolved Solids	mg/L	42	43	2.33%

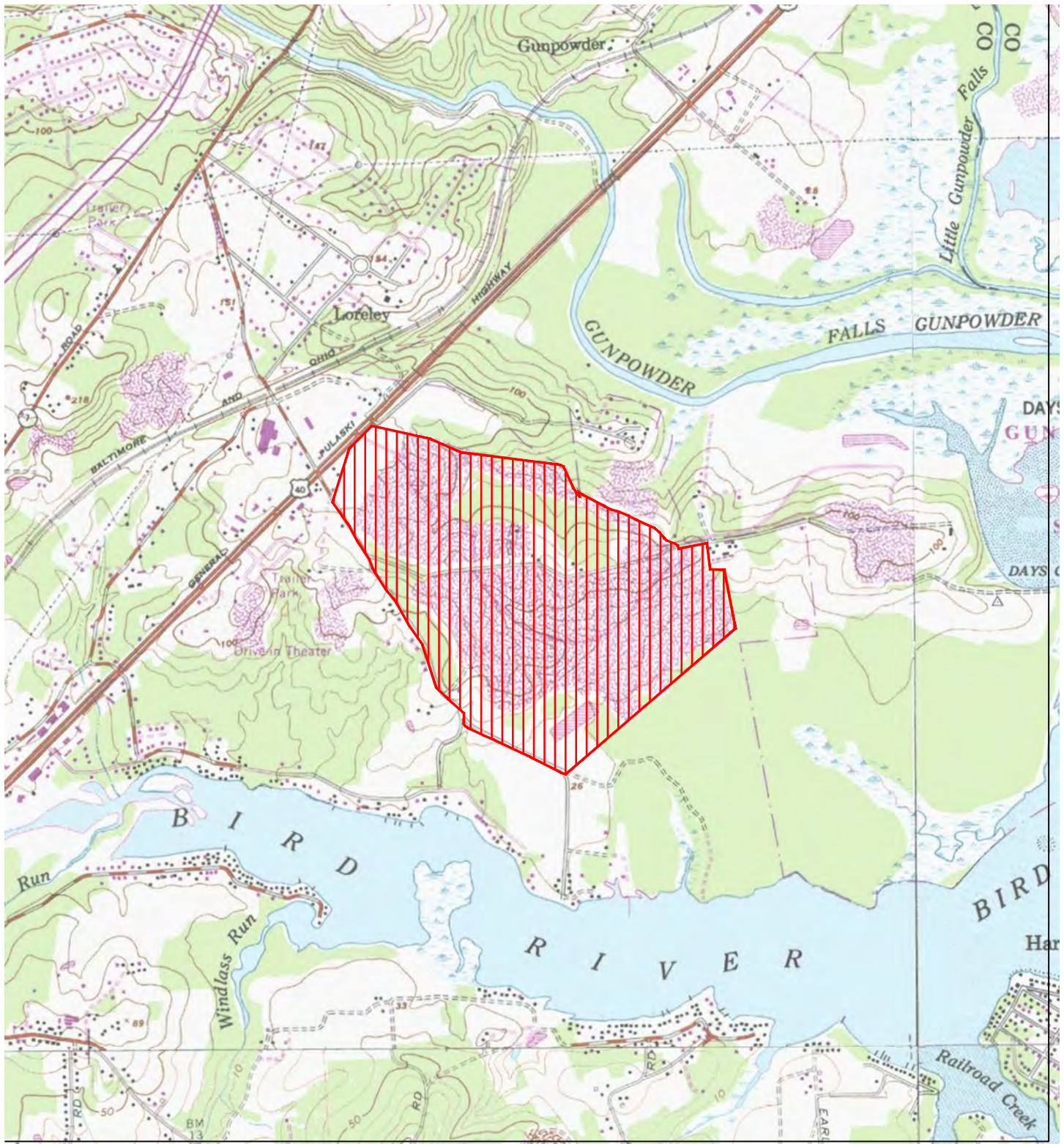
Shading - RPD greater than 20%

NA - Not Applicable

ND - Non detect

# **FIGURES**

\\armgroup.lcl\CorpData\Projects\Baltimore County Solid Waste\M13141 On Call Solid Waste Services\ESL Operations Manual Updates\Drwgs\1\_Site Location Map.dwg Plotted: October 6, 2015



Base maps from White Marsh (dated 1986), Edgewood (dated 1985), Gunpowder Neck (dated 1986), and Middle River (dated 1985) USGS 7½ minute quadrangle.

**LEGEND**

 Existing Property Boundary



**Site Location Map**

Eastern Sanitary Landfill  
Solid Waste Management Facility  
Baltimore County, Maryland

October 2015      Scale: 1" = 2,000'      M13141



**ARM Group Inc.**  
Earth Resource Engineers  
and Consultants  
[www.armgroup.net](http://www.armgroup.net)

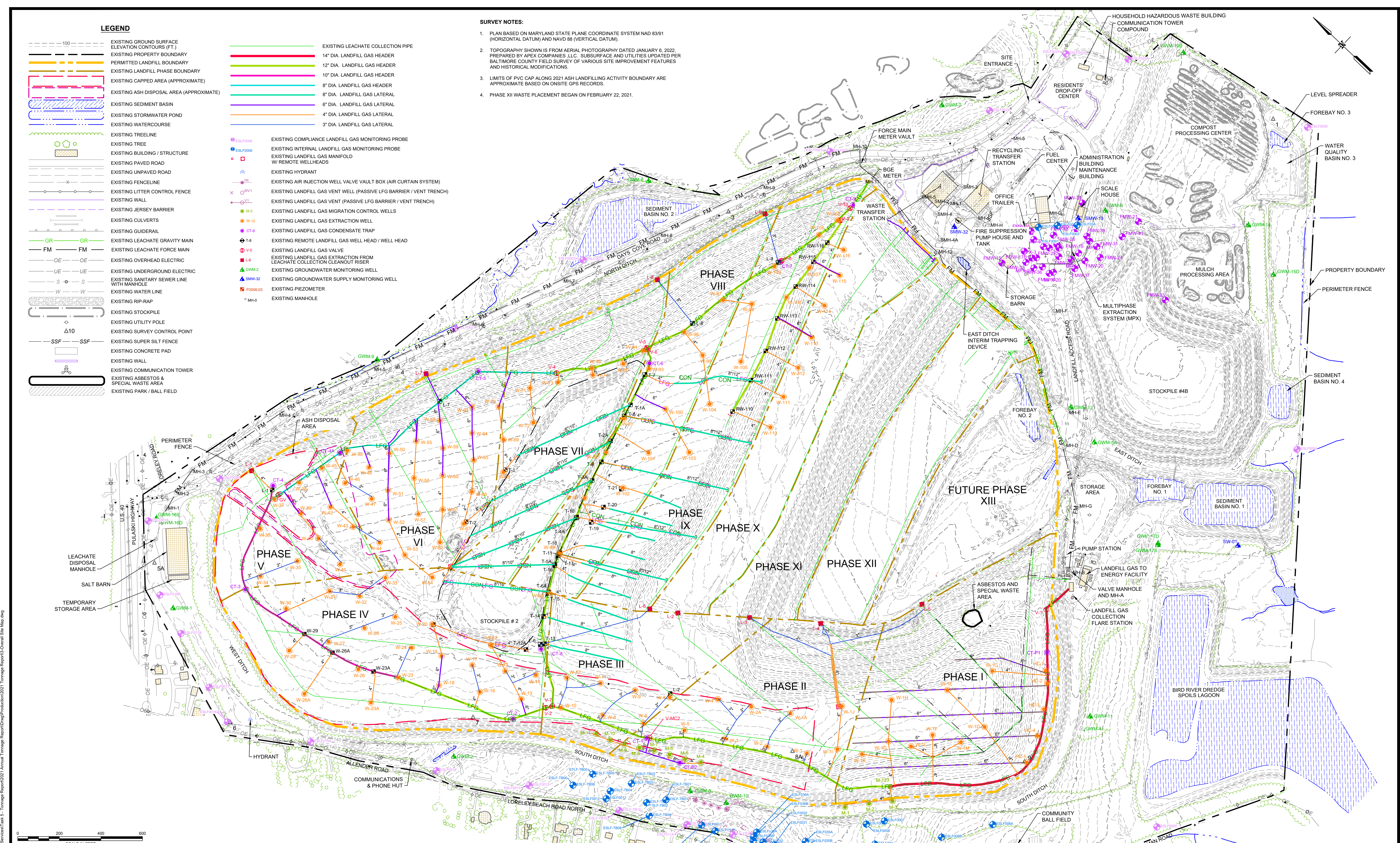
Figure  
**1-1**

**LEGEND**

	EXISTING GROUND SURFACE ELEVATION CONTOURS (FT.)		EXISTING LEACHATE COLLECTION PIPE
	EXISTING PROPERTY BOUNDARY		14" DIA. LANDFILL GAS HEADER
	PERMITTED LANDFILL BOUNDARY		12" DIA. LANDFILL GAS HEADER
	EXISTING LANDFILL PHASE BOUNDARY		10" DIA. LANDFILL GAS HEADER
	EXISTING CAPPED AREA (APPROXIMATE)		8" DIA. LANDFILL GAS HEADER
	EXISTING ASH DISPOSAL AREA (APPROXIMATE)		8" DIA. LANDFILL GAS LATERAL
	EXISTING SEDIMENT BASIN		6" DIA. LANDFILL GAS LATERAL
	EXISTING STORMWATER POND		4" DIA. LANDFILL GAS LATERAL
	EXISTING WATERCOURSE		3" DIA. LANDFILL GAS LATERAL
	EXISTING TREELINE		EXISTING COMPLIANCE LANDFILL GAS MONITORING PROBE
	EXISTING TREE		EXISTING INTERNAL LANDFILL GAS MONITORING PROBE
	EXISTING BUILDING / STRUCTURE		EXISTING LANDFILL GAS MANIFOLD W/ REMOTE WELLS
	EXISTING PAVED ROAD		EXISTING HYDRANT
	EXISTING UNPAVED ROAD		EXISTING AIR INJECTION WELL VALVE VAULT BOX (AIR CURTAIN SYSTEM)
	EXISTING FENCE/LINE		EXISTING LANDFILL GAS VENT WELL (PASSIVE LFG BARRIER / VENT TRENCH)
	EXISTING LITTER CONTROL FENCE		EXISTING LANDFILL GAS VENT (PASSIVE LFG BARRIER / VENT TRENCH)
	EXISTING WALL		EXISTING LANDFILL GAS MIGRATION CONTROL WELLS
	EXISTING JERSEY BARRIER		EXISTING LANDFILL GAS EXTRACTION WELL
	EXISTING CULVERTS		EXISTING LANDFILL GAS CONDENSATE TRAP
	EXISTING GUIDEWAY		EXISTING REMOTE LANDFILL GAS WELL HEAD / WELL HEAD
	EXISTING LEACHATE GRAVITY MAIN		EXISTING LANDFILL GAS VALVE
	EXISTING LEACHATE FORCE MAIN		EXISTING LANDFILL GAS EXTRACTION FROM LEACHATE COLLECTION CLEANOUT RISER
	EXISTING OVERHEAD ELECTRIC		EXISTING GROUNDWATER MONITORING WELL
	EXISTING UNDERGROUND ELECTRIC		EXISTING GROUNDWATER SUPPLY MONITORING WELL
	EXISTING SANITARY SEWER LINE WITH MANHOLE		EXISTING PIEZOMETER
	EXISTING WATER LINE		EXISTING MANHOLE
	EXISTING RIP-RAP		
	EXISTING STOCKPILE		
	EXISTING UTILITY POLE		
	EXISTING SURVEY CONTROL POINT		
	EXISTING SUPER SILT FENCE		
	EXISTING CONCRETE PAD		
	EXISTING WALL		
	EXISTING COMMUNICATION TOWER		
	EXISTING ASBESTOS & SPECIAL WASTE AREA		
	EXISTING PARK / BALL FIELD		

**SURVEY NOTES:**

- PLAN BASED ON MARYLAND STATE PLANE COORDINATE SYSTEM NAD 83/91 (HORIZONTAL DATUM) AND NAVD 88 (VERTICAL DATUM)
- TOPOGRAPHY SHOWN IS FROM AERIAL PHOTOGRAPHY DATED JANUARY 6, 2022, PREPARED BY APEX COMPANIES, LLC. SUBSURFACE AND UTILITIES UPDATED PER BALTIMORE COUNTY FIELD SURVEY OF VARIOUS SITE IMPROVEMENT FEATURES AND HISTORICAL MODIFICATIONS.
- LIMITS OF PVC CAP ALONG 2021 ASH LANDFILLING ACTIVITY BOUNDARY ARE APPROXIMATE BASED ON ONSITE GPS RECORDS.
- PHASE XII WASTE PLACEMENT BEGAN ON FEBRUARY 22, 2021.



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**BALTIMORE COUNTY MARYLAND**

**PROFESSIONAL CERTIFICATION:**  
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. \_\_\_\_\_  
Expiration Date \_\_\_\_\_

DESIGNED TMD  
DRAWN TMR  
CHECKED CPS

P. W. A. DIR. NO.	CONTRACT NO.	DATE	REVISION	BY
DESIGNED TMD	<p><b>ARM Group LLC</b> 9175 Guilford Road, Suite 310 Columbia, MD 21046 www.armgroup.net</p>			
DRAWN TMR	BUREAU OF SOLID WASTE MANAGEMENT	DEPARTMENT OF PUBLIC WORKS	LEVEL BK.	KEY SHEET
CHECKED CPS	APPROVED _____ CHIEF	APPROVED _____ DIRECTOR	DETAIL BK.	POSITION SHEET
	DATE _____	DATE _____		

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF SOLID WASTE MANAGEMENT

EASTERN SANITARY LANDFILL SOLID WASTE MANAGEMENT FACILITY

**2022 OVERALL SITE PLAN**

SCALE: PLAN: 1" = 200'  
PROFILE: HOR. VERT.

CONTRACT NO. M13141-5  
JOB ORDER NO. \_\_\_\_\_  
FLYOVER DATE 01/06/2022  
SHEET 3 OF \_\_\_\_\_ DWG. NO. 3



**LEGEND**

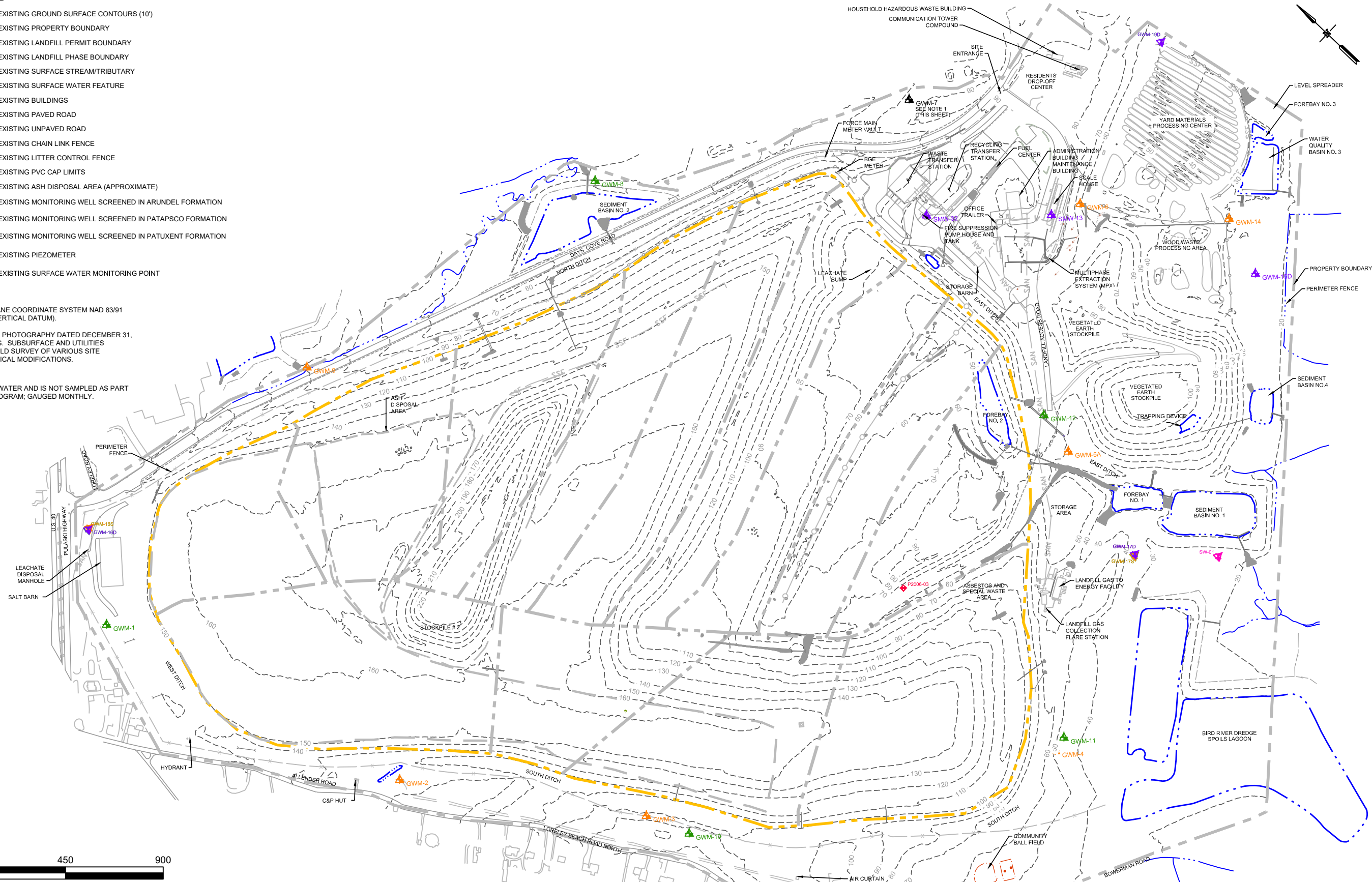
- EXISTING GROUND SURFACE CONTOURS (10')
- EXISTING PROPERTY BOUNDARY
- EXISTING LANDFILL PERMIT BOUNDARY
- EXISTING LANDFILL PHASE BOUNDARY
- EXISTING SURFACE STREAM/TRIBUTARY
- EXISTING SURFACE WATER FEATURE
- EXISTING BUILDINGS
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING CHAIN LINK FENCE
- EXISTING LITTER CONTROL FENCE
- EXISTING PVC CAP LIMITS
- EXISTING ASH DISPOSAL AREA (APPROXIMATE)
- GWM-6 EXISTING MONITORING WELL SCREENED IN ARUNDEL FORMATION
- SMW-32 EXISTING MONITORING WELL SCREENED IN PATAPSCO FORMATION
- SMW-32 EXISTING MONITORING WELL SCREENED IN PATUXENT FORMATION
- P2006-03 EXISTING PIEZOMETER
- SW-01 EXISTING SURFACE WATER MONITORING POINT

**SURVEY NOTES:**

1. PLAN BASED ON MARYLAND STATE PLANE COORDINATE SYSTEM NAD 83/91 (HORIZONTAL DATUM) AND NAVD 88 (VERTICAL DATUM).
2. TOPOGRAPHY SHOWN IS FROM AERIAL PHOTOGRAPHY DATED DECEMBER 31, 2019, PREPARED BY CME ENGINEERING. SUBSURFACE AND UTILITIES UPDATED PER BALTIMORE COUNTY FIELD SURVEY OF VARIOUS SITE IMPROVEMENT FEATURES AND HISTORICAL MODIFICATIONS.

**NOTES:**

1. GWM-7 DOES NOT READILY PRODUCE WATER AND IS NOT SAMPLED AS PART OF THE GROUNDWATER SAMPLING PROGRAM; GAUGED MONTHLY.



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**PROFESSIONAL CERTIFICATION:**  
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
License No. \_\_\_\_\_  
Expiration Date \_\_\_\_\_

P. W. A. DIR. NO.	CONTRACT NO.	DATE	REVISION	BY

DESIGNED <u>ARM</u>	 <b>ARM Group LLC</b> 9175 Guilford Road, Suite 310 Columbia, MD 21046 www.armgroup.net	BUREAU OF SOLID WASTE MANAGEMENT	DEPARTMENT OF PUBLIC WORKS
DRAWN <u>SEH</u>		APPROVED _____	APPROVED _____
CHECKED <u>WJP</u>		DATE _____	DATE _____

LEVEL BK.	KEY SHEET	SCALE
DETAIL BK.	POSITION SHEET	PLAN: 1" = 450'
		PROFILE: HOR. VERT.

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF SOLID WASTE MANAGEMENT  
EASTERN SANITARY LANDFILL SOLID WASTE MANAGEMENT FACILITY  
**GROUNDWATER AND SURFACE WATER LOCATION MAP**

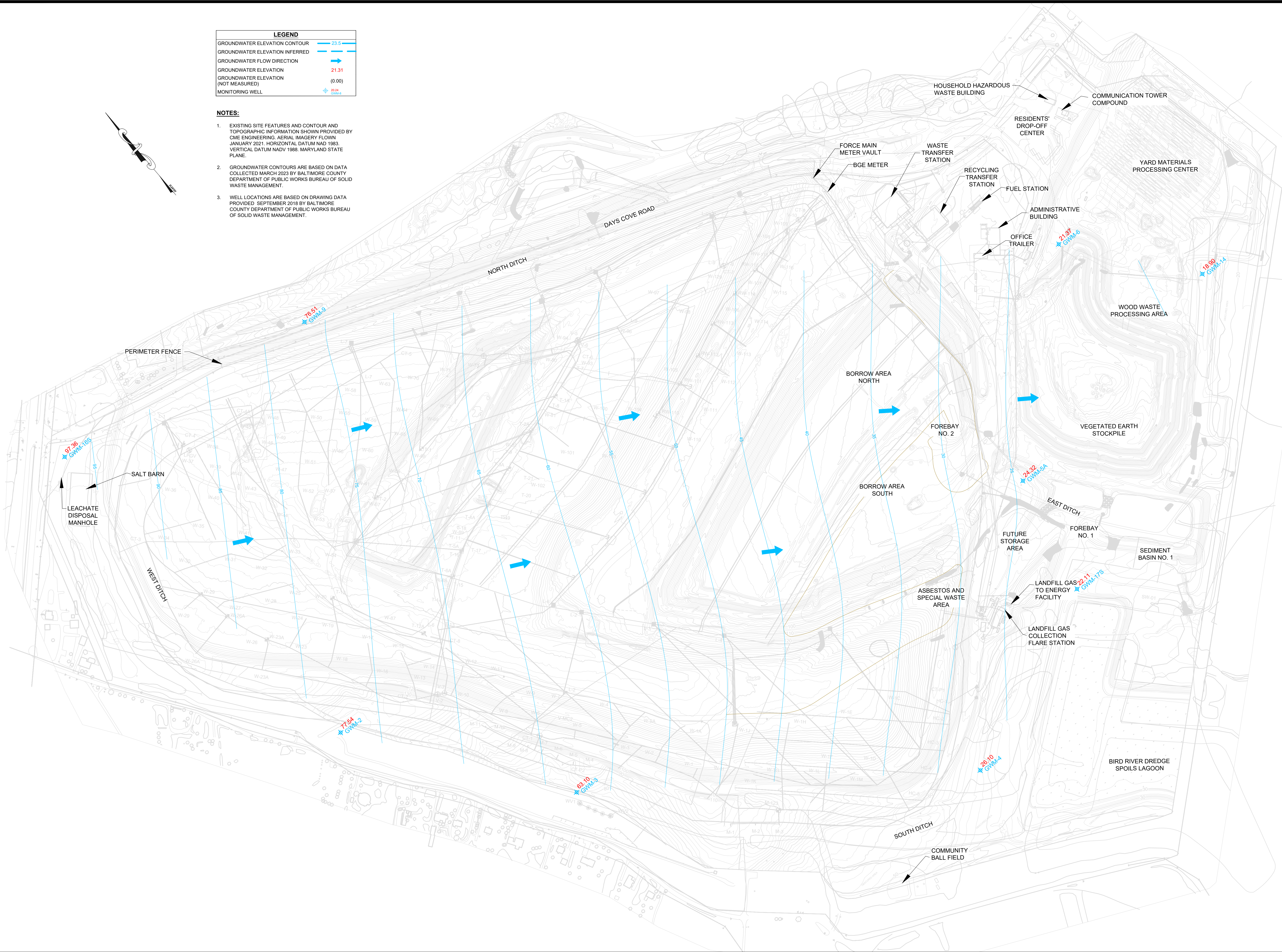
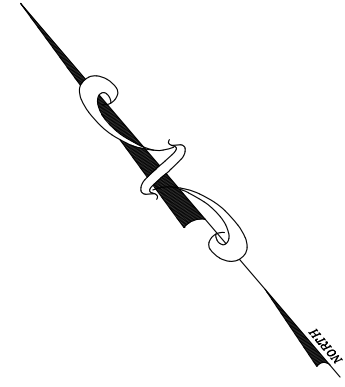
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DWG. NO.	<b>2</b>
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 I:\projects\2019\Baltimore County Solid Waste Management\2019 Update\2019 Topographic Reports\Groundwater Well Location Map.dwg

LEGEND	
GROUNDWATER ELEVATION CONTOUR	23.5
GROUNDWATER ELEVATION INFERRED	21.31
GROUNDWATER FLOW DIRECTION	→
GROUNDWATER ELEVATION (NOT MEASURED)	(0.00)
MONITORING WELL	20.4

**NOTES:**

- EXISTING SITE FEATURES AND CONTOUR AND TOPOGRAPHIC INFORMATION SHOWN PROVIDED BY CME ENGINEERING. AERIAL IMAGERY FLOWN JANUARY 2021. HORIZONTAL DATUM NAD 1983. VERTICAL DATUM NAVD 1988. MARYLAND STATE PLANE.
- GROUNDWATER CONTOURS ARE BASED ON DATA COLLECTED MARCH 2023 BY BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF SOLID WASTE MANAGEMENT.
- WELL LOCATIONS ARE BASED ON DRAWING DATA PROVIDED SEPTEMBER 2018 BY BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF SOLID WASTE MANAGEMENT.



DESIGNED	KP
DETAILED	KP
CHECKED	KP
APPROVED	KP



MARYLAND ENVIRONMENTAL SERVICE ENVIRONMENTAL OPERATIONS GROUP	TIM FORD GROUP DIRECTOR
Dr. CHARLES GLASS DIRECTOR	JOHN AGNOLI ENVIRONMENTAL SECTION CHIEF
	KELSEY PEARCE PROJECT MANAGER

BALTIMORE COUNTY DPW  
BUREAU OF SOLID WASTE MANAGEMENT  
EASTERN SANITARY LANDFILL  
WHITE MARSH, MARYLAND  
GROUNDWATER CONTOUR MAP MARCH 2023  
PATAPSCO FORMATION



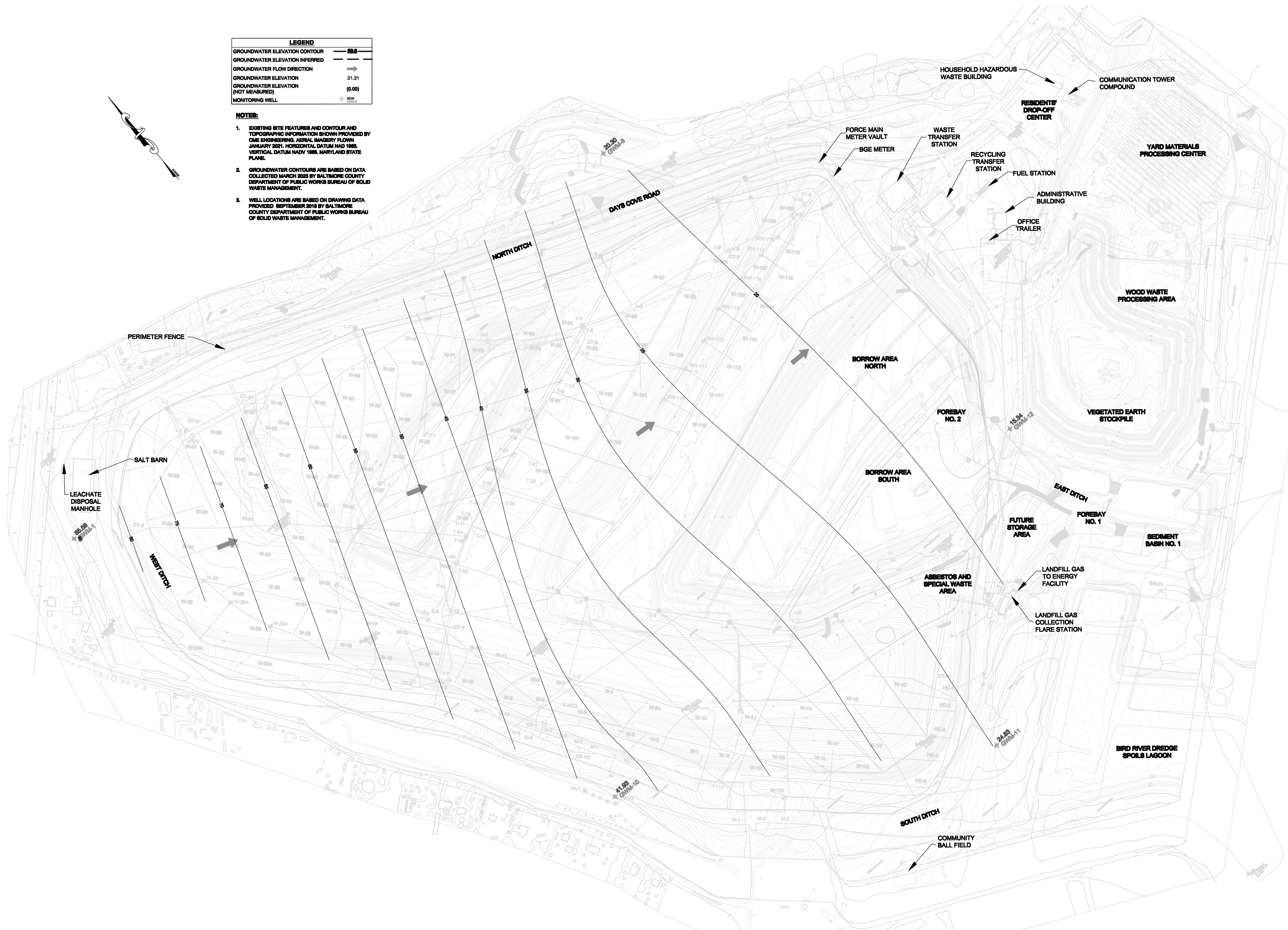
DATE  
MARCH 2023

FIG 2-2

LEGEND	
GROUNDWATER ELEVATION CONTOUR	20.0
GROUNDWATER ELEVATION INFERRED	21.31
GROUNDWATER FLOW DIRECTION	(Arrow symbol)
GROUNDWATER ELEVATION	21.31
GROUNDWATER ELEVATION (NOT MEASURED)	(0.00)
MONITORING WELL	(Well symbol)

**NOTES:**

- EXISTING SITE FEATURES AND CONTOUR AND TOPOGRAPHIC INFORMATION SHOWN PROVIDED BY CME ENGINEERING, AERIAL IMAGERY FLOWN JANUARY 2021. HORIZONTAL DATUM NAD 1983. VERTICAL DATUM NAD 1983. MARYLAND STATE PLANE.
- GROUNDWATER CONTOURS ARE BASED ON DATA COLLECTED MARCH 2023 BY BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF SOLID WASTE MANAGEMENT.
- WELL LOCATIONS ARE BASED ON DRAWING DATA PROVIDED SEPTEMBER 2018 BY BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF SOLID WASTE MANAGEMENT.



DESIGNED KP  
 DETAILED KP  
 CHECKED KP  
 APPROVED KP



MARYLAND ENVIRONMENTAL SERVICE  
 ENVIRONMENTAL OPERATIONS GROUP  
 GROUP DIRECTOR: TIM FORD  
 PROJECT MANAGER: KELSEY BEARCE  
 DIRECTOR: DR. CHARLES GLASS  
 ENVIRONMENTAL SECTION CHIEF: JOHN AGNOLI

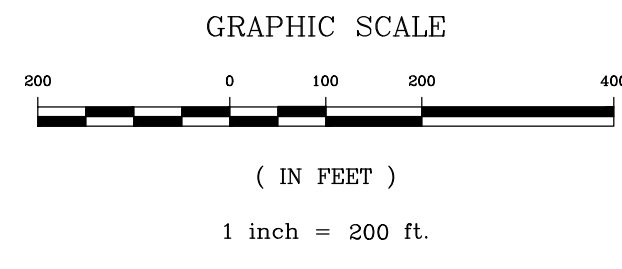
BALTIMORE COUNTY DPW  
 BUREAU OF SOLID WASTE MANAGEMENT  
 EASTERN SANITARY LANDFILL  
 WHITE MARSH, MARYLAND  
 GROUNDWATER CONTOUR MAP MARCH 2023  
 ARUNDEL FORMATION



DATE: MARCH 2023

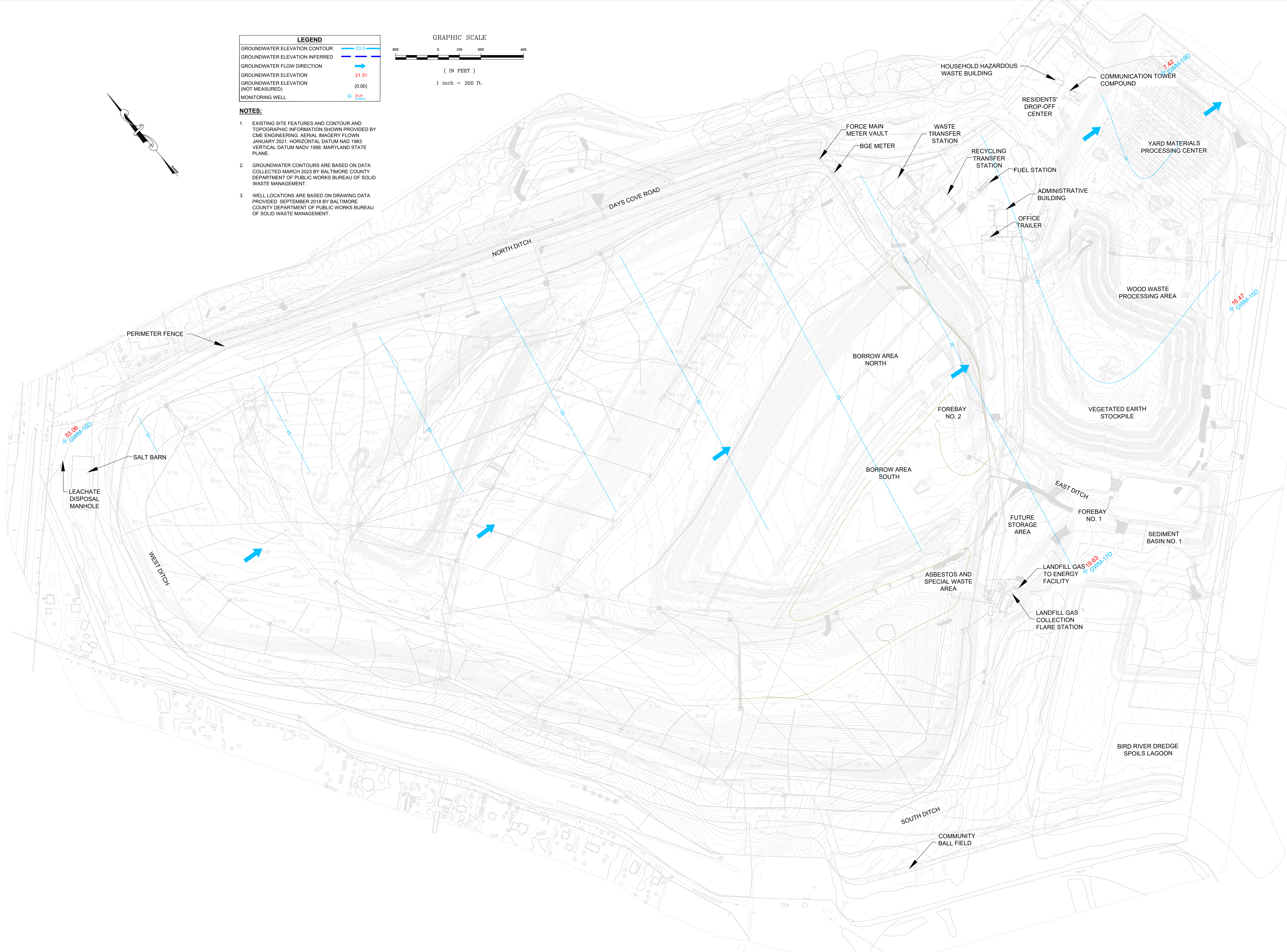
FIG 2-3

LEGEND	
GROUNDWATER ELEVATION CONTOUR	23.5
GROUNDWATER ELEVATION INFERRED	21.31
GROUNDWATER FLOW DIRECTION	
GROUNDWATER ELEVATION	21.31
GROUNDWATER ELEVATION (NOT MEASURED)	(0.00)
MONITORING WELL	



**NOTES:**

- EXISTING SITE FEATURES AND CONTOUR AND TOPOGRAPHIC INFORMATION SHOWN PROVIDED BY CME ENGINEERING. AERIAL IMAGERY FLOWN JANUARY 2021. HORIZONTAL DATUM NAD 1983. VERTICAL DATUM NAVD 1988. MARYLAND STATE PLANE.
- GROUNDWATER CONTOURS ARE BASED ON DATA COLLECTED MARCH 2023 BY BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF SOLID WASTE MANAGEMENT.
- WELL LOCATIONS ARE BASED ON DRAWING DATA PROVIDED SEPTEMBER 2018 BY BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF SOLID WASTE MANAGEMENT.



DESIGNED	KP
DETAILED	KP
CHECKED	KP
APPROVED	KP



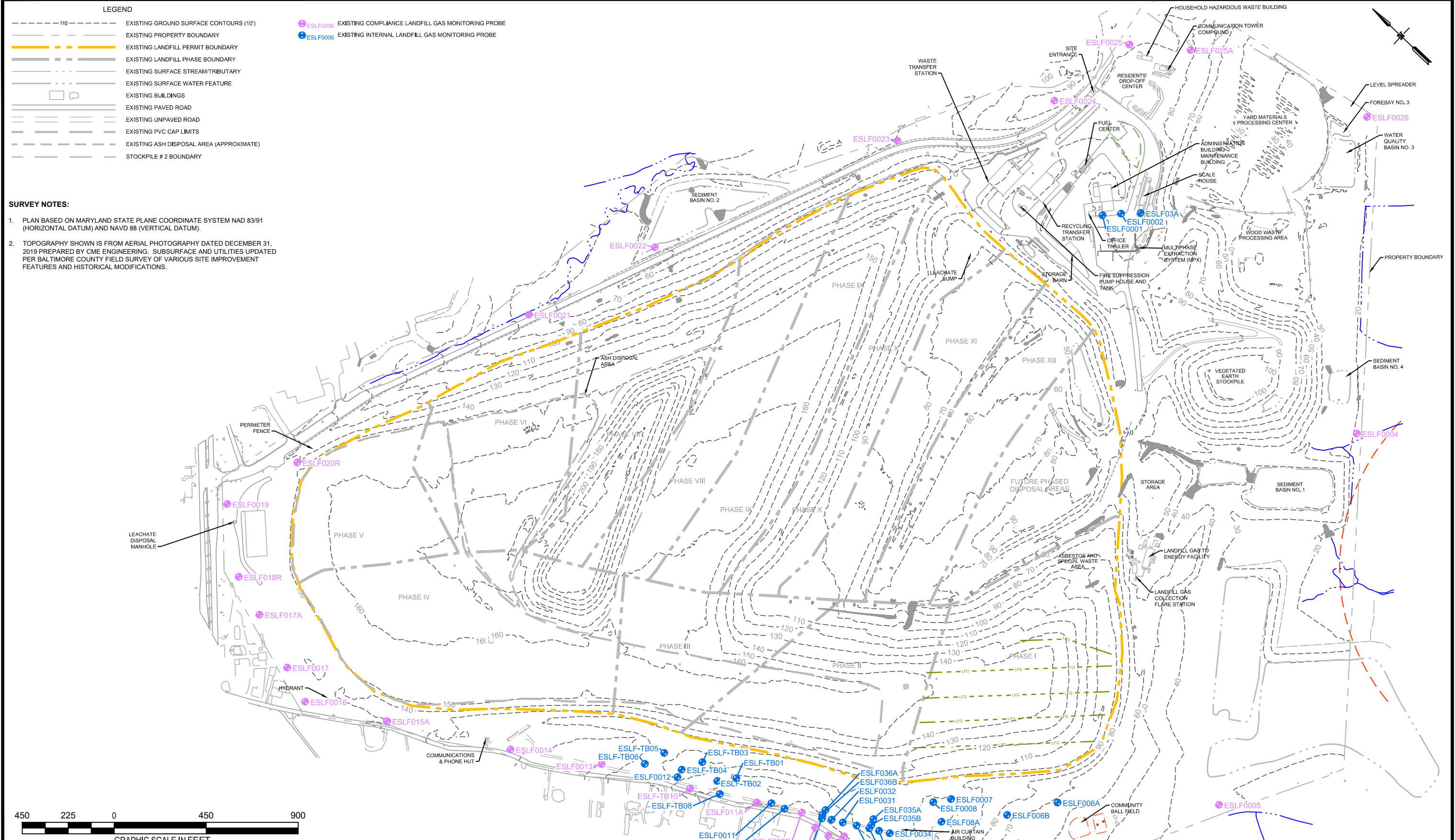
MARYLAND ENVIRONMENTAL SERVICE ENVIRONMENTAL OPERATIONS GROUP	TIM FORD GROUP DIRECTOR
Dr. CHARLES GLASS DIRECTOR	KELSEY PEARCE PROJECT MANAGER
JOHN AGNOLI ENVIRONMENTAL SECTION CHIEF	

BALTIMORE COUNTY DPW  
BUREAU OF SOLID WASTE MANAGEMENT  
EASTERN SANITARY LANDFILL  
WHITE MARSH, MARYLAND  
GROUNDWATER CONTOUR MAP MARCH 2023  
PATUXENT FORMATION



DATE MARCH 2023

**FIG 2-4**



- LEGEND**
- - - 110 EXISTING GROUND SURFACE CONTOURS (10')
  - - - - - EXISTING PROPERTY BOUNDARY
  - - - - - EXISTING LANDFILL PERMIT BOUNDARY
  - - - - - EXISTING LANDFILL PHASE BOUNDARY
  - - - - - EXISTING SURFACE STREAM/TRIBUTARY
  - - - - - EXISTING SURFACE WATER FEATURE
  - - - - - EXISTING BUILDINGS
  - - - - - EXISTING PAVED ROAD
  - - - - - EXISTING UNPAVED ROAD
  - - - - - EXISTING PVC CAP LIMITS
  - - - - - EXISTING ASH DISPOSAL AREA (APPROXIMATE)
  - - - - - STOCKPILE # 2 BOUNDARY
  - ESFL0006 EXISTING COMPLIANCE LANDFILL GAS MONITORING PROBE
  - ESFL0006 EXISTING INTERNAL LANDFILL GAS MONITORING PROBE

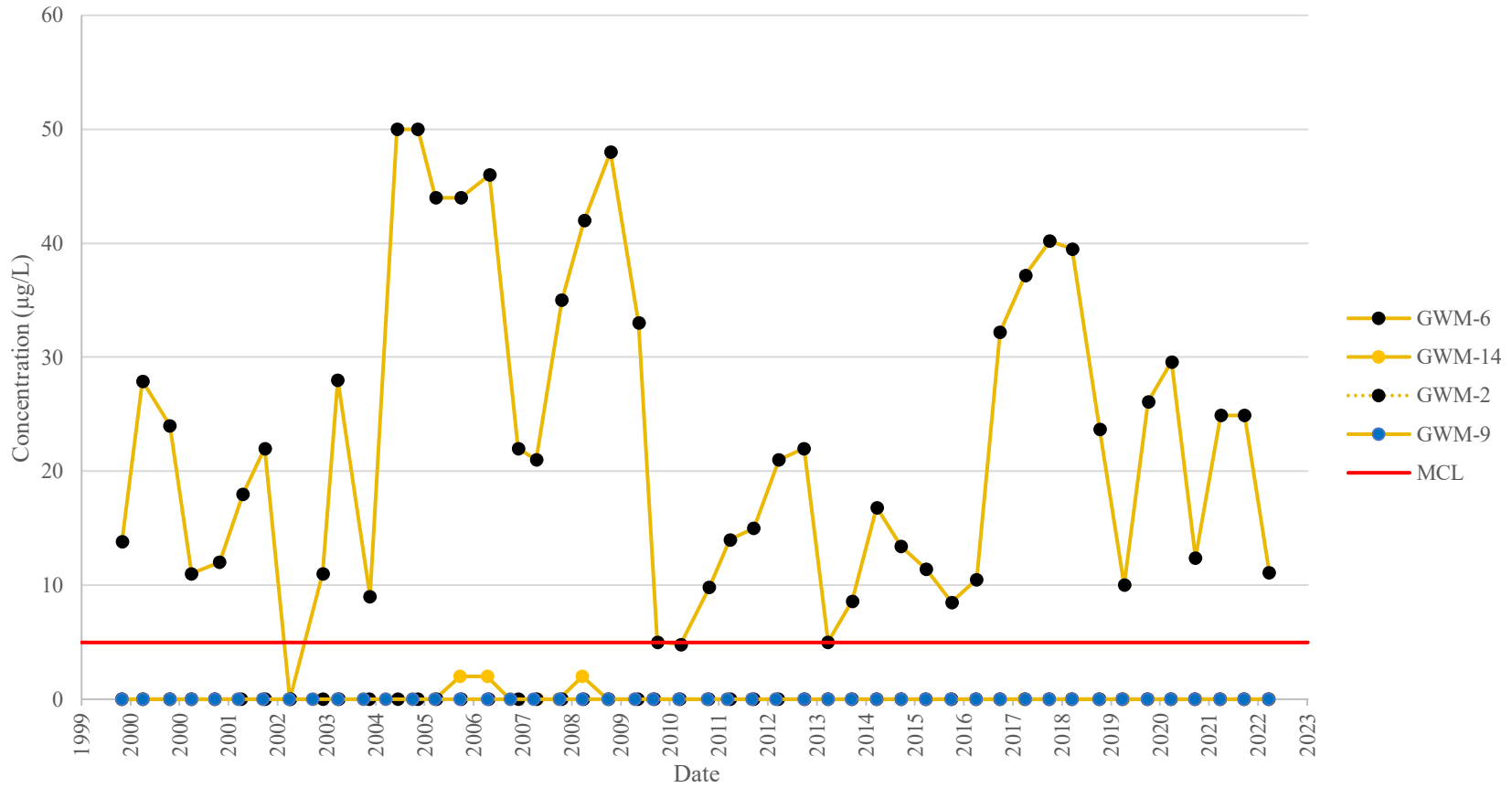
- SURVEY NOTES:**
1. PLAN BASED ON MARYLAND STATE PLANE COORDINATE SYSTEM NAD 83/91 (HORIZONTAL DATUM) AND NAVD 88 (VERTICAL DATUM).
  2. TOPOGRAPHY SHOWN IS FROM AERIAL PHOTOGRAPHY DATED DECEMBER 31, 2019 PREPARED BY CME ENGINEERING. SUBSURFACE AND UTILITIES UPDATED PER BALTIMORE COUNTY FIELD SURVEY OF VARIOUS SITE IMPROVEMENT FEATURES AND HISTORICAL MODIFICATIONS.



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	<b>PROFESSIONAL CERTIFICATION</b> I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  License No. _____ Expiration Date _____	<b>P. W. A. DIR. NO.</b>	<b>CONTRACT NO.</b>	<b>DATE</b>	<b>REVISION</b>	<b>BY</b>																	
	 <b>ARM Group LLC</b> 9175 Guilford Road, Suite 310 Columbia, MD 21046 www.armgroup.net	<b>BUREAU OF SOLID WASTE MANAGEMENT</b>		<b>DEPARTMENT OF PUBLIC WORKS</b>		<b>LEVEL BK.</b>	<b>KEY SHEET</b>	<b>SCALE</b>															
<b>DESIGNED</b> ARM	<b>DRAWN</b> SEH	<b>CHECKED</b> WJP	<b>APPROVED</b> _____ CHIEF	<b>APPROVED</b> _____ DIRECTOR	<b>DETAIL BK.</b>	<b>POSITION SHEET</b>	<b>PLAN:</b> 1" = 450'	<b>PROFILE:</b> HOR. / VERT.															
<b>LANDFILL GAS MONITORING PROBES LOCATION MAP</b>								BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF SOLID WASTE MANAGEMENT EASTERN SANITARY LANDFILL SOLID WASTE MANAGEMENT FACILITY	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>CONTRACT NO.</td><td>M13141-5</td></tr> <tr><td>JOB ORDER NO.</td><td></td></tr> <tr><td>FLYOVER DATE</td><td>12/31/2019</td></tr> <tr><td>SHEET</td><td>3</td></tr> <tr><td>OF</td><td></td></tr> <tr><td>DWG. NO.</td><td></td></tr> <tr><td>FILE</td><td></td></tr> </table>	CONTRACT NO.	M13141-5	JOB ORDER NO.		FLYOVER DATE	12/31/2019	SHEET	3	OF		DWG. NO.		FILE	
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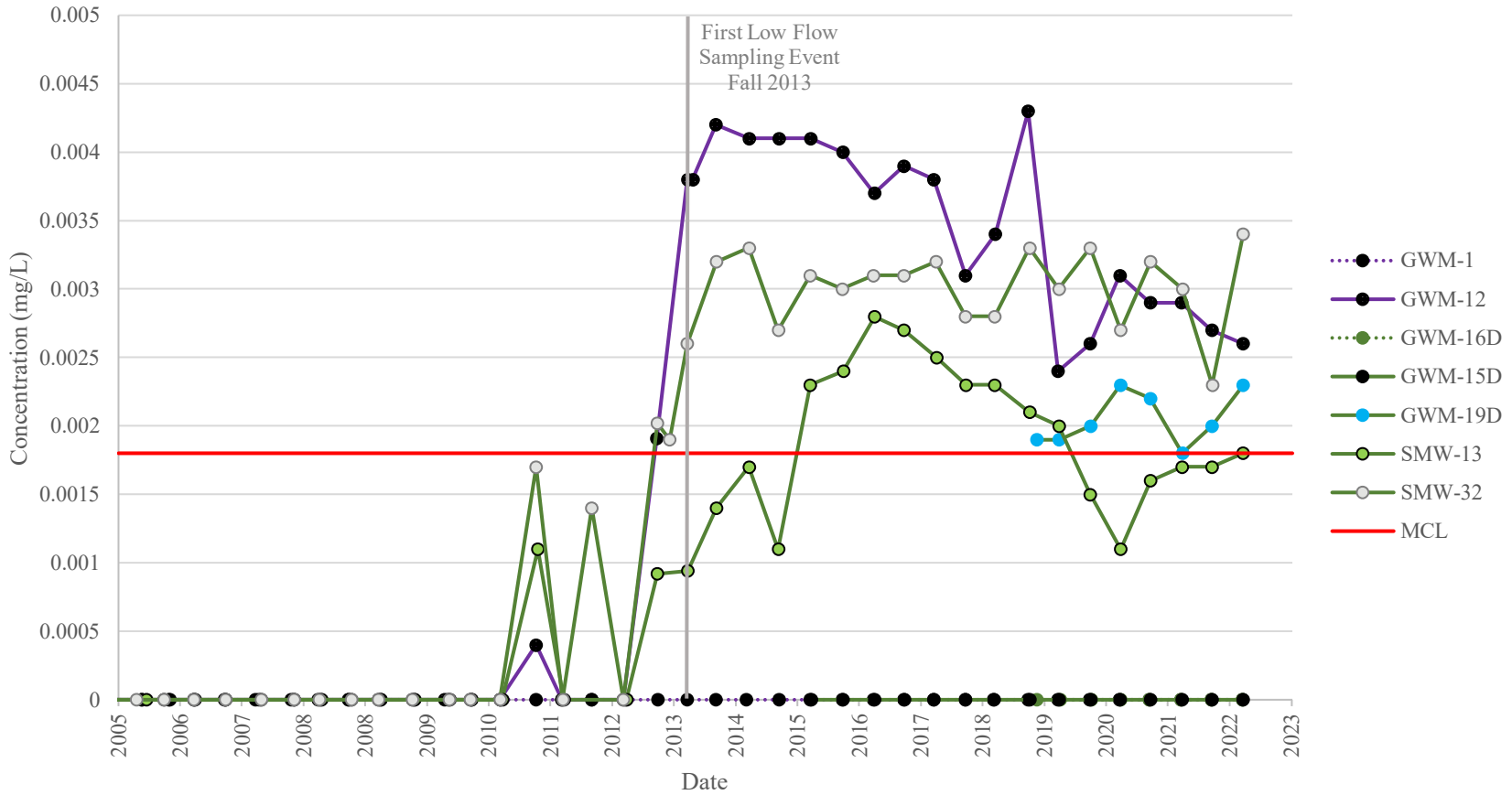
**Figure 4-1: Benzene Concentrations by Well**



**Notes:**

- 1) MCL = Maximum Contaminant Level (Benzene = 5 µg/L)
- 2) Trend Line Pattern: Dotted = Background well | Solid = Compliance well
- 3) Trend Line Color = Patapsco Aquifer (Shallow)
- 4) Concentrations with the value zero were non-detect, below the detection limit.

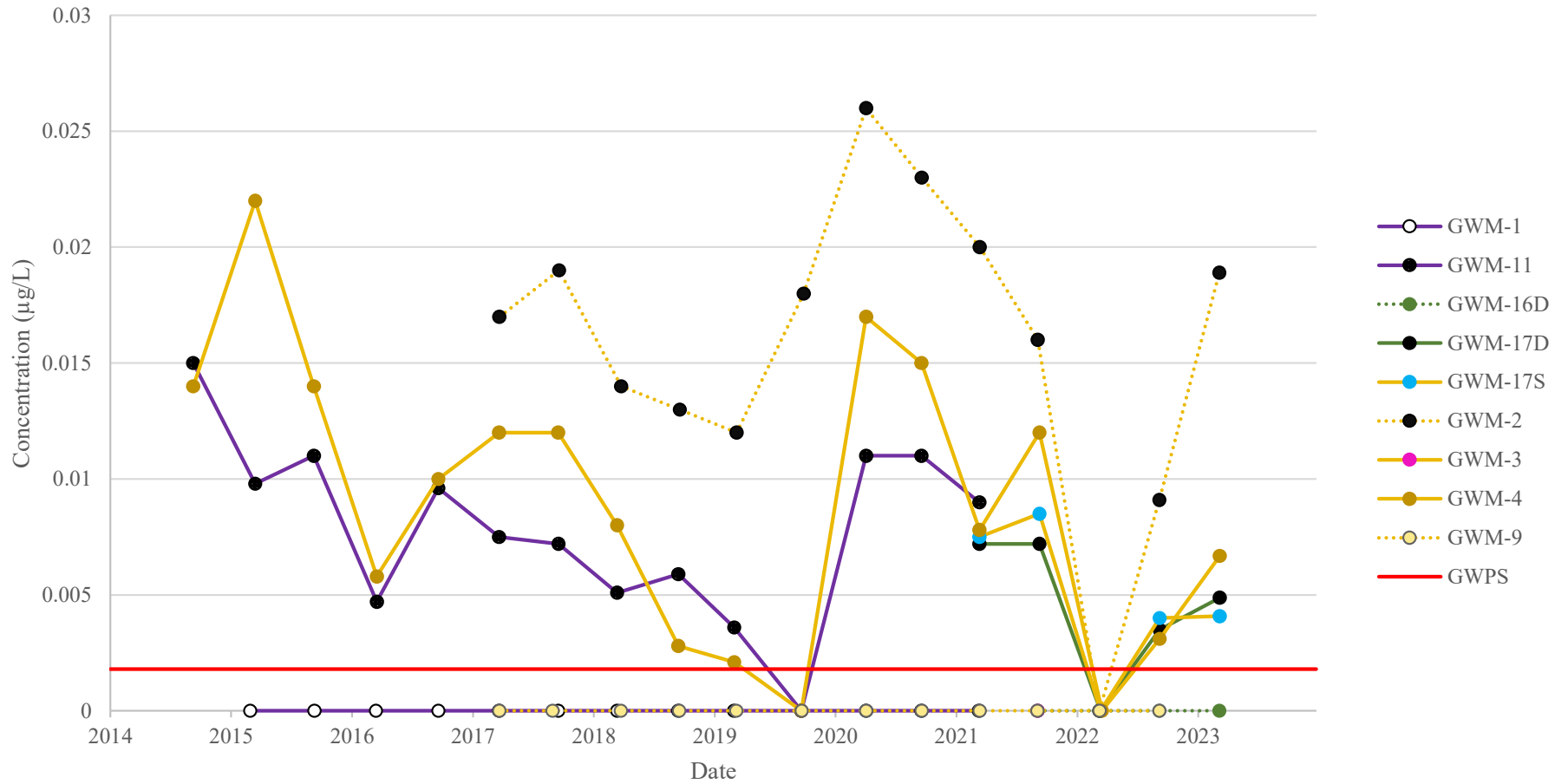
**Figure 4-2: Mercury Concentrations by Well**



**Notes:**

- 1) MCL = Maximum Contaminant Level (Mercury = 0.002 mg/L)
- 2) Trend Line Pattern: Dotted = Background well | Solid = Compliance well
- 3) Trend Line Color = Arundel Formation Patuxent Aquifer (Deep)
- 4) Concentrations with the value zero were non-detect, below the detection limit.

**Figure 4-3: Dieldrin Concentrations by Well**





# APPENDICIES

Appendix A: Monitoring Parameters per Refuse Disposal Permit

Appendix B: Sample Logs and Instrument Calibration Data

Appendix C: Laboratory Data Validation, Sample Chain of Custody Records, and Laboratory Results

Appendix D: Spring 2022 Groundwater and Surface Water Event Summary Tables (Analytical Results) for Volatile Organic Compounds (Table I), Metals (Table II) and Water Quality Parameters, and Assessment Monitoring Parameters

Appendix E: Time Series (Historical) Data Tables

Appendix F: Statistical Analysis Results

# **APPENDIX A**

Monitoring Parameters per Refuse Disposal Permit

- k. Upon detection of the exceedance of an MCL, Action Level or other health standard for the first time, the monitoring point(s) in which the standard was exceeded must be immediately resampled to verify the initial detection. This resampling must occur as soon as possible, and no later than 30 days following receipt of the analytical data by the permittee or the qualified groundwater scientist or professional who is reviewing the analytical data which indicated the exceedance. If the permittee accepts the initial sampling result as a valid result, then the permittee can elect to not resample the monitoring point(s);
- l. All data for each well must be summarized and presented in time series format. The data for each well must be presented in a spreadsheet so that the water quality data for each parameter for each well can be observed simultaneously; and
- m. All “J” values must be reported. “J” values are analytical results that are below the PQL but can be estimated.

**TABLE I  
MONITORING PARAMETERS**

VOLATILE ORGANIC COMPOUNDS	PQL (ppb)	VOLATILE ORGANIC COMPOUNDS	PQL (ppb)
Acetone	5.0	Cis-1,2-Dichloroethene	1.0
Acrylonitrile	5.0	Trans-1,2-Dichloroethene	1.0
Benzene	1.0	Methylene Chloride	1.0
Bromochloromethane	1.0	1,2-Dichloropropane	1.0
Bromodichloromethane	1.0	Trans-1,3-Dichloropropene	1.0
Bromoform	1.0	Cis-1,3-Dichloropropene	1.0
Bromomethane	1.0	Ethylbenzene	1.0
2-Butanone	5.0	2-Hexanone	5.0
Carbon disulfide	1.0	Iodomethane	1.0
Carbon Tetrachloride	1.0	4-Methyl-2-pentanone	5.0
Chlorobenzene	1.0	Methyl Tertiary Butyl Ether	2.0
Chloroethane	1.0	Styrene	1.0
Chloroform	1.0	1,1,1,2-Tetrachloroethane	1.0
Chloromethane	1.0	1,1,2,2-Tetrachloroethane	1.0
Dibromochloromethane	1.0	Tetrachloroethene	1.0
1,2-Dibromo-3-chloropropane	1.0	Toluene	1.0
1,2 – Dibromoethane (EDB)	1.0	1,1,1-Trichloroethane	1.0
Dibromomethane	1.0	1,1,2-Trichloroethane	1.0
1,2 – Dichlorobenzene	1.0	Trichloroethene	1.0
1,4 – Dichlorobenzene	1.0	Trichlorofluoromethane	1.0
Trans-1,4-dichloro-2-butene	5.0	1,2,3-Trichloropropane	1.0
1,1-Dichloroethane	1.0	Vinyl Acetate	1.0
1,2-Dichloroethane	1.0	Vinyl Chloride	1.0
1,1-Dichloroethene	1.0	Xylene	1.0

**TABLE II  
MONITORING PARAMETERS**

ELEMENTS AND INDICATOR PARAMETERS	PQL (ppm)	ELEMENTS AND INDICATOR PARAMETERS	PQL (ppm)
Total Antimony	0.0020	Total Silver	0.0100
Total Arsenic	0.0020	Total Sodium	0.2
Total Barium	0.0100	Total Thallium	0.0020
Total Beryllium	0.0020	Total Vanadium	0.0100
Total Cadmium	0.0040	Total Zinc	0.0100
Total Chromium	0.0100	PH	0.1 (SU)
Total Calcium	0.08	Alkalinity	1
Total Cobalt	0.0100	Hardness	0.5
Total Copper	0.0100	Chloride	0.39
Total Iron	0.005	Specific Conductance	1
Total Lead	0.0020	Nitrate	0.06
Total Nickel	0.0110	Chemical Oxygen Demand	10
Total Magnesium	0.004	Turbidity	0.11 (NTU)
Total Manganese	0.0100	Ammonia	1
Total Mercury	0.0002	Sulfate	0.38
Total Potassium	0.39	Total Dissolved Solids	10
Total Selenium	0.035		

3. The semiannual report on water quality must include a time series analysis of the data. The historical data from each well should be presented in a tabular form in each semiannual report. The discussion should emphasize historical trends in the data. Also, the report must include statistical analysis methods in evaluating groundwater monitoring data as required under the federal regulation 40 CFR §258.53(g)-(i).
4. A copy of the most current topographic map generated by a survey performed as required in this permit shall be included in each semiannual report on water quality and shall depict the location of all monitoring wells and piezometers in existence at the time of the survey.
5. A copy of a current groundwater contour map depicting the location of all monitoring wells from which groundwater data is collected shall be included in each semiannual report on water quality. Multiple aquifers shall be depicted on separate groundwater contour maps.
6. The requirements of 40 CFR §258 subpart E concerning groundwater monitoring and remediation must be followed to the satisfaction of the Department.

**G. Spreading and Compaction:**

Solid waste shall be spread in uniform layers and compacted to its smallest practicable volume before application of cover material.

# **APPENDIX B**

Sample Logs and Instrument Calibration Data

**Baltimore County Bureau of Solid Waste Management**  
**Sampling Log**

Landfill Name: ESL

Well ID: GWM-1

Location: White Marsh, MD

Personnel: L. Russell / T. Reedy / B. Zibell

Date: 3-13-23

Weather: Overcast / Low-Mid 40s

Arrival Time: 0900

Well Depth: 78 feet

Well Diameter: 4 inches

Depth to Water: 60.21 feet

61.15

Time	Water Level (feet)	Pumping Rate (ml/min)	DO (mg/l)	Temp. (°C)	Specific Conductance (µS/cm)	pH	ORP (mV)	Turbidity (NTU)
	<del>61.15</del>					7.25		
5	62.21	300	5.92	14.18	280.12	<del>7.25</del>	292.3	40.08
10	62.85	420	5.98	14.34	277.82	<del>5.98</del>	283.9	41.68
15	63.40	320	6.13	14.43	272.42	<del>6.13</del>	271.0	35.37
20	64.03	340	6.20	14.70	268.01	6.88	253.4	28.48
25	64.74	420	6.30	15.06	262.13	6.81	237.9	36.66
30	65.45	340	6.40	15.14	254.91	6.75	227.4	28.46
35	66.25	420	6.49	15.21	247.86	6.72	214.6	18.57
40	66.98	400	<del>6.69</del>	15.19	242.86	6.69	210.1	14.26
45	67.65	420	<del>6.58</del>	14.96	238.29	<del>6.65</del>	207.3	10.00
50	68.37	380	6.68	15.08	234.51	<del>6.67</del>	201.1	11.49
55	68.90	320	6.74	14.91	231.09	6.64	201.5	10.19
60	69.18	220	6.77	14.71	230.13	6.64	200	11.53

Sampling Time: 1029

Notes: Turbidity was outside stabilization criteria when purge was completed. Sample was collected after 60 minutes low-flow purge.

**Baltimore County Bureau of Solid Waste Management**  
**Sampling Log**

Landfill Name: ESL

Well ID: Gwm-2

Location: White Marsh, MD

Personnel: L. Russell / T. Reedy / B. Zibell

Date: 3-13-23

Weather: Overcast / Mid 40s

Arrival Time: 1400

Well Depth: 61 feet

Well Diameter: 4 inches

Depth to Water: 49.10 feet

49.81

Time	Water Level (feet)	Pumping Rate (ml/min)	DO (mg/l)	Temp. (°C)	Specific Conductance (µS/cm)	pH	ORP (mV)	Turbidity (NTU)
5	50.10	320	2.91	12.97	329.73	4.56	355.4	20.97
10	50.22	420	2.82	13.21	329.15	4.61	353.8	18.92
15	50.05	320	2.76	12.91	327.69	4.61	349.1	20.41
20	50.00	340	2.70	13.04	327.51	4.59	350.0	18.10
25	49.98	340	2.66	13.15	327.18	4.60	349.2	21.34
30	49.98	340	2.61	13.19	326.77	4.61	347.0	20.12
35	50.00	340	2.59	13.17	326.82	4.59	349.9	19.36
40	50.02	360	2.58	13.12	326.68	4.60	347.60	21.41

Sampling Time: 1507

Notes: Stabilization criteria met after 40 minutes low-flow well purge.

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**Baltimore County Bureau of Solid Waste Management**  
**Sampling Log**

Landfill Name: ESL

Well ID: GWM-3

Location: White Marsh, MD

Personnel: LR/BZ

Date: 3-15-23

Weather: Pt. Cloudy/Low 40s

Arrival Time: 0915

Well Depth: 42 feet

Well Diameter: 4 inches

Depth to Water: 32.14 feet

32.17

Time	Water Level (feet)	Pumping Rate (ml/min)	DO (mg/l)	Temp. (°C)	Specific Conductance (µS/cm)	pH	ORP (mV)	Turbidity (NTU)
5	32.14	220	5.76	11.17	158.37	4.83	196	21.09
10	32.14	260	5.89	13.12	161.31	4.85	185.7	335.41
15	32.17 <sup>180</sup>	<del>500</del>	5.51	14.34	156.44	4.84	198.4	39.36
20	32.15	320	5.79	14.11	164.43	4.90	199.3	101.66
25	32.16	420	5.72	14.27	161.95	4.91	201	50.86
30	32.17	460	5.71	14.34	161.93	4.93	203.8	34.25
35	32.18	500	5.76	14.40	163.69	4.96	206.5	27.81
40	32.16	380	5.83	14.05	164.79	4.98	206.2	28.59
45	32.15	400	5.80	14.14	164.03	4.99	205.8	16.82
50	32.15	400	5.83	14.27	165.25	5.01	203.1	11.75
55	32.15	400	5.82	14.26	165.25	5.02	201.9	11.66
60	32.17	460	5.84	14.26	165.68	5.04	206.9	8.10

Sampling Time: 1045

Notes: Turbidity was outside stabilization criteria when purge was completed. Sample was collected after 60 minutes low-flow purge.



**Baltimore County Bureau of Solid Waste Management**  
**Sampling Log**

Landfill Name: ESL

Well ID: GWM-4

Location: White Marsh, MD

Personnel: LR/TR

Date: 3-14-23

Weather: Windy/High 30s

Arrival Time: 1020

Well Depth: 41 feet

Well Diameter: 4 inches

Depth to Water: 25.03 feet

25.53

Time	Water Level (feet)	Pumping Rate (ml/min)	DO (mg/l)	Temp. (°C)	Specific Conductance (µS/cm)	pH	ORP (mV)	Turbidity (NTU)
5	<del>25.53</del>	340	0.35	17.33	761.79	6.41	55.4	1.16
10	<del>25.18</del>	340	0.31	17.29	763.28	6.48	66.8	0.64
15	25.18	340	0.29	17.41	763.63	6.50	66.5	0.66
20	25.18	360	0.25	17.45	763.60	6.50	54.9	0.63
25	25.18	360	0.24	17.48	764.25	6.50	51.9	0.55
30	25.18	360	0.22	17.67	762.52	6.48	44.7	0.53
35	25.18	360	0.20	17.67	761.74	6.47	39.2	0.53
40	25.18	360	0.20	17.67	759.99	6.45	37.2	0.41

Sampling Time: 1110

Notes: Stabilization criteria met after 40 minutes low-flow well purge.

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**Baltimore County Bureau of Solid Waste Management**  
**Sampling Log**

Landfill Name: ESL

Well ID: GWM-5A

Location: White Marsh, MD

Personnel: LR/BZ/TR

Date: 3/16/23

Weather: Sunny / mid 50s

Arrival Time 1405

Well Depth: 40 feet

Well Diameter: 4 inches

Depth to Water: 26.31 feet

26.67

Time	Water Level (feet)	Pumping Rate (ml/min)	DO (mg/l)	Temp. (°C)	Specific Conductance (µS/cm)	pH	ORP (mV)	Turbidity (NTU)
5	26.47	420	2.11	15.31	473.08	5.57	101.8	2.28
10	26.47	440	1.66	15.40	449.51	5.50	86.7	2.15
15	26.47	440	1.42	15.46	434.28	5.48	81.7	1.37
20	26.47	440	1.20	15.46	421.04	5.48	80.2	1.46
25	26.48	440	1.13	15.45	414.87	5.51	78.5	1.27
30	26.48	440	1.00	15.49	404.21	5.50	78.6	1.36
35	26.48	440	0.85	15.50	397.26	5.50	79.5	2.01
40	26.47	440	0.80	15.51	390.62	5.48	81.2	3.38
45	26.48	320	0.72	15.59	384.79	5.48	81.7	4.19
* 50	26.46	240	9.30	17.90	0.06	5.12	-0.2	0.93
55	26.40	240	0.97	15.93	347.14	5.47	79.2	3.95
60	26.38	240	0.70	16.12	335.30	5.44	85.0	0.85

Sampling Time: 1515

Notes: \* Pump controller stopped <sup>before</sup> at 50 min purge. Readings were taken while pump was stopped and no water was in ~~the~~ flow-through cell. Sample was collected after 60 minutes low flow purge, final readings may not be representative of the sample collected at 1515.

**Baltimore County Bureau of Solid Waste Management**  
**Sampling Log**

Landfill Name: ESL

Well ID: GWM-6

Location: White Marsh, MD

Personnel: LR/BZ

Date: 3-17-23

Weather: Light Rain/High 50s

Arrival Time 1315

Well Depth: 60 feet

Well Diameter: 4 inches

Depth to Water: 41.18 feet

41.21

Time	Water Level (feet)	Pumping Rate (ml/min)	DO (mg/l)	Temp. (°C)	Specific Conductance (µS/cm)	pH	ORP (mV)	Turbidity (NTU)
<u>5</u>	<u>41.21</u>	<u>440</u>	<u>0.43</u>	<u>14.12</u>	<u>612.04</u>	<u>6.17</u>	<u>-118.0</u>	<u>0.36</u>
<u>10</u>	<u>41.20</u>	<u>180</u>	<u>0.37</u>	<u>15.06</u>	<u>622.24</u>	<u>6.15</u>	<u>-122.9</u>	<u>0.95</u>
<u>15</u>	<u>41.20</u>	<u>180</u>	<u>0.34</u>	<u>14.98</u>	<u>614.90</u>	<u>6.18</u>	<u>-124.1</u>	<u>2.51</u>

Sampling Time: 1350

Notes: Stabilization criteria met after 15 min well purge.

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**Baltimore County Bureau of Solid Waste Management**  
**Sampling Log**

Landfill Name: ESK

Well ID: GWM-8

Location: White Marsh, MD

Personnel: LR / BZ / TR

Date: 3-15-23

Weather: Sunny / mid 40s

Arrival Time 1330

Well Depth: 61 feet

Well Diameter: 4 inches

Depth to Water: 26.88 feet

26.87

Time	Water Level (feet)	Pumping Rate (ml/min)	DO (mg/l)	Temp. (°C)	Specific Conductance (µS/cm)	pH	ORP (mV)	Turbidity (NTU)
5	27.62	420	0.27	13.78	284.09	8.30	170.1	14.92
10	28.37	500	0.35	13.87	282.09	8.36	146.6	14.63
15	28.72	240	0.70	14.03	277.79	8.71	140.7	15.88
20	29.17	240	2.15	13.90	266.95	9.51	115.4	15.97
25	29.64	240	3.05	13.91	263.79	9.91	87.3	23.49
30	30.18	280	3.44	14.03	264.76	10.13	59.6	27.70
35	30.71	260	3.60	14.11	265.64	10.24	47.6	25.82
40	31.15	280 <sup>300</sup>	3.65	14.04	265.50	10.29	41.3	36.06
45	31.62	220	3.70	14.27	265.54	10.35	35.1	34.33
50	31.92	200	3.73	14.13	265.02	10.39	31.9	23.20
55	32.26	200	3.78	14.05	265.19	10.41	28.9	23.55
60	32.55	180	3.79	14.03	265.13	10.43	26.6	26.51

Sampling Time: 1450

Notes: Turbidity was outside stabilization criteria when purge was completed. Sample was collected after 60 min low-flow purge.

**Baltimore County Bureau of Solid Waste Management**  
**Sampling Log**

Landfill Name: ESL

Well ID: GWM-9

Location: White Marsh, MD

Personnel: L. Russell / T. Reedy / B. Zibell

Date: March 13, 2023

Weather: Overcast / Mid 40s

Arrival Time 1315

Well Depth: 30 feet

Well Diameter: 4 inches

Depth to Water: 20.15 feet

20.25

Time	Water Level (feet)	Pumping Rate (ml/min)	DO (mg/l)	Temp. (°C)	Specific Conductance (µS/cm)	pH	ORP (mV)	Turbidity (NTU)
5	20.20	340	7.18	12.96	749.28	5.01	341.3	2.74
10	20.19	320	7.14	13.16	749.98	5.06	338.9	3.09
15.	20.19	340	7.08	13.24	751.49	5.10	338.0	3.69

Sampling Time: 1350

Notes: Stabilization criteria met after 15 min well purge

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**Baltimore County Bureau of Solid Waste Management**  
**Sampling Log**

Landfill Name: ESL

Well ID: GWM-10

Location: White Marsh, MD

Personnel: LR/BZ

Date: 3-15-23

Weather: pt. Cloudy/Low 40s

Arrival Time 1100

Well Depth: 80 feet

Well Diameter: 4 inches

Depth to Water: 49.29 feet

50.05

Time	Water Level (feet)	Pumping Rate (ml/min)	DO (mg/l)	Temp. (°C)	Specific Conductance (µS/cm)	pH	ORP (mV)	Turbidity (NTU)
5	50.28	140	0.36	10.88	40.67	4.26	256.3	0.52
10	52.21	500	0.19	13.98	41.52	4.24	274.7	0.46
15	52.52	280	0.28	13.34	41.68	4.37	275	0.42
20	53.21	380	0.46	13.40	41.89	4.33	277.7	0.47
25	53.87	360	1.00	13.54	41.95	4.36	277.7	0.44
30	54.49	360	1.27	13.55	42.12	4.41	273.0	0.39
35	55.06	220	1.38	13.52	42.25	4.43	271.1	0.37
40	55.51	220	1.60	13.36	42.34	4.47	266.10	0.41
45	55.88	200	1.69	13.17	42.31	4.50	261.76	0.41
50	56.21	220	1.83	13.05	42.44	4.55	256.7	0.41

Sampling Time: 1210

Notes: Duplicate sample MW-15A collected, time recorded on chain of custody as 1250

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**Baltimore County Bureau of Solid Waste Management**  
**Sampling Log**

Landfill Name: ESL

Well ID: GWM-11

Location: White Marsh, MD

Personnel: LR/TR

Date: 3-14-23

Weather: windy/high 30s

Arrival Time: 0920

Well Depth: 80 feet

Well Diameter: 4 inches

Depth to Water: 23.70 feet

23.85

Time	Water Level (feet)	Pumping Rate (ml/min)	DO (mg/l)	Temp. (°C)	Specific Conductance (µS/cm)	pH	ORP (mV)	Turbidity (NTU)
5	23.77	300	0.76	15.51	970.06	6.10	-23.5	0.11
10	23.77	300	0.24	16.14	972.71	6.05	-54.9	0.09
15	23.77	300	0.17	16.13	971.58	6.05	-74.7	0.10
20	23.77	280	0.15	16.00	971.70	6.06	-85.4	0.06
25	23.77	280	0.14	16.02	972.89	6.07	-90.3	0.08
30	23.77	280	0.14	16.01	967.56	6.09	-91.1	0.03

Sampling Time: 1010

Notes: Stabilization criteria met after 30 min well purge.

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**Baltimore County Bureau of Solid Waste Management**  
**Sampling Log**

Landfill Name: EST

Well ID: GWM-12

Location: White Marsh, MD

Personnel: LR/BZ/TR

Date: 3-17-23

Weather: Cloudy/Low-Mid 40s

Arrival Time 0910

Well Depth: 109 feet

Well Diameter: 4 inches

Depth to Water: 47.71 feet

47.98

Time	Water Level (feet)	Pumping Rate (ml/min)	DO (mg/l)	Temp. (°C)	Specific Conductance (µS/cm)	pH	ORP (mV)	Turbidity (NTU)
5	47.81	400	1.89	13.72	194.90	4.39	244.5	0.16
10	47.82	440	1.65	14.11	197.25	4.53	256	0.22
15	47.84	460	1.57	14.27	196.59	4.57	<del>265.2</del>	0.23
20	47.85	500	1.51	14.26	197.08	4.62	271.5	0.25
25	47.82	360	1.50	14.15	195.25	4.65	276.2	0.21
30	47.81	340	1.48	14.19	205.51	4.67	278.6	0.25
35	47.82	340	1.47	14.20	205.06	4.69	280.8	0.25
40	47.82	360	1.47	14.15	204.82	4.71	283.2	0.20

Sampling Time: 1010

Notes: Stabilization criteria met after 40 min well  
purge.

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**Baltimore County Bureau of Solid Waste Management**  
**Sampling Log**

Landfill Name: ESL

Well ID: GWM-14

Location: White Marsh

Personnel: LR/TR

Date: 3-16-23

Weather: Mostly Sunny / Mid 40s

Arrival Time: 1050

Well Depth: 20 feet

Well Diameter: 4 inches

Depth to Water: 11.31 feet

11:58

Time	Water Level (feet)	Pumping Rate (ml/min)	DO (mg/l)	Temp. (°C)	Specific Conductance (µS/cm)	pH	ORP (mV)	Turbidity (NTU)
5	11.38	380	0.14	13.57	534.03	5.99	-73.4	22.32
10	11.38	360	0.07	13.77	534.20	6.02	-77.3	21.35
15	11.38	360	0.05	13.86	536.56	6.02	-78.4	15.81
20	11.39	400	0.03	13.72	536.76	6.01	-77.5	14.01
25	11.39	400	0.02	13.73	536.91	6.02	-78.1	13.23
30	11.39	380	0.01	13.76	536.40	6.03	-78.8	10.47
35	11.39	380	0.01	13.77	536.41	6.04	-80.0	9.09
40	11.38	380	0.00	13.86	535.89	6.03	-78.7	8.78
45	11.38	400	0.00	13.82	535.45	6.04	-79.1	7.59

Sampling Time: 1145

Notes: Stabilization criteria met after 45 min well  
purge.

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**Baltimore County Bureau of Solid Waste Management**  
**Sampling Log**

Landfill Name: ESL

Well ID: GWM-15D

Location: White Marsh, MD

Personnel: LR/BZ

Date: 3/16/23

Weather: Pt. Cloudy/Low 40s

Arrival Time 0915

Well Depth: 55 feet

Well Diameter: 4 inches

Depth to Water: 8.34 feet

8.36

Time	Water Level (feet)	Pumping Rate (ml/min)	DO (mg/l)	Temp. (°C)	Specific Conductance (µS/cm)	pH	ORP (mV)	Turbidity (NTU)
5	8.37	380	0.45	12.79	503.56	5.04	40.5	41.27
10	8.36	320	0.25	13.07	504.40	5.03	84.9	51.82
15	8.37	400	0.20	13.15	505.26	5.03	104.5	29.92
20	8.36	340	0.16	13.16	504.69	5.04	120.0	16.89
25	8.37	360	0.14	13.15	503.40	5.05	131.5	15.17
30	8.36	420	0.12	13.30	504.15	5.06	139.4	17.87
35	8.35	420	0.09	13.35	503.61	5.08	144.9	15.08
40	8.36	440	0.08	13.36	502.80	5.11	149.1	16.81
45	8.36	<del>420</del> 420	0.07	13.37	502.93	5.13	152.5	17.28
50	8.35	440	0.06	13.41	502.88	5.15	155.2	15.16
55	8.36	400	0.05	13.42	501.87	5.17	156.3	15.47
60	8.33	420	0.04	13.42	502.52	5.20	157.2	15.85

Sampling Time: 1035

Notes: Stabilization criteria met after 60 minutes  
low-flow well purge.

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**Baltimore County Bureau of Solid Waste Management**  
**Sampling Log**

Landfill Name: ESL

Well ID: GLWm-16D

Location: White Marsh, MD

Personnel: L. Russell / T. Reedy / B. Zibell

Date: 3-13-23

Weather: Overcast / mid 40s

Arrival Time 1040

Well Depth: 112 feet

Well Diameter: 2 inches

Depth to Water: 94.20 feet

94.29

Time	Water Level (feet)	Pumping Rate (ml/min)	DO (mg/l)	Temp. (°C)	Specific Conductance (µS/cm)	pH	ORP (mV)	Turbidity (NTU)
5	94.28	460	8.02	13.96	335.64	5.28	253.1	173.84
10	94.26	440	8.10	14.23	332.81	5.21	268.4	115.59
15	94.26	340	8.14	14.30	333.67	5.24	275.2	93.29
20	94.27	440	8.13	14.54	334.03	5.24	279.2	57.20
25	94.26	380	8.15	14.52	332.14	5.21	287.5	59.15
30	94.27	480	8.16	14.65	334.55	5.27	286.0	43.43
35	94.25	340	8.17	14.42	330.96	5.18	296.2	23.38
40	94.25	320	8.18	14.35	329.42	5.12	302.6	16.81
45	94.25	340	8.16	14.47	329.07	5.10	304.6	16.45
50	94.25	340	8.17	14.54	329.77	5.15	305.0	16.23

Sampling Time: 1205

Notes: Stabilization criteria met after 50 minutes low flow well purge.

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**Baltimore County Bureau of Solid Waste Management**  
**Sampling Log**

Landfill Name: ESL

Well ID: GWM-17D

Location: White Marsh, MD

Personnel: L. Russell / T. Reedy

Date: 3-14-23

Weather: Windy / High 30s

Arrival Time 1405

Well Depth: 75 feet

Well Diameter: 2 inches

Depth to Water: 12.42 feet

12.51

Time	Water Level (feet)	Pumping Rate (ml/min)	DO (mg/l)	Temp. (°C)	Specific Conductance (µS/cm)	pH	ORP (mV)	Turbidity (NTU)
5	12.52	480	0.16	13.38	647.37	5.81	30.7	119.02
10	12.52	380	0.14	13.45	649.11	5.79	57.2	44.73
15	12.52	380	0.12	13.52	652.32	5.79	69.2	24.39
20	12.52	380	0.09	13.60	652.90	5.81	75.1	37.10
25	12.53	390	0.07	13.67	652.19	5.82	79.3	36.05
30	12.53	400	0.05	13.59	652.85	5.84	81.8	18.16
35	12.53	400	0.03	13.77	652.83	5.84	84.9	15.42
40	12.55	420	0.02	13.72	652.05	5.85	87.2	12.06
45	12.54	380	0.01	13.58	652.21	5.85	89.6	6.52
50	12.54	420	0.00	13.71	651.92	5.85	91.9	5.18
55	12.54	400	0.00	13.77	651.76	5.85	93.6	3.48

Sampling Time: 1510

Notes: Stabilization criteria met after 55 minutes  
low flow well purge.

**Baltimore County Bureau of Solid Waste Management**  
**Sampling Log**

Landfill Name: ESL

Well ID: GWM-175

Location: White Marsh, MD

Personnel: Laura Russell/Tom Reedy

Date: 3-14-23

Weather: Windy/High 30s

Arrival Time 1250

Well Depth: 40 feet

Well Diameter: 2 inches

Depth to Water: 9.85 feet

9.86

Time	Water Level (feet)	Pumping Rate (ml/min)	DO (mg/l)	Temp. (°C)	Specific Conductance (µS/cm)	pH	ORP (mV)	Turbidity (NTU)
5	9.86	500	0.09	13.54	1037.40	6.01	-39.6	1142.87
10	9.86	320	0.08	13.47	1024.4	5.98	-36.1	101.54
15	9.87	340	0.05	13.49	1010.3	5.98	-34.6	41.16
20	9.86	380	0.03	13.60	1008.1	5.99	-35.0	40.16
25	9.87	380	0.02	13.57	1004.1	6.00	-35.8	20.59
30	9.87	400	0.01	13.61	994.59	6.00	-35.5	12.41
35	9.87	400	0.00	13.63	1000.4	6.02	-37.8	7.05
40	9.87	400	0.00	13.71	995.25	6.04	-38.8	4.05
45	9.87	410	0.00	13.76	992.44	6.07	-40.4	4.49

Sampling Time: 1400

Notes: Stabilization criteria met after 45 minutes  
low flow well purge.

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**Baltimore County Bureau of Solid Waste Management**  
**Sampling Log**

Landfill Name: ESL

Well ID: GWM-19D

Location: White Marsh, MD

Personnel: LR/BZ/TR

Date: 3-16-23

Weather: Sunny/mid 50s

Arrival Time 1300

Well Depth: 115 feet

Well Diameter: 2 inches

Depth to Water: 43.68 feet

43.71

Time	Water Level (feet)	Pumping Rate (ml/min)	DO (mg/l)	Temp. (°C)	Specific Conductance (µS/cm)	pH	ORP (mV)	Turbidity (NTU)
5	43.90	280	0.60	18.27	203.61	4.55	179.5	4.43
10	43.70	300	0.52	18.89	199.71	4.72	186.4	0.89
15	43.70	300	0.42	19.06	199.39	4.81	190.8	0.36
20	43.69	300	0.39	19.12	196.75	4.84	197.6	0.27
25	43.69	260	0.33	19.12	195.86	4.85	204.2	0.28
30	43.69	260	0.31	19.03	195.05	4.82	209.6	0.29
35	43.69	260	0.28	19.02	194.48	4.81	214.6	0.38
40	43.69	<del>260</del> 220	0.27	19.05	193.00	4.84	215.60	0.41

Sampling Time: 1350

Notes: Stabilization met after 40 minutes low flow well purge.

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**Baltimore County Bureau of Solid Waste Management**  
**Sampling Log**

Landfill Name: ESL

Well ID: L-1

Location: White Marsh, MD

Personnel: LR/TR/BZ

Date: 3-17-23

Weather: Cloudy/High 40s

Arrival Time 1015

Well Depth: NA feet

Well Diameter: NA inches

Depth to Water: NA feet

Time	Water Level (feet)	Pumping Rate (ml/min)	DO (mg/l)	Temp. (°C)	Specific Conductance (µS/cm)	pH	ORP (mV)	Turbidity (NTU)
1038				14.13	7295.1	7.03		209.04

Sampling Time: 1030

Notes:

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**Baltimore County Bureau of Solid Waste Management**  
**Sampling Log**

Landfill Name: ESL

Well ID: SMW-13

Location: White Marsh, MD

Personnel: LR/TR/BZ

Date: 3-17-23

Weather: Cloudy/High 50s

Arrival Time 1235

Well Depth: 115 feet

Well Diameter: NA inches

Depth to Water: NA feet

Time	Water Level (feet)	Pumping Rate (ml/min)	DO (mg/l)	Temp. (°C)	Specific Conductance (µS/cm)	pH	ORP (mV)	Turbidity (NTU)
1308				16.96	404.12	4.74		0.60

Sampling Time: 1259

Notes: Start 1249       $716.69 \text{ sec} / \frac{5 \text{ gal}}{1.28 \text{ min}} = 5 \text{ Gallons}$   
Stop 1259       $= 3.91 \text{ gal/min}$   
 $3.91 \text{ gal/min} \times 10 \text{ min} = 39.10 \text{ gallons purged prior to sampling}$

**Baltimore County Bureau of Solid Waste Management**  
**Sampling Log**

Landfill Name: ESL

Well ID: SMW-32

Location: White Marsh, MD

Personnel: LR/TR/BZ

Date: 3-17-23

Weather: cloudy/mid 50s

Arrival Time: 1210

Well Depth: 125 feet

Well Diameter: 4A inches

Depth to Water: NA feet

Time	Water Level (feet)	Pumping Rate (ml/min)	DO (mg/l)	Temp. (°C)	Specific Conductance (µS/cm)	pH	ORP (mV)	Turbidity (NTU)
<u>1230</u>				<u>15.66</u>	<u>394.71</u>	<u>4.54</u>		<u>0.81</u>

Sampling Time: 1225

Notes: 13.75 sec / 5 Gallons = 0.23 min | 5 Gallons = 21.74 gal/min  
Start: 1215  
Stop: 1225  
21.74 gal/min x 10 min = 217.4 gallons purged prior to sampling.



**Baltimore County Bureau of Solid Waste Management  
Instrument Calibration Form**

<b>Aqua TROLL 600 Daily Calibration</b>	
Date/Time: 3-13-23/0815	Sampler: Laura Russell
Instrument Serial Number: 962988	

**pH Calibration**

pH Standard	Pre Measurement	Post Measurement
4.00	4.07	4.00
7.02	7.07	7.02
10.05	9.83	10.05

	Slope	Offset
Slope and Offset 1	-57.48	2.7
Slope and Offset 2	-53.07	2.6

**Conductivity Calibration**

Standard	Pre Measurement	Post Measurement
<del>1409 <math>\mu</math>S/cm</del>		
Quick Cal 8000 $\mu$ S/cm	7,900.6	8,000.0

**Turbidity Calibration**

Standard	Pre Measurement	Post Measurement
10 NTU	8.35	10.00
<del>100 NTU</del>		

	Slope	Offset
Slope and Offset	1	1.65

**ORP Calibration**

ORP Solution	Pre Measurement	Post Measurement	Offset (mV)
Quick Cal	222.0	231.2	0.7

**Dissolved Oxygen Calibration**

Standard	Pre Measurement	Post Measurement
100% Air Saturation	102.56	100.00

Note: Barometric Pressure standard is 760 mmHg

Notes:

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**Baltimore County Bureau of Solid Waste Management  
Instrument Calibration Form**

Aqua TROLL 600 Daily Calibration	
Date/Time: 3-14-23/0825	Sampler: Laura Russell
Instrument Serial Number: 962988	

**pH Calibration**

pH Standard	Pre Measurement	Post Measurement
4.00	4.07	4.00
7.02	7.07	7.02
10.05	9.86	10.05

	Slope	Offset
Slope and Offset 1	-57.71	1.4
Slope and Offset 2	-53.01	1.3

**Conductivity Calibration**

Standard	Pre Measurement	Post Measurement
1409 $\mu$ S/cm		
<i>Quick Cal</i> 8000 $\mu$ S/cm	7746.2	8000.0

**Turbidity Calibration**

Standard	Pre Measurement	Post Measurement
10 NTU	10.26	10.00
100 NTU	103.25	100.00

	Slope	Offset
Slope and Offset	0.967	1.63

**ORP Calibration**

ORP Solution	Pre Measurement	Post Measurement	Offset (mV)
<i>Quick cal</i>	229.5	231.5	2.5

**Dissolved Oxygen Calibration**

Standard	Pre Measurement	Post Measurement
100% Air Saturation	95.71	100.00

Note: Barometric Pressure standard is 760 mmHg

**Notes:**

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**Baltimore County Bureau of Solid Waste Management  
Instrument Calibration Form**

Aqua TROLL 600 Daily Calibration	
Date/Time: 3-15-23/0815	Sampler: Laura Russell
Instrument Serial Number: 962988	

**pH Calibration**

pH Standard	Pre Measurement	Post Measurement
4.00	4.12	4.00
7.02	7.03	7.02
10.05	9.85	10.05

	Slope	Offset
Slope and Offset 1	-55.67	5.3
Slope and Offset 2	-54.43	5.3

**Conductivity Calibration**

Standard	Pre Measurement	Post Measurement
<del>1409 µS/cm</del>		
1413 µS/cm	1284	1413

LR

**Turbidity Calibration**

Standard	Pre Measurement	Post Measurement
10 NTU	9.60	10.00
100 NTU	99.19	100.00

	Slope	Offset
Slope and Offset	0.967	2.02

**ORP Calibration**

ORP Solution	Pre Measurement	Post Measurement	Offset (mV)
Zobell's	305.2	236.0	-69.4

**Dissolved Oxygen Calibration**

Standard	Pre Measurement	Post Measurement
100% Air Saturation	100.69	100.00

Note: Barometric Pressure standard is 760 mmHg

**Notes:**

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**Baltimore County Bureau of Solid Waste Management  
Instrument Calibration Form**

<b>Aqua TROLL 600 Daily Calibration</b>	
Date/Time: 3-16-23/0800	Sampler: Laura Russell
Instrument Serial Number: 962988	

**pH Calibration**

pH Standard	Pre Measurement	Post Measurement
4.00	3.96	4.00
7.02	7.11	7.02
10.05	10.06	10.05

	Slope	Offset
Slope and Offset 1	-57.57	0.6
Slope and Offset 2	-52.36	0.5

**Conductivity Calibration**

Standard	Pre Measurement	Post Measurement
<del>1409 <math>\mu</math>S/cm</del>		
1413 $\mu$ S/cm	1269.9	1413.0

**Turbidity Calibration**

Standard	Pre Measurement	Post Measurement
10 NTU	10.70	10.00
100 NTU	100.40	100.00

	Slope	Offset
Slope and Offset	0.967	1.70

**ORP Calibration**

ORP Solution	Pre Measurement	Post Measurement	Offset (mV)
Zobell's	233.9	236.3	-65.8

**Dissolved Oxygen Calibration**

Standard	Pre Measurement	Post Measurement
100% Air Saturation	100.22	100.00

Note: Barometric Pressure standard is 760 mmHg

Notes:

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**Baltimore County Bureau of Solid Waste Management  
Instrument Calibration Form**

Aqua TROLL 600 Daily Calibration	
Date/Time: 3-17-23   0810	Sampler: Laura Russell
Instrument Serial Number: 962988	

**pH Calibration**

pH Standard	Pre Measurement	Post Measurement
4.00	4.00	4.00
7.02	7.05	7.02
10.05	10.08	10.05

	Slope	Offset
Slope and Offset 1	-58.21	-1.2
Slope and Offset 2	-52.31	-1.3

**Conductivity Calibration**

Standard	Pre Measurement	Post Measurement
<del>1409 <math>\mu</math>S/cm</del>		
1413 $\mu$ S/cm	1539.3	

LR

**Turbidity Calibration**

Standard	Pre Measurement	Post Measurement
10 NTU	9.89	10.00
100 NTU	98.62	100.00

	Slope	Offset
Slope and Offset	0.980	1.79

**ORP Calibration**

ORP Solution	Pre Measurement	Post Measurement	Offset (mV)
Zobell's	231.0	236.5	-60.8

**Dissolved Oxygen Calibration**

Standard	Pre Measurement	Post Measurement
100% Air Saturation	100.51	100.00

Note: Barometric Pressure standard is 760 mmHg

Notes:

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**Baltimore County Bureau of Solid Waste Management  
Instrument Calibration Form**

<b>Aqua TROLL 600 Daily Calibration</b>	
Date/Time: 3-20-23/0830	Sampler: Laura Russell
Instrument Serial Number: 962988	

**pH Calibration**

pH Standard	Pre Measurement	Post Measurement
4.00	4.00	4.00
7.02	6.97	7.02
10.05	10.06	10.05

	Slope	Offset
Slope and Offset 1	-56.79	2.1
Slope and Offset 2	-53.51	2.0

**Conductivity Calibration**

Standard	Pre Measurement	Post Measurement
<del>1409 <math>\mu</math>S/cm</del>	<del>                    </del>	<del>                    </del> LR
1413 $\mu$ S/cm	1434.8	1413

**Turbidity Calibration**

Standard	Pre Measurement	Post Measurement
10 NTU	10.16	10.00
100 NTU	109.44	100.00

	Slope	Offset
Slope and Offset	0.904	2.36

**ORP Calibration**

ORP Solution	Pre Measurement	Post Measurement	Offset (mV)
Zobell's	209.8	235.9	-35.2

**Dissolved Oxygen Calibration**

Standard	Pre Measurement	Post Measurement
100% Air Saturation	100.02	100.00

Note: Barometric Pressure standard is 760 mmHg

**Notes:**

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# **APPENDIX C**

Laboratory Data Validation, Sample Chain of Custody Records, and Laboratory Results



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Analytical Results Report For Maryland Environmental Services - Landfills

Report ID 300060 on 2/9/2024 (Revised report. See Project Notations Section.)

## Certificate of Analysis

Project Name:	<b>Eastern Sanitary Landfill</b>	Workorder:	<b>3292442</b>
Purchase Order:	<b>MA 3680</b>	Workorder ID:	<b>Eastern Sanitary Landfill</b>

Enclosed are the analytical results for samples received by the laboratory on Monday, March 13, 2023.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact George Methlie (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements.

The test results meet requirements of the current NELAP standards or state requirements, where applicable.

For a specific list of accredited analytes, refer to the certifications section of the ALS website at [www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads](http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads).

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Recipient(s): Maryland Services-ENVOPS - Maryland Environmental Services - Landfills Jessica Cox - Maryland Environmental Services Maryland Services-LF Data - Maryland Environmental Services William Herpel - Maryland Environmental Service
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**George Methlie**  
Project Coordinator

(ALS Digital Signature)

*This page is included as part of the Analytical Report and must be retained as a permanent record thereof.*



## Sample Summary

<u>Lab ID</u>	<u>Sample ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>	<u>Collector</u>	<u>Collection Company</u>
3292442001	Trip Blank	Water	03/13/2023 00:00	03/13/2023 17:10	CBC	Collected By Client
3292442002	Field Blank	Water	03/13/2023 10:50	03/13/2023 17:10	CBC	Collected By Client
3292442003	GWM-1	Water	03/13/2023 10:29	03/13/2023 17:10	CBC	Collected By Client
3292442004	GWM-16D	Water	03/13/2023 12:05	03/13/2023 17:10	CBC	Collected By Client
3292442005	GWM-9	Water	03/13/2023 13:50	03/13/2023 17:10	CBC	Collected By Client
3292442006	GWM-2	Water	03/13/2023 15:07	03/13/2023 17:10	CBC	Collected By Client
3292442007	GWM-16D	Water	03/13/2023 12:05	03/13/2023 17:10	CBC	Collected By Client
3292442008	GWM-9	Water	03/13/2023 13:50	03/13/2023 17:10	CBC	Collected By Client
3292442009	GWM-2	Water	03/13/2023 15:07	03/13/2023 17:10	CBC	Collected By Client



Reference

Notes

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- Except as qualified, Clean Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 136, including but not limited to the following EPA Method reference revisions:  
 EPA 300.1 Rev. 1.0-1997  
 EPA 300.0 Rev. 2.1-1993  
 EPA 353.2 Rev. 2.0-1993  
 EPA 410.4 Rev. 1.0-1993  
 EPA 420.4 Rev. 1.0-1993  
 EPA 365.1 Rev. 2.0-1993  
 EPA 200.7 Rev. 4.4-1994  
 EPA 200.8 Rev. 5.4-1994  
 EPA 245.1 Rev. 3.0-1994
- Except as qualified, Safe Drinking Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 141.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are performed in the laboratory and are therefore analyzed out of hold time.
- Method references listed on this report beginning with the prefix "S" followed by a method number (such as S2310B-97) refer to methods from "Standard Methods for the Examination of Water and Wastewater".
- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.
- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND) above the MDL
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Practical Quantitation Limit for this Project
ND	Not Detected - indicates that the analyte was Not Detected
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits
#	Please reference the result in the Results Section for analyte-level flags.



**Project Notations**

**P1** This certificate of analysis is being re-issued to provide revised subcontract laboratory results. The revised subcontract report includes results for Methoxychor. SLW 1/31/2024

**Sample Notations**

**Lab ID**      **Sample ID**

**Result Notations**

Notation Ref.	
1	The QC sample type LCS for method SW846 8260C was outside the control limits for the analyte Chlorobenzene. The % Recovery was reported as 84.8 and the control limits were 85 to 117.
2	The surrogate Toluene-d8 for method SW846 8260C was outside of control limits. The % Recovery was reported as 70.5 and the control limits were 76 to 127. This result was reported at a dilution of 1.
3	The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.
4	This sample result was calculated and reported using Method SM2340B-2011.
5	The QC type LLICV for method SW846 6020A was outside the control limits for the analyte Se. The % RSD was reported as 25.8 and the control limits were 0 to 20. RMD 03-17-23
6	The surrogate Toluene-d8 for method SW846 8260C was outside of control limits. The % Recovery was reported as 70.6 and the control limits were 76 to 127. This result was reported at a dilution of 1.
7	This compound was detected in the leachate blank associated with this sample.
8	The surrogate Toluene-d8 for method SW846 8260C was outside of control limits. The % Recovery was reported as 68.7 and the control limits were 76 to 127. This result was reported at a dilution of 1.
9	The surrogate Toluene-d8 for method SW846 8260C was outside of control limits. The % Recovery was reported as 69.3 and the control limits were 76 to 127. This result was reported at a dilution of 1.
10	See attached subcontract method 608 results from Eurofins Pittsburgh. SLW 03/28/2023



### Detected Results Summary

Client Sample ID	Trip Blank	Collected	03/13/2023 00:00
Lab Sample ID	3292442001	Lab Receipt	03/13/2023 17:10

<u>Compound</u>	<u>Result</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Flag</u>
<b>VOLATILE ORGANICS</b>						
Bromomethane	0.53J	ug/L	1.0	0.39	SW846 8260C	#



**Detected Results Summary**

Client Sample ID	Field Blank	Collected	03/13/2023 10:50
Lab Sample ID	3292442002	Lab Receipt	03/13/2023 17:10

<u>Compound</u>	<u>Result</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Flag</u>
<b>METALS</b>						
Calcium, Total	0.058J	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	0.054J	mg/L	0.11	0.037	SW846 6020A	#
<b>VOLATILE ORGANICS</b>						
Bromomethane	0.61J	ug/L	1.0	0.39	SW846 8260C	#
Iodomethane	0.60J	ug/L	1.0	0.42	SW846 8260C	#
<b>WET CHEMISTRY</b>						
Ammonia-N	0.007J	mg/L	0.100	0.003	ASTM D6919-17	#





### Detected Results Summary

Client Sample ID	GWM-1	Collected	03/13/2023 10:29
Lab Sample ID	3292442003	Lab Receipt	03/13/2023 17:10

Compound	Result	Units	RDL	MDL	Method	Flag
<b>METALS</b>						
Arsenic, Total	0.0021J	mg/L	0.0033	0.0011	SW846 6020A	#
Barium, Total	0.044	mg/L	0.0056	0.0019	SW846 6020A	#
Calcium, Total	21.7	mg/L	0.11	0.037	SW846 6020A	#
Chromium, Total	0.018	mg/L	0.0022	0.00074	SW846 6020A	#
Copper, Total	0.019	mg/L	0.0056	0.0019	SW846 6020A	#
Hardness	80.0	mg/L	0.33	0.11	EPA 200.7	#
Iron, Total	0.13	mg/L	0.056	0.019	SW846 6020A	#
Magnesium, Total	5.1	mg/L	0.11	0.037	SW846 6020A	#
Manganese, Total	0.0079	mg/L	0.0056	0.0019	SW846 6020A	#
Nickel, Total	0.0084	mg/L	0.0056	0.0019	SW846 6020A	#
Potassium, Total	1.7	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	15.6	mg/L	0.11	0.037	SW846 6020A	#
Vanadium, Total	0.014	mg/L	0.0022	0.00074	SW846 6020A	#
Zinc, Total	0.0065	mg/L	0.0056	0.0019	SW846 6020A	#
<b>VOLATILE ORGANICS</b>						
Bromomethane	0.71J	ug/L	1.0	0.39	SW846 8260C	#
Iodomethane	0.77J	ug/L	1.0	0.42	SW846 8260C	#
Methylene Chloride	0.60J	ug/L	1.0	0.45	SW846 8260C	#
Tetrachloroethene	0.42J	ug/L	1.0	0.35	SW846 8260C	#
<b>WET CHEMISTRY</b>						
Alkalinity, Total	56	mg/L	5	5	SM2320B-2011	#
Ammonia-N	0.148	mg/L	0.100	0.03	ASTM D6919-17	#
Chloride	25.6	mg/L	2.0	1.5	EPA 300.0	#
Nitrate-N	1.6	mg/L	1.0	0.22	EPA 300.0	#
Sulfate	11.1	mg/L	2.0	1.5	EPA 300.0	#
Total Dissolved Solids	150	mg/L	25	25	SM2540C-15	#



### Detected Results Summary

Client Sample ID	GWM-16D	Collected	03/13/2023 12:05
Lab Sample ID	3292442004	Lab Receipt	03/13/2023 17:10

Compound	Result	Units	RDL	MDL	Method	Flag
<b>METALS</b>						
Barium, Total	0.14	mg/L	0.0056	0.0019	SW846 6020A	#
Calcium, Total	13.3	mg/L	0.11	0.037	SW846 6020A	#
Chromium, Total	0.012	mg/L	0.0022	0.00074	SW846 6020A	#
Cobalt, Total	0.0069	mg/L	0.0056	0.0019	SW846 6020A	#
Copper, Total	0.013	mg/L	0.0056	0.0019	SW846 6020A	#
Hardness	65.4	mg/L	0.33	0.11	EPA 200.7	#
Iron, Total	0.074	mg/L	0.056	0.019	SW846 6020A	#
Lead, Total	0.00082J	mg/L	0.0022	0.00074	SW846 6020A	#
Magnesium, Total	7.7	mg/L	0.11	0.037	SW846 6020A	#
Manganese, Total	0.038	mg/L	0.0056	0.0019	SW846 6020A	#
Nickel, Total	0.025	mg/L	0.0056	0.0019	SW846 6020A	#
Potassium, Total	3.4	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	32.6	mg/L	0.11	0.037	SW846 6020A	#
Zinc, Total	0.032	mg/L	0.0056	0.0019	SW846 6020A	#
<b>VOLATILE ORGANICS</b>						
Bromomethane	0.85J	ug/L	1.0	0.39	SW846 8260C	#
Chloroform	0.30J	ug/L	1.0	0.21	SW846 8260C	#
Iodomethane	0.75J	ug/L	1.0	0.42	SW846 8260C	#
Methyl t-Butyl Ether	0.41J	ug/L	1.0	0.33	SW846 8260C	#
<b>WET CHEMISTRY</b>						
Alkalinity, Total	15	mg/L	5	5	SM2320B-2011	#
Ammonia-N	0.130	mg/L	0.100	0.03	ASTM D6919-17	#
Chloride	74.7	mg/L	2.0	1.5	EPA 300.0	#
Nitrate-N	2.9	mg/L	1.0	0.22	EPA 300.0	#
Sulfate	16.0	mg/L	2.0	1.5	EPA 300.0	#
Total Dissolved Solids	176	mg/L	25	25	SM2540C-15	#



### Detected Results Summary

Client Sample ID	GWM-9	Collected	03/13/2023 13:50
Lab Sample ID	3292442005	Lab Receipt	03/13/2023 17:10

Compound	Result	Units	RDL	MDL	Method	Flag
<b>METALS</b>						
Barium, Total	0.091	mg/L	0.0056	0.0019	SW846 6020A	#
Calcium, Total	11.9	mg/L	0.11	0.037	SW846 6020A	#
Chromium, Total	0.0021J	mg/L	0.0022	0.00074	SW846 6020A	#
Cobalt, Total	0.0029J	mg/L	0.0056	0.0019	SW846 6020A	#
Copper, Total	0.019	mg/L	0.0056	0.0019	SW846 6020A	#
Hardness	56.5	mg/L	0.33	0.11	EPA 200.7	#
Iron, Total	0.023J	mg/L	0.056	0.019	SW846 6020A	#
Magnesium, Total	6.5	mg/L	0.11	0.037	SW846 6020A	#
Manganese, Total	0.068	mg/L	0.0056	0.0019	SW846 6020A	#
Mercury, Total	0.00039J	mg/L	0.00050	0.00017	SW846 7470A	#
Nickel, Total	0.010	mg/L	0.0056	0.0019	SW846 6020A	#
Potassium, Total	2.8	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	120	mg/L	0.11	0.037	SW846 6020A	#
Zinc, Total	0.019	mg/L	0.0056	0.0019	SW846 6020A	#
<b>VOLATILE ORGANICS</b>						
Bromomethane	0.60J	ug/L	1.0	0.39	SW846 8260C	#
Chloroform	20.3	ug/L	1.0	0.21	SW846 8260C	#
Iodomethane	0.51J	ug/L	1.0	0.42	SW846 8260C	#
<b>WET CHEMISTRY</b>						
Alkalinity, Total	22	mg/L	5	5	SM2320B-2011	#
Ammonia-N	0.119	mg/L	0.100	0.03	ASTM D6919-17	#
Chemical Oxygen Demand (COD)	7J	mg/L	15	5	EPA 410.4	#
Chloride	217	mg/L	10.0	7.5	EPA 300.0	#
Nitrate-N	1.1	mg/L	1.0	0.22	EPA 300.0	#
Sulfate	6.4	mg/L	2.0	1.5	EPA 300.0	#
Total Dissolved Solids	382	mg/L	25	25	SM2540C-15	#



### Detected Results Summary

Client Sample ID	GWM-2	Collected	03/13/2023 15:07
Lab Sample ID	3292442006	Lab Receipt	03/13/2023 17:10

Compound	Result	Units	RDL	MDL	Method	Flag
<b>METALS</b>						
Barium, Total	0.099	mg/L	0.0056	0.0019	SW846 6020A	#
Calcium, Total	8.5	mg/L	0.11	0.037	SW846 6020A	#
Chromium, Total	0.0039	mg/L	0.0022	0.00074	SW846 6020A	#
Cobalt, Total	0.042	mg/L	0.0056	0.0019	SW846 6020A	#
Copper, Total	0.0023J	mg/L	0.0056	0.0019	SW846 6020A	#
Hardness	49.1	mg/L	0.33	0.11	EPA 200.7	#
Iron, Total	0.11	mg/L	0.056	0.019	SW846 6020A	#
Magnesium, Total	6.7	mg/L	0.11	0.037	SW846 6020A	#
Manganese, Total	0.15	mg/L	0.0056	0.0019	SW846 6020A	#
Nickel, Total	0.087	mg/L	0.0056	0.0019	SW846 6020A	#
Potassium, Total	2.8	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	38.3	mg/L	0.11	0.037	SW846 6020A	#
Zinc, Total	0.069	mg/L	0.0056	0.0019	SW846 6020A	#
<b>VOLATILE ORGANICS</b>						
Bromomethane	0.53J	ug/L	1.0	0.39	SW846 8260C	#
Chloroform	0.29J	ug/L	1.0	0.21	SW846 8260C	#
Iodomethane	0.49J	ug/L	1.0	0.42	SW846 8260C	#
Methyl t-Butyl Ether	1.1	ug/L	1.0	0.33	SW846 8260C	#
Tetrachloroethene	0.57J	ug/L	1.0	0.35	SW846 8260C	#
<b>WET CHEMISTRY</b>						
Alkalinity, Total	10	mg/L	5	5	SM2320B-2011	#
Ammonia-N	0.132	mg/L	0.100	0.03	ASTM D6919-17	#
Chemical Oxygen Demand (COD)	6J	mg/L	15	5	EPA 410.4	#
Chloride	77.3	mg/L	2.0	1.5	EPA 300.0	#
Nitrate-N	1.9	mg/L	1.0	0.22	EPA 300.0	#
Sulfate	17.1	mg/L	2.0	1.5	EPA 300.0	#
Total Dissolved Solids	182	mg/L	25	25	SM2540C-15	#



### Detected Results Summary

Client Sample ID	GWM-16D	Collected	03/13/2023 12:05
Lab Sample ID	3292442007	Lab Receipt	03/13/2023 17:10

<u>Compound</u>	<u>Result</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Flag</u>
<b>SUBCONTRACTED ANALYSIS</b>						
Subcontracted Analysis	See attached				Subcontract	#



### Detected Results Summary

Client Sample ID	GWM-9	Collected	03/13/2023 13:50
Lab Sample ID	3292442008	Lab Receipt	03/13/2023 17:10

<u>Compound</u>	<u>Result</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Flag</u>
<b>SUBCONTRACTED ANALYSIS</b>						
Subcontracted Analysis	See attached				Subcontract	#



### Detected Results Summary

Client Sample ID	GWM-2	Collected	03/13/2023 15:07
Lab Sample ID	3292442009	Lab Receipt	03/13/2023 17:10

<u>Compound</u>	<u>Result</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Flag</u>
<b>SUBCONTRACTED ANALYSIS</b>						
Subcontracted Analysis	See attached				Subcontract	#



## Results

Client Sample ID	Trip Blank	Collected	03/13/2023 00:00
Lab Sample ID	3292442001	Lab Receipt	03/13/2023 17:10

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.35	SW846 8260C	1	03/16/2023 14:09	TMP	C
1,1,1-Trichloroethane	ND	ND,P1	ug/L	1.0	0.22	SW846 8260C	1	03/16/2023 14:09	TMP	C
1,1,2,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.34	SW846 8260C	1	03/16/2023 14:09	TMP	C
1,1,2-Trichloroethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 14:09	TMP	C
1,1-Dichloroethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/16/2023 14:09	TMP	C
1,1-Dichloroethene	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 14:09	TMP	C
1,2,3-Trichloropropane	ND	ND,P1	ug/L	2.0	0.60	SW846 8260C	1	03/16/2023 14:09	TMP	C
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	0.019	0.0046	SW846 8011	1	03/20/2023 04:30	EGO	A
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	7.0	1.5	SW846 8260C	1	03/16/2023 14:09	TMP	C
1,2-Dibromoethane	ND	ND,P1	ug/L	0.019	0.0094	SW846 8011	1	03/20/2023 04:30	EGO	A
1,2-Dibromoethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/16/2023 14:09	TMP	C
1,2-Dichlorobenzene	ND	ND,P1	ug/L	1.0	0.38	SW846 8260C	1	03/16/2023 14:09	TMP	C
1,2-Dichloroethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 14:09	TMP	C
1,2-Dichloropropane	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 14:09	TMP	C
1,4-Dichlorobenzene	ND	ND,P1	ug/L	1.0	0.27	SW846 8260C	1	03/16/2023 14:09	TMP	C
2-Butanone	ND	ND,P1	ug/L	10.0	1.8	SW846 8260C	1	03/16/2023 14:09	TMP	C
2-Hexanone	ND	ND,P1	ug/L	5.0	1.3	SW846 8260C	1	03/16/2023 14:09	TMP	C
4-Methyl-2-Pentanone(MIBK)	ND	ND,P1	ug/L	5.0	1.5	SW846 8260C	1	03/16/2023 14:09	TMP	C
Acetone	ND	ND,P1	ug/L	10.0	3.1	SW846 8260C	1	03/16/2023 14:09	TMP	C
Acrylonitrile	ND	ND,P1	ug/L	5.0	1.2	SW846 8260C	1	03/16/2023 14:09	TMP	C
Benzene	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 14:09	TMP	C
Bromochloromethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 14:09	TMP	C
Bromodichloromethane	ND	ND,P1	ug/L	1.0	0.27	SW846 8260C	1	03/16/2023 14:09	TMP	C
Bromoform	ND	ND,P1	ug/L	1.0	0.40	SW846 8260C	1	03/16/2023 14:09	TMP	C
Bromomethane	0.53J	J,P1	ug/L	1.0	0.39	SW846 8260C	1	03/16/2023 14:09	TMP	C
Carbon Disulfide	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 14:09	TMP	C
Carbon Tetrachloride	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 14:09	TMP	C
Chlorobenzene	ND	ND,1,P1	ug/L	1.0	0.19	SW846 8260C	1	03/16/2023 14:09	TMP	C
Chlorodibromomethane	ND	ND,P1	ug/L	1.0	0.45	SW846 8260C	1	03/16/2023 14:09	TMP	C
Chloroethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 14:09	TMP	C
Chloroform	ND	ND,P1	ug/L	1.0	0.21	SW846 8260C	1	03/16/2023 14:09	TMP	C
Chloromethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 14:09	TMP	C
cis-1,2-Dichloroethene	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 14:09	TMP	C
cis-1,3-Dichloropropene	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 14:09	TMP	C
Cyclohexane	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 14:09	TMP	C
Dibromomethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 14:09	TMP	C
Dichlorodifluoromethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 14:09	TMP	C
Ethylbenzene	ND	ND,P1	ug/L	1.0	0.34	SW846 8260C	1	03/16/2023 14:09	TMP	C
Iodomethane	ND	ND,P1	ug/L	1.0	0.42	SW846 8260C	1	03/16/2023 14:09	TMP	C
Methyl t-Butyl Ether	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 14:09	TMP	C
Methylene Chloride	ND	ND,P1	ug/L	1.0	0.45	SW846 8260C	1	03/16/2023 14:09	TMP	C
mp-Xylene	ND	ND,P1	ug/L	2.0	0.52	SW846 8260C	1	03/16/2023 14:09	TMP	C
o-Xylene	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 14:09	TMP	C
Styrene	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 14:09	TMP	C
Tetrachloroethene	ND	ND,P1	ug/L	1.0	0.35	SW846 8260C	1	03/16/2023 14:09	TMP	C
Toluene	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 14:09	TMP	C
Total Xylenes	ND	ND,P1	ug/L	3.0	0.66	SW846 8260C	1	03/16/2023 14:09	TMP	C





## Results

Client Sample ID	Trip Blank	Collected	03/13/2023 00:00
Lab Sample ID	3292442001	Lab Receipt	03/13/2023 17:10

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
trans-1,2-Dichloroethene	ND	ND,P1	ug/L	1.0	0.26	SW846 8260C	1	03/16/2023 14:09	TMP	C
trans-1,3-Dichloropropene	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 14:09	TMP	C
trans-1,4-Dichloro-2-butene	ND	ND,P1	ug/L	3.0	0.86	SW846 8260C	1	03/16/2023 14:09	TMP	C
Trichloroethene	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 14:09	TMP	C
Trichlorofluoromethane	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 14:09	TMP	C
Vinyl Acetate	ND	ND,P1	ug/L	5.0	1.6	SW846 8260C	1	03/16/2023 14:09	TMP	C
Vinyl Chloride	ND	ND,P1	ug/L	1.0	0.30	SW846 8260C	1	03/16/2023 14:09	TMP	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	92.6%	62 - 133	03/16/2023 14:09	
1-Chloro-2-Fluorobenzene	348-51-6	90%	70 - 130	03/20/2023 04:30	
4-Bromofluorobenzene	460-00-4	97.4%	79 - 114	03/16/2023 14:09	
Dibromofluoromethane	1868-53-7	89.6%	78 - 116	03/16/2023 14:09	
Toluene-d8	2037-26-5	70.5*%	76 - 127	03/16/2023 14:09	2



## Results

Client Sample ID	Field Blank	Collected	03/13/2023 10:50
Lab Sample ID	3292442002	Lab Receipt	03/13/2023 17:10

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 13:54	RMD	E1
Arsenic, Total	ND	ND,P1	mg/L	0.0033	0.0011	SW846 6020A	1	03/17/2023 13:54	RMD	E1
Barium, Total	ND	ND,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 13:54	RMD	E1
Beryllium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/17/2023 13:54	RMD	E1
Cadmium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/17/2023 13:54	RMD	E1
Calcium, Total	0.058J	J,P1	mg/L	0.11	0.037	SW846 6020A	1	03/17/2023 13:54	RMD	E1
Chromium, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 13:54	RMD	E1
Cobalt, Total	ND	ND,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 13:54	RMD	E1
Copper, Total	ND	ND,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 13:54	RMD	E1
Hardness	ND	ND,4,P1	mg/L	0.33	0.11	EPA 200.7	1	03/16/2023 21:12	MO	E2
Iron, Total	ND	ND,P1	mg/L	0.056	0.019	SW846 6020A	1	03/17/2023 13:54	RMD	E1
Lead, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 13:54	RMD	E1
Magnesium, Total	ND	ND,P1	mg/L	0.11	0.037	SW846 6020A	1	03/17/2023 13:54	RMD	E1
Manganese, Total	ND	ND,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 13:54	RMD	E1
Mercury, Total	ND	ND,P1	mg/L	0.00050	0.00017	SW846 7470A	1	03/16/2023 10:46	WDA	E
Nickel, Total	ND	ND,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 13:54	RMD	E1
Potassium, Total	ND	ND,P1	mg/L	0.11	0.037	SW846 6020A	1	03/17/2023 13:54	RMD	E1
Selenium, Total	ND	ND,5,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 13:54	RMD	E1
Silver, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 13:54	RMD	E1
Sodium, Total	0.054J	J,P1	mg/L	0.11	0.037	SW846 6020A	1	03/17/2023 13:54	RMD	E1
Thallium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/17/2023 13:54	RMD	E1
Vanadium, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 13:54	RMD	E1
Zinc, Total	ND	ND,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 13:54	RMD	E1

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.35	SW846 8260C	1	03/16/2023 14:55	TMP	C
1,1,1-Trichloroethane	ND	ND,P1	ug/L	1.0	0.22	SW846 8260C	1	03/16/2023 14:55	TMP	C
1,1,2,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.34	SW846 8260C	1	03/16/2023 14:55	TMP	C
1,1,2-Trichloroethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 14:55	TMP	C
1,1-Dichloroethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/16/2023 14:55	TMP	C
1,1-Dichloroethene	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 14:55	TMP	C
1,2,3-Trichloropropane	ND	ND,P1	ug/L	2.0	0.60	SW846 8260C	1	03/16/2023 14:55	TMP	C
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	0.020	0.0047	SW846 8011	1	03/20/2023 04:45	EGO	A
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	7.0	1.5	SW846 8260C	1	03/16/2023 14:55	TMP	C
1,2-Dibromoethane	ND	ND,P1	ug/L	0.020	0.0097	SW846 8011	1	03/20/2023 04:45	EGO	A
1,2-Dibromoethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/16/2023 14:55	TMP	C
1,2-Dichlorobenzene	ND	ND,P1	ug/L	1.0	0.38	SW846 8260C	1	03/16/2023 14:55	TMP	C
1,2-Dichloroethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 14:55	TMP	C
1,2-Dichloropropane	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 14:55	TMP	C
1,4-Dichlorobenzene	ND	ND,P1	ug/L	1.0	0.27	SW846 8260C	1	03/16/2023 14:55	TMP	C
2-Butanone	ND	ND,P1	ug/L	10.0	1.8	SW846 8260C	1	03/16/2023 14:55	TMP	C
2-Hexanone	ND	ND,P1	ug/L	5.0	1.3	SW846 8260C	1	03/16/2023 14:55	TMP	C
4-Methyl-2-Pentanone(MIBK)	ND	ND,P1	ug/L	5.0	1.5	SW846 8260C	1	03/16/2023 14:55	TMP	C
Acetone	ND	ND,P1	ug/L	10.0	3.1	SW846 8260C	1	03/16/2023 14:55	TMP	C
Acrylonitrile	ND	ND,P1	ug/L	5.0	1.2	SW846 8260C	1	03/16/2023 14:55	TMP	C



## Results

Client Sample ID	Field Blank	Collected	03/13/2023 10:50
Lab Sample ID	3292442002	Lab Receipt	03/13/2023 17:10

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 14:55	TMP	C
Bromochloromethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 14:55	TMP	C
Bromodichloromethane	ND	ND,P1	ug/L	1.0	0.27	SW846 8260C	1	03/16/2023 14:55	TMP	C
Bromoform	ND	ND,P1	ug/L	1.0	0.40	SW846 8260C	1	03/16/2023 14:55	TMP	C
Bromomethane	0.61J	J,P1	ug/L	1.0	0.39	SW846 8260C	1	03/16/2023 14:55	TMP	C
Carbon Disulfide	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 14:55	TMP	C
Carbon Tetrachloride	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 14:55	TMP	C
Chlorobenzene	ND	ND,1,P1	ug/L	1.0	0.19	SW846 8260C	1	03/16/2023 14:55	TMP	C
Chlorodibromomethane	ND	ND,P1	ug/L	1.0	0.45	SW846 8260C	1	03/16/2023 14:55	TMP	C
Chloroethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 14:55	TMP	C
Chloroform	ND	ND,P1	ug/L	1.0	0.21	SW846 8260C	1	03/16/2023 14:55	TMP	C
Chloromethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 14:55	TMP	C
cis-1,2-Dichloroethene	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 14:55	TMP	C
cis-1,3-Dichloropropene	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 14:55	TMP	C
Cyclohexane	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 14:55	TMP	C
Dibromomethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 14:55	TMP	C
Dichlorodifluoromethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 14:55	TMP	C
Ethylbenzene	ND	ND,P1	ug/L	1.0	0.34	SW846 8260C	1	03/16/2023 14:55	TMP	C
Iodomethane	0.60J	J,P1	ug/L	1.0	0.42	SW846 8260C	1	03/16/2023 14:55	TMP	C
Methyl t-Butyl Ether	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 14:55	TMP	C
Methylene Chloride	ND	ND,P1	ug/L	1.0	0.45	SW846 8260C	1	03/16/2023 14:55	TMP	C
mp-Xylene	ND	ND,P1	ug/L	2.0	0.52	SW846 8260C	1	03/16/2023 14:55	TMP	C
o-Xylene	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 14:55	TMP	C
Styrene	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 14:55	TMP	C
Tetrachloroethene	ND	ND,P1	ug/L	1.0	0.35	SW846 8260C	1	03/16/2023 14:55	TMP	C
Toluene	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 14:55	TMP	C
Total Xylenes	ND	ND,P1	ug/L	3.0	0.66	SW846 8260C	1	03/16/2023 14:55	TMP	C
trans-1,2-Dichloroethene	ND	ND,P1	ug/L	1.0	0.26	SW846 8260C	1	03/16/2023 14:55	TMP	C
trans-1,3-Dichloropropene	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 14:55	TMP	C
trans-1,4-Dichloro-2-butene	ND	ND,P1	ug/L	3.0	0.86	SW846 8260C	1	03/16/2023 14:55	TMP	C
Trichloroethene	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 14:55	TMP	C
Trichlorofluoromethane	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 14:55	TMP	C
Vinyl Acetate	ND	ND,P1	ug/L	5.0	1.6	SW846 8260C	1	03/16/2023 14:55	TMP	C
Vinyl Chloride	ND	ND,P1	ug/L	1.0	0.30	SW846 8260C	1	03/16/2023 14:55	TMP	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	91.1%	62 - 133	03/16/2023 14:55	
1-Chloro-2-Fluorobenzene	348-51-6	92.5%	70 - 130	03/20/2023 04:45	
4-Bromofluorobenzene	460-00-4	86.7%	79 - 114	03/16/2023 14:55	
Dibromofluoromethane	1868-53-7	88.7%	78 - 116	03/16/2023 14:55	
Toluene-d8	2037-26-5	70.6*%	76 - 127	03/16/2023 14:55	6

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	Field Blank	Collected	03/13/2023 10:50
Lab Sample ID	3292442002	Lab Receipt	03/13/2023 17:10

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	ND	ND,3,P1	mg/L	5	5	SM2320B-2011	1	03/23/2023 09:47	NML	F
Ammonia-N	0.007J	J,P1	mg/L	0.100	0.003	ASTM D6919-17	1	03/15/2023 17:59	NML	G
Chemical Oxygen Demand (COD)	ND	ND,P1	mg/L	15	5	EPA 410.4	1	03/17/2023 14:15	KMS	G
Chloride	ND	ND,P1	mg/L	2.0	1.5	EPA 300.0	2	03/14/2023 14:56	J1W	F
Nitrate-N	ND	ND,P1	mg/L	1.0	0.22	EPA 300.0	2	03/14/2023 14:56	J1W	F
Sulfate	ND	ND,P1	mg/L	2.0	1.5	EPA 300.0	2	03/14/2023 14:56	J1W	F
Total Dissolved Solids	ND	ND,P1	mg/L	25	25	SM2540C-15	1	03/15/2023 07:49	SMS	F



## Results

Client Sample ID	GWM-1	Collected	03/13/2023 10:29
Lab Sample ID	3292442003	Lab Receipt	03/13/2023 17:10

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 13:56	RMD	E1
Arsenic, Total	0.0021J	J,P1	mg/L	0.0033	0.0011	SW846 6020A	1	03/17/2023 13:56	RMD	E1
Barium, Total	0.044	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 13:56	RMD	E1
Beryllium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/17/2023 13:56	RMD	E1
Cadmium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/17/2023 13:56	RMD	E1
Calcium, Total	21.7	P1	mg/L	0.11	0.037	SW846 6020A	1	03/17/2023 13:56	RMD	E1
Chromium, Total	0.018	P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 13:56	RMD	E1
Cobalt, Total	ND	ND,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 13:56	RMD	E1
Copper, Total	0.019	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 13:56	RMD	E1
Hardness	80.0	4,P1	mg/L	0.33	0.11	EPA 200.7	1	03/16/2023 21:15	MO	E2
Iron, Total	0.13	P1	mg/L	0.056	0.019	SW846 6020A	1	03/17/2023 13:56	RMD	E1
Lead, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 13:56	RMD	E1
Magnesium, Total	5.1	P1	mg/L	0.11	0.037	SW846 6020A	1	03/17/2023 13:56	RMD	E1
Manganese, Total	0.0079	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 13:56	RMD	E1
Mercury, Total	ND	ND,P1	mg/L	0.00050	0.00017	SW846 7470A	1	03/16/2023 10:49	WDA	E
Nickel, Total	0.0084	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 13:56	RMD	E1
Potassium, Total	1.7	P1	mg/L	0.11	0.037	SW846 6020A	1	03/17/2023 13:56	RMD	E1
Selenium, Total	ND	ND,5,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 13:56	RMD	E1
Silver, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 13:56	RMD	E1
Sodium, Total	15.6	P1	mg/L	0.11	0.037	SW846 6020A	1	03/17/2023 13:56	RMD	E1
Thallium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/17/2023 13:56	RMD	E1
Vanadium, Total	0.014	P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 13:56	RMD	E1
Zinc, Total	0.0065	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 13:56	RMD	E1

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.35	SW846 8260C	1	03/16/2023 17:35	TMP	C
1,1,1-Trichloroethane	ND	ND,P1	ug/L	1.0	0.22	SW846 8260C	1	03/16/2023 17:35	TMP	C
1,1,2,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.34	SW846 8260C	1	03/16/2023 17:35	TMP	C
1,1,2-Trichloroethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 17:35	TMP	C
1,1-Dichloroethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/16/2023 17:35	TMP	C
1,1-Dichloroethene	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 17:35	TMP	C
1,2,3-Trichloropropane	ND	ND,P1	ug/L	2.0	0.60	SW846 8260C	1	03/16/2023 17:35	TMP	C
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	0.020	0.0047	SW846 8011	1	03/20/2023 05:00	EGO	A
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	7.0	1.5	SW846 8260C	1	03/16/2023 17:35	TMP	C
1,2-Dibromoethane	ND	ND,P1	ug/L	0.020	0.0096	SW846 8011	1	03/20/2023 05:00	EGO	A
1,2-Dibromoethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/16/2023 17:35	TMP	C
1,2-Dichlorobenzene	ND	ND,P1	ug/L	1.0	0.38	SW846 8260C	1	03/16/2023 17:35	TMP	C
1,2-Dichloroethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 17:35	TMP	C
1,2-Dichloropropane	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 17:35	TMP	C
1,4-Dichlorobenzene	ND	ND,P1	ug/L	1.0	0.27	SW846 8260C	1	03/16/2023 17:35	TMP	C
2-Butanone	ND	ND,P1	ug/L	10.0	1.8	SW846 8260C	1	03/16/2023 17:35	TMP	C
2-Hexanone	ND	ND,P1	ug/L	5.0	1.3	SW846 8260C	1	03/16/2023 17:35	TMP	C
4-Methyl-2-Pentanone(MIBK)	ND	ND,P1	ug/L	5.0	1.5	SW846 8260C	1	03/16/2023 17:35	TMP	C
Acetone	ND	ND,P1	ug/L	10.0	3.1	SW846 8260C	1	03/16/2023 17:35	TMP	C
Acrylonitrile	ND	ND,P1	ug/L	5.0	1.2	SW846 8260C	1	03/16/2023 17:35	TMP	C



## Results

Client Sample ID	GWM-1	Collected	03/13/2023 10:29
Lab Sample ID	3292442003	Lab Receipt	03/13/2023 17:10

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND,7,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 17:35	TMP	C
Bromochloromethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 17:35	TMP	C
Bromodichloromethane	ND	ND,P1	ug/L	1.0	0.27	SW846 8260C	1	03/16/2023 17:35	TMP	C
Bromoform	ND	ND,P1	ug/L	1.0	0.40	SW846 8260C	1	03/16/2023 17:35	TMP	C
Bromomethane	0.71J	J,P1	ug/L	1.0	0.39	SW846 8260C	1	03/16/2023 17:35	TMP	C
Carbon Disulfide	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 17:35	TMP	C
Carbon Tetrachloride	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 17:35	TMP	C
Chlorobenzene	ND	ND,1,P1	ug/L	1.0	0.19	SW846 8260C	1	03/16/2023 17:35	TMP	C
Chlorodibromomethane	ND	ND,P1	ug/L	1.0	0.45	SW846 8260C	1	03/16/2023 17:35	TMP	C
Chloroethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 17:35	TMP	C
Chloroform	ND	ND,P1	ug/L	1.0	0.21	SW846 8260C	1	03/16/2023 17:35	TMP	C
Chloromethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 17:35	TMP	C
cis-1,2-Dichloroethene	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 17:35	TMP	C
cis-1,3-Dichloropropene	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 17:35	TMP	C
Cyclohexane	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 17:35	TMP	C
Dibromomethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 17:35	TMP	C
Dichlorodifluoromethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 17:35	TMP	C
Ethylbenzene	ND	ND,7,P1	ug/L	1.0	0.34	SW846 8260C	1	03/16/2023 17:35	TMP	C
Iodomethane	0.77J	J,P1	ug/L	1.0	0.42	SW846 8260C	1	03/16/2023 17:35	TMP	C
Methyl t-Butyl Ether	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 17:35	TMP	C
Methylene Chloride	0.60J	J,P1	ug/L	1.0	0.45	SW846 8260C	1	03/16/2023 17:35	TMP	C
mp-Xylene	ND	ND,P1	ug/L	2.0	0.52	SW846 8260C	1	03/16/2023 17:35	TMP	C
o-Xylene	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 17:35	TMP	C
Styrene	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 17:35	TMP	C
Tetrachloroethene	0.42J	J,P1	ug/L	1.0	0.35	SW846 8260C	1	03/16/2023 17:35	TMP	C
Toluene	ND	ND,7,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 17:35	TMP	C
Total Xylenes	ND	ND,7,P1	ug/L	3.0	0.66	SW846 8260C	1	03/16/2023 17:35	TMP	C
trans-1,2-Dichloroethene	ND	ND,P1	ug/L	1.0	0.26	SW846 8260C	1	03/16/2023 17:35	TMP	C
trans-1,3-Dichloropropene	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 17:35	TMP	C
trans-1,4-Dichloro-2-butene	ND	ND,P1	ug/L	3.0	0.86	SW846 8260C	1	03/16/2023 17:35	TMP	C
Trichloroethene	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 17:35	TMP	C
Trichlorofluoromethane	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 17:35	TMP	C
Vinyl Acetate	ND	ND,P1	ug/L	5.0	1.6	SW846 8260C	1	03/16/2023 17:35	TMP	C
Vinyl Chloride	ND	ND,P1	ug/L	1.0	0.30	SW846 8260C	1	03/16/2023 17:35	TMP	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	92.1%	62 - 133	03/16/2023 17:35	
1-Chloro-2-Fluorobenzene	348-51-6	85%	70 - 130	03/20/2023 05:00	
4-Bromofluorobenzene	460-00-4	88.9%	79 - 114	03/16/2023 17:35	
Dibromofluoromethane	1868-53-7	89.2%	78 - 116	03/16/2023 17:35	
Toluene-d8	2037-26-5	78.6%	76 - 127	03/16/2023 17:35	

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	GWM-1	Collected	03/13/2023 10:29
Lab Sample ID	3292442003	Lab Receipt	03/13/2023 17:10

### WET CHEMISTRY (cont.)

<u>Compound</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Dilution</u>	<u>Analysis Date/Time</u>	<u>By</u>	<u>Cntr</u>
Alkalinity, Total	56	3,P1	mg/L	5	5	SM2320B-2011	1	03/23/2023 09:47	NML	F
Ammonia-N	0.148	P1	mg/L	0.100	0.03	ASTM D6919-17	10	03/15/2023 18:54	NML	G
Chemical Oxygen Demand (COD)	ND	ND,P1	mg/L	15	5	EPA 410.4	1	03/17/2023 14:15	KMS	G
Chloride	25.6	P1	mg/L	2.0	1.5	EPA 300.0	2	03/14/2023 15:59	J1W	F
Nitrate-N	1.6	P1	mg/L	1.0	0.22	EPA 300.0	2	03/14/2023 15:59	J1W	F
Sulfate	11.1	P1	mg/L	2.0	1.5	EPA 300.0	2	03/14/2023 15:59	J1W	F
Total Dissolved Solids	150	P1	mg/L	25	25	SM2540C-15	1	03/15/2023 07:49	SMS	F



## Results

Client Sample ID	GWM-16D	Collected	03/13/2023 12:05
Lab Sample ID	3292442004	Lab Receipt	03/13/2023 17:10

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 13:58	RMD	E1
Arsenic, Total	ND	ND,P1	mg/L	0.0033	0.0011	SW846 6020A	1	03/17/2023 13:58	RMD	E1
Barium, Total	0.14	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 13:58	RMD	E1
Beryllium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/17/2023 13:58	RMD	E1
Cadmium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/17/2023 13:58	RMD	E1
Calcium, Total	13.3	P1	mg/L	0.11	0.037	SW846 6020A	1	03/17/2023 13:58	RMD	E1
Chromium, Total	0.012	P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 13:58	RMD	E1
Cobalt, Total	0.0069	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 13:58	RMD	E1
Copper, Total	0.013	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 13:58	RMD	E1
Hardness	65.4	4,P1	mg/L	0.33	0.11	EPA 200.7	1	03/16/2023 21:19	MO	E2
Iron, Total	0.074	P1	mg/L	0.056	0.019	SW846 6020A	1	03/17/2023 13:58	RMD	E1
Lead, Total	0.00082J	J,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 13:58	RMD	E1
Magnesium, Total	7.7	P1	mg/L	0.11	0.037	SW846 6020A	1	03/17/2023 13:58	RMD	E1
Manganese, Total	0.038	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 13:58	RMD	E1
Mercury, Total	ND	ND,P1	mg/L	0.00050	0.00017	SW846 7470A	1	03/16/2023 10:51	WDA	E
Nickel, Total	0.025	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 13:58	RMD	E1
Potassium, Total	3.4	P1	mg/L	0.11	0.037	SW846 6020A	1	03/17/2023 13:58	RMD	E1
Selenium, Total	ND	ND,5,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 13:58	RMD	E1
Silver, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 13:58	RMD	E1
Sodium, Total	32.6	P1	mg/L	0.11	0.037	SW846 6020A	1	03/17/2023 13:58	RMD	E1
Thallium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/17/2023 13:58	RMD	E1
Vanadium, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 13:58	RMD	E1
Zinc, Total	0.032	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 13:58	RMD	E1

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.35	SW846 8260C	1	03/16/2023 17:58	TMP	C
1,1,1-Trichloroethane	ND	ND,P1	ug/L	1.0	0.22	SW846 8260C	1	03/16/2023 17:58	TMP	C
1,1,2,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.34	SW846 8260C	1	03/16/2023 17:58	TMP	C
1,1,2-Trichloroethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 17:58	TMP	C
1,1-Dichloroethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/16/2023 17:58	TMP	C
1,1-Dichloroethene	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 17:58	TMP	C
1,2,3-Trichloropropane	ND	ND,P1	ug/L	2.0	0.60	SW846 8260C	1	03/16/2023 17:58	TMP	C
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	0.019	0.0046	SW846 8011	1	03/20/2023 05:30	EGO	A
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	7.0	1.5	SW846 8260C	1	03/16/2023 17:58	TMP	C
1,2-Dibromoethane	ND	ND,P1	ug/L	0.019	0.0094	SW846 8011	1	03/20/2023 05:30	EGO	A
1,2-Dibromoethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/16/2023 17:58	TMP	C
1,2-Dichlorobenzene	ND	ND,P1	ug/L	1.0	0.38	SW846 8260C	1	03/16/2023 17:58	TMP	C
1,2-Dichloroethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 17:58	TMP	C
1,2-Dichloropropane	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 17:58	TMP	C
1,4-Dichlorobenzene	ND	ND,P1	ug/L	1.0	0.27	SW846 8260C	1	03/16/2023 17:58	TMP	C
2-Butanone	ND	ND,P1	ug/L	10.0	1.8	SW846 8260C	1	03/16/2023 17:58	TMP	C
2-Hexanone	ND	ND,P1	ug/L	5.0	1.3	SW846 8260C	1	03/16/2023 17:58	TMP	C
4-Methyl-2-Pentanone(MIBK)	ND	ND,P1	ug/L	5.0	1.5	SW846 8260C	1	03/16/2023 17:58	TMP	C
Acetone	ND	ND,P1	ug/L	10.0	3.1	SW846 8260C	1	03/16/2023 17:58	TMP	C
Acrylonitrile	ND	ND,P1	ug/L	5.0	1.2	SW846 8260C	1	03/16/2023 17:58	TMP	C





## Results

Client Sample ID	GWM-16D	Collected	03/13/2023 12:05
Lab Sample ID	3292442004	Lab Receipt	03/13/2023 17:10

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND,7,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 17:58	TMP	C
Bromochloromethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 17:58	TMP	C
Bromodichloromethane	ND	ND,P1	ug/L	1.0	0.27	SW846 8260C	1	03/16/2023 17:58	TMP	C
Bromoform	ND	ND,P1	ug/L	1.0	0.40	SW846 8260C	1	03/16/2023 17:58	TMP	C
Bromomethane	0.85J	J,P1	ug/L	1.0	0.39	SW846 8260C	1	03/16/2023 17:58	TMP	C
Carbon Disulfide	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 17:58	TMP	C
Carbon Tetrachloride	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 17:58	TMP	C
Chlorobenzene	ND	ND,1,P1	ug/L	1.0	0.19	SW846 8260C	1	03/16/2023 17:58	TMP	C
Chlorodibromomethane	ND	ND,P1	ug/L	1.0	0.45	SW846 8260C	1	03/16/2023 17:58	TMP	C
Chloroethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 17:58	TMP	C
Chloroform	0.30J	J,P1	ug/L	1.0	0.21	SW846 8260C	1	03/16/2023 17:58	TMP	C
Chloromethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 17:58	TMP	C
cis-1,2-Dichloroethene	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 17:58	TMP	C
cis-1,3-Dichloropropene	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 17:58	TMP	C
Cyclohexane	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 17:58	TMP	C
Dibromomethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 17:58	TMP	C
Dichlorodifluoromethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 17:58	TMP	C
Ethylbenzene	ND	ND,7,P1	ug/L	1.0	0.34	SW846 8260C	1	03/16/2023 17:58	TMP	C
Iodomethane	0.75J	J,P1	ug/L	1.0	0.42	SW846 8260C	1	03/16/2023 17:58	TMP	C
Methyl t-Butyl Ether	0.41J	J,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 17:58	TMP	C
Methylene Chloride	ND	ND,P1	ug/L	1.0	0.45	SW846 8260C	1	03/16/2023 17:58	TMP	C
mp-Xylene	ND	ND,P1	ug/L	2.0	0.52	SW846 8260C	1	03/16/2023 17:58	TMP	C
o-Xylene	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 17:58	TMP	C
Styrene	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 17:58	TMP	C
Tetrachloroethene	ND	ND,P1	ug/L	1.0	0.35	SW846 8260C	1	03/16/2023 17:58	TMP	C
Toluene	ND	ND,7,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 17:58	TMP	C
Total Xylenes	ND	ND,7,P1	ug/L	3.0	0.66	SW846 8260C	1	03/16/2023 17:58	TMP	C
trans-1,2-Dichloroethene	ND	ND,P1	ug/L	1.0	0.26	SW846 8260C	1	03/16/2023 17:58	TMP	C
trans-1,3-Dichloropropene	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 17:58	TMP	C
trans-1,4-Dichloro-2-butene	ND	ND,P1	ug/L	3.0	0.86	SW846 8260C	1	03/16/2023 17:58	TMP	C
Trichloroethene	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 17:58	TMP	C
Trichlorofluoromethane	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 17:58	TMP	C
Vinyl Acetate	ND	ND,P1	ug/L	5.0	1.6	SW846 8260C	1	03/16/2023 17:58	TMP	C
Vinyl Chloride	ND	ND,P1	ug/L	1.0	0.30	SW846 8260C	1	03/16/2023 17:58	TMP	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	91.7%	62 - 133	03/16/2023 17:58	
1-Chloro-2-Fluorobenzene	348-51-6	89.8%	70 - 130	03/20/2023 05:30	
4-Bromofluorobenzene	460-00-4	83.6%	79 - 114	03/16/2023 17:58	
Dibromofluoromethane	1868-53-7	88.8%	78 - 116	03/16/2023 17:58	
Toluene-d8	2037-26-5	77.4%	76 - 127	03/16/2023 17:58	

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	GWM-16D	Collected	03/13/2023 12:05
Lab Sample ID	3292442004	Lab Receipt	03/13/2023 17:10

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	15	3,P1	mg/L	5	5	SM2320B-2011	1	03/23/2023 09:47	NML	F
Ammonia-N	0.130	P1	mg/L	0.100	0.03	ASTM D6919-17	10	03/15/2023 18:13	NML	G
Chemical Oxygen Demand (COD)	ND	ND,P1	mg/L	15	5	EPA 410.4	1	03/17/2023 14:15	KMS	G
Chloride	74.7	P1	mg/L	2.0	1.5	EPA 300.0	2	03/14/2023 16:09	J1W	F
Nitrate-N	2.9	P1	mg/L	1.0	0.22	EPA 300.0	2	03/14/2023 16:09	J1W	F
Sulfate	16.0	P1	mg/L	2.0	1.5	EPA 300.0	2	03/14/2023 16:09	J1W	F
Total Dissolved Solids	176	P1	mg/L	25	25	SM2540C-15	1	03/15/2023 07:49	SMS	F



## Results

Client Sample ID	GWM-9	Collected	03/13/2023 13:50
Lab Sample ID	3292442005	Lab Receipt	03/13/2023 17:10

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 14:00	RMD	E1
Arsenic, Total	ND	ND,P1	mg/L	0.0033	0.0011	SW846 6020A	1	03/17/2023 14:00	RMD	E1
Barium, Total	0.091	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 14:00	RMD	E1
Beryllium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/17/2023 14:00	RMD	E1
Cadmium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/17/2023 14:00	RMD	E1
Calcium, Total	11.9	P1	mg/L	0.11	0.037	SW846 6020A	1	03/17/2023 14:00	RMD	E1
Chromium, Total	0.0021J	J,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 14:00	RMD	E1
Cobalt, Total	0.0029J	J,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 14:00	RMD	E1
Copper, Total	0.019	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 14:00	RMD	E1
Hardness	56.5	4,P1	mg/L	0.33	0.11	EPA 200.7	1	03/16/2023 21:22	MO	E2
Iron, Total	0.023J	J,P1	mg/L	0.056	0.019	SW846 6020A	1	03/17/2023 14:00	RMD	E1
Lead, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 14:00	RMD	E1
Magnesium, Total	6.5	P1	mg/L	0.11	0.037	SW846 6020A	1	03/17/2023 14:00	RMD	E1
Manganese, Total	0.068	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 14:00	RMD	E1
Mercury, Total	0.00039J	J,P1	mg/L	0.00050	0.00017	SW846 7470A	1	03/16/2023 10:52	WDA	E
Nickel, Total	0.010	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 14:00	RMD	E1
Potassium, Total	2.8	P1	mg/L	0.11	0.037	SW846 6020A	1	03/17/2023 14:00	RMD	E1
Selenium, Total	ND	ND,5,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 14:00	RMD	E1
Silver, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 14:00	RMD	E1
Sodium, Total	120	P1	mg/L	0.11	0.037	SW846 6020A	1	03/17/2023 14:00	RMD	E1
Thallium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/17/2023 14:00	RMD	E1
Vanadium, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 14:00	RMD	E1
Zinc, Total	0.019	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 14:00	RMD	E1

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.35	SW846 8260C	1	03/16/2023 18:21	TMP	C
1,1,1-Trichloroethane	ND	ND,P1	ug/L	1.0	0.22	SW846 8260C	1	03/16/2023 18:21	TMP	C
1,1,2,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.34	SW846 8260C	1	03/16/2023 18:21	TMP	C
1,1,2-Trichloroethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 18:21	TMP	C
1,1-Dichloroethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/16/2023 18:21	TMP	C
1,1-Dichloroethene	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 18:21	TMP	C
1,2,3-Trichloropropane	ND	ND,P1	ug/L	2.0	0.60	SW846 8260C	1	03/16/2023 18:21	TMP	C
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	0.019	0.0046	SW846 8011	1	03/20/2023 05:45	EGO	A
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	7.0	1.5	SW846 8260C	1	03/16/2023 18:21	TMP	C
1,2-Dibromoethane	ND	ND,P1	ug/L	0.019	0.0094	SW846 8011	1	03/20/2023 05:45	EGO	A
1,2-Dibromoethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/16/2023 18:21	TMP	C
1,2-Dichlorobenzene	ND	ND,P1	ug/L	1.0	0.38	SW846 8260C	1	03/16/2023 18:21	TMP	C
1,2-Dichloroethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 18:21	TMP	C
1,2-Dichloropropane	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 18:21	TMP	C
1,4-Dichlorobenzene	ND	ND,P1	ug/L	1.0	0.27	SW846 8260C	1	03/16/2023 18:21	TMP	C
2-Butanone	ND	ND,P1	ug/L	10.0	1.8	SW846 8260C	1	03/16/2023 18:21	TMP	C
2-Hexanone	ND	ND,P1	ug/L	5.0	1.3	SW846 8260C	1	03/16/2023 18:21	TMP	C
4-Methyl-2-Pentanone(MIBK)	ND	ND,P1	ug/L	5.0	1.5	SW846 8260C	1	03/16/2023 18:21	TMP	C
Acetone	ND	ND,P1	ug/L	10.0	3.1	SW846 8260C	1	03/16/2023 18:21	TMP	C
Acrylonitrile	ND	ND,P1	ug/L	5.0	1.2	SW846 8260C	1	03/16/2023 18:21	TMP	C



## Results

Client Sample ID	GWM-9	Collected	03/13/2023 13:50
Lab Sample ID	3292442005	Lab Receipt	03/13/2023 17:10

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 18:21	TMP	C
Bromochloromethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 18:21	TMP	C
Bromodichloromethane	ND	ND,P1	ug/L	1.0	0.27	SW846 8260C	1	03/16/2023 18:21	TMP	C
Bromoform	ND	ND,P1	ug/L	1.0	0.40	SW846 8260C	1	03/16/2023 18:21	TMP	C
Bromomethane	0.60J	J,P1	ug/L	1.0	0.39	SW846 8260C	1	03/16/2023 18:21	TMP	C
Carbon Disulfide	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 18:21	TMP	C
Carbon Tetrachloride	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 18:21	TMP	C
Chlorobenzene	ND	ND,1,P1	ug/L	1.0	0.19	SW846 8260C	1	03/16/2023 18:21	TMP	C
Chlorodibromomethane	ND	ND,P1	ug/L	1.0	0.45	SW846 8260C	1	03/16/2023 18:21	TMP	C
Chloroethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 18:21	TMP	C
Chloroform	20.3	P1	ug/L	1.0	0.21	SW846 8260C	1	03/16/2023 18:21	TMP	C
Chloromethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 18:21	TMP	C
cis-1,2-Dichloroethene	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 18:21	TMP	C
cis-1,3-Dichloropropene	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 18:21	TMP	C
Cyclohexane	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 18:21	TMP	C
Dibromomethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 18:21	TMP	C
Dichlorodifluoromethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 18:21	TMP	C
Ethylbenzene	ND	ND,P1	ug/L	1.0	0.34	SW846 8260C	1	03/16/2023 18:21	TMP	C
Iodomethane	0.51J	J,P1	ug/L	1.0	0.42	SW846 8260C	1	03/16/2023 18:21	TMP	C
Methyl t-Butyl Ether	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 18:21	TMP	C
Methylene Chloride	ND	ND,P1	ug/L	1.0	0.45	SW846 8260C	1	03/16/2023 18:21	TMP	C
mp-Xylene	ND	ND,P1	ug/L	2.0	0.52	SW846 8260C	1	03/16/2023 18:21	TMP	C
o-Xylene	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 18:21	TMP	C
Styrene	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 18:21	TMP	C
Tetrachloroethene	ND	ND,P1	ug/L	1.0	0.35	SW846 8260C	1	03/16/2023 18:21	TMP	C
Toluene	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 18:21	TMP	C
Total Xylenes	ND	ND,P1	ug/L	3.0	0.66	SW846 8260C	1	03/16/2023 18:21	TMP	C
trans-1,2-Dichloroethene	ND	ND,P1	ug/L	1.0	0.26	SW846 8260C	1	03/16/2023 18:21	TMP	C
trans-1,3-Dichloropropene	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 18:21	TMP	C
trans-1,4-Dichloro-2-butene	ND	ND,P1	ug/L	3.0	0.86	SW846 8260C	1	03/16/2023 18:21	TMP	C
Trichloroethene	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 18:21	TMP	C
Trichlorofluoromethane	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 18:21	TMP	C
Vinyl Acetate	ND	ND,P1	ug/L	5.0	1.6	SW846 8260C	1	03/16/2023 18:21	TMP	C
Vinyl Chloride	ND	ND,P1	ug/L	1.0	0.30	SW846 8260C	1	03/16/2023 18:21	TMP	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	91.1%	62 - 133	03/16/2023 18:21	
1-Chloro-2-Fluorobenzene	348-51-6	93.2%	70 - 130	03/20/2023 05:45	
4-Bromofluorobenzene	460-00-4	86.6%	79 - 114	03/16/2023 18:21	
Dibromofluoromethane	1868-53-7	89%	78 - 116	03/16/2023 18:21	
Toluene-d8	2037-26-5	68.7*%	76 - 127	03/16/2023 18:21	8

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	GWM-9	Collected	03/13/2023 13:50
Lab Sample ID	3292442005	Lab Receipt	03/13/2023 17:10

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	22	3,P1	mg/L	5	5	SM2320B-2011	1	03/23/2023 09:47	NML	F
Ammonia-N	0.119	P1	mg/L	0.100	0.03	ASTM D6919-17	10	03/15/2023 18:26	NML	G
Chemical Oxygen Demand (COD)	7J	J,P1	mg/L	15	5	EPA 410.4	1	03/17/2023 14:15	KMS	G
Chloride	217	P1	mg/L	10.0	7.5	EPA 300.0	10	03/17/2023 03:12	J1W	F
Nitrate-N	1.1	P1	mg/L	1.0	0.22	EPA 300.0	2	03/14/2023 16:20	J1W	F
Sulfate	6.4	P1	mg/L	2.0	1.5	EPA 300.0	2	03/14/2023 16:20	J1W	F
Total Dissolved Solids	382	P1	mg/L	25	25	SM2540C-15	1	03/15/2023 07:49	SMS	F



## Results

Client Sample ID	GWM-2	Collected	03/13/2023 15:07
Lab Sample ID	3292442006	Lab Receipt	03/13/2023 17:10

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 14:02	RMD	E1
Arsenic, Total	ND	ND,P1	mg/L	0.0033	0.0011	SW846 6020A	1	03/17/2023 14:02	RMD	E1
Barium, Total	0.099	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 14:02	RMD	E1
Beryllium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/17/2023 14:02	RMD	E1
Cadmium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/17/2023 14:02	RMD	E1
Calcium, Total	8.5	P1	mg/L	0.11	0.037	SW846 6020A	1	03/17/2023 14:02	RMD	E1
Chromium, Total	0.0039	P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 14:02	RMD	E1
Cobalt, Total	0.042	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 14:02	RMD	E1
Copper, Total	0.0023J	J,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 14:02	RMD	E1
Hardness	49.1	4,P1	mg/L	0.33	0.11	EPA 200.7	1	03/16/2023 21:26	MO	E2
Iron, Total	0.11	P1	mg/L	0.056	0.019	SW846 6020A	1	03/17/2023 14:02	RMD	E1
Lead, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 14:02	RMD	E1
Magnesium, Total	6.7	P1	mg/L	0.11	0.037	SW846 6020A	1	03/17/2023 14:02	RMD	E1
Manganese, Total	0.15	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 14:02	RMD	E1
Mercury, Total	ND	ND,P1	mg/L	0.00050	0.00017	SW846 7470A	1	03/16/2023 10:53	WDA	E
Nickel, Total	0.087	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 14:02	RMD	E1
Potassium, Total	2.8	P1	mg/L	0.11	0.037	SW846 6020A	1	03/17/2023 14:02	RMD	E1
Selenium, Total	ND	ND,5,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 14:02	RMD	E1
Silver, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 14:02	RMD	E1
Sodium, Total	38.3	P1	mg/L	0.11	0.037	SW846 6020A	1	03/17/2023 14:02	RMD	E1
Thallium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/17/2023 14:02	RMD	E1
Vanadium, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/17/2023 14:02	RMD	E1
Zinc, Total	0.069	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/17/2023 14:02	RMD	E1

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.35	SW846 8260C	1	03/16/2023 18:44	TMP	C
1,1,1-Trichloroethane	ND	ND,P1	ug/L	1.0	0.22	SW846 8260C	1	03/16/2023 18:44	TMP	C
1,1,2,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.34	SW846 8260C	1	03/16/2023 18:44	TMP	C
1,1,2-Trichloroethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 18:44	TMP	C
1,1-Dichloroethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/16/2023 18:44	TMP	C
1,1-Dichloroethene	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 18:44	TMP	C
1,2,3-Trichloropropane	ND	ND,P1	ug/L	2.0	0.60	SW846 8260C	1	03/16/2023 18:44	TMP	C
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	0.019	0.0046	SW846 8011	1	03/20/2023 06:00	EGO	A
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	7.0	1.5	SW846 8260C	1	03/16/2023 18:44	TMP	C
1,2-Dibromoethane	ND	ND,P1	ug/L	0.019	0.0094	SW846 8011	1	03/20/2023 06:00	EGO	A
1,2-Dibromoethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/16/2023 18:44	TMP	C
1,2-Dichlorobenzene	ND	ND,P1	ug/L	1.0	0.38	SW846 8260C	1	03/16/2023 18:44	TMP	C
1,2-Dichloroethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 18:44	TMP	C
1,2-Dichloropropane	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 18:44	TMP	C
1,4-Dichlorobenzene	ND	ND,P1	ug/L	1.0	0.27	SW846 8260C	1	03/16/2023 18:44	TMP	C
2-Butanone	ND	ND,P1	ug/L	10.0	1.8	SW846 8260C	1	03/16/2023 18:44	TMP	C
2-Hexanone	ND	ND,P1	ug/L	5.0	1.3	SW846 8260C	1	03/16/2023 18:44	TMP	C
4-Methyl-2-Pentanone(MIBK)	ND	ND,P1	ug/L	5.0	1.5	SW846 8260C	1	03/16/2023 18:44	TMP	C
Acetone	ND	ND,P1	ug/L	10.0	3.1	SW846 8260C	1	03/16/2023 18:44	TMP	C
Acrylonitrile	ND	ND,P1	ug/L	5.0	1.2	SW846 8260C	1	03/16/2023 18:44	TMP	C



## Results

Client Sample ID	GWM-2	Collected	03/13/2023 15:07
Lab Sample ID	3292442006	Lab Receipt	03/13/2023 17:10

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 18:44	TMP	C
Bromochloromethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 18:44	TMP	C
Bromodichloromethane	ND	ND,P1	ug/L	1.0	0.27	SW846 8260C	1	03/16/2023 18:44	TMP	C
Bromoform	ND	ND,P1	ug/L	1.0	0.40	SW846 8260C	1	03/16/2023 18:44	TMP	C
Bromomethane	0.53J	J,P1	ug/L	1.0	0.39	SW846 8260C	1	03/16/2023 18:44	TMP	C
Carbon Disulfide	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 18:44	TMP	C
Carbon Tetrachloride	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 18:44	TMP	C
Chlorobenzene	ND	ND,1,P1	ug/L	1.0	0.19	SW846 8260C	1	03/16/2023 18:44	TMP	C
Chlorodibromomethane	ND	ND,P1	ug/L	1.0	0.45	SW846 8260C	1	03/16/2023 18:44	TMP	C
Chloroethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 18:44	TMP	C
Chloroform	0.29J	J,P1	ug/L	1.0	0.21	SW846 8260C	1	03/16/2023 18:44	TMP	C
Chloromethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 18:44	TMP	C
cis-1,2-Dichloroethene	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 18:44	TMP	C
cis-1,3-Dichloropropene	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 18:44	TMP	C
Cyclohexane	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 18:44	TMP	C
Dibromomethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 18:44	TMP	C
Dichlorodifluoromethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 18:44	TMP	C
Ethylbenzene	ND	ND,P1	ug/L	1.0	0.34	SW846 8260C	1	03/16/2023 18:44	TMP	C
Iodomethane	0.49J	J,P1	ug/L	1.0	0.42	SW846 8260C	1	03/16/2023 18:44	TMP	C
Methyl t-Butyl Ether	1.1	P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 18:44	TMP	C
Methylene Chloride	ND	ND,P1	ug/L	1.0	0.45	SW846 8260C	1	03/16/2023 18:44	TMP	C
mp-Xylene	ND	ND,P1	ug/L	2.0	0.52	SW846 8260C	1	03/16/2023 18:44	TMP	C
o-Xylene	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 18:44	TMP	C
Styrene	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 18:44	TMP	C
Tetrachloroethene	0.57J	J,P1	ug/L	1.0	0.35	SW846 8260C	1	03/16/2023 18:44	TMP	C
Toluene	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 18:44	TMP	C
Total Xylenes	ND	ND,P1	ug/L	3.0	0.66	SW846 8260C	1	03/16/2023 18:44	TMP	C
trans-1,2-Dichloroethene	ND	ND,P1	ug/L	1.0	0.26	SW846 8260C	1	03/16/2023 18:44	TMP	C
trans-1,3-Dichloropropene	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 18:44	TMP	C
trans-1,4-Dichloro-2-butene	ND	ND,P1	ug/L	3.0	0.86	SW846 8260C	1	03/16/2023 18:44	TMP	C
Trichloroethene	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 18:44	TMP	C
Trichlorofluoromethane	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 18:44	TMP	C
Vinyl Acetate	ND	ND,P1	ug/L	5.0	1.6	SW846 8260C	1	03/16/2023 18:44	TMP	C
Vinyl Chloride	ND	ND,P1	ug/L	1.0	0.30	SW846 8260C	1	03/16/2023 18:44	TMP	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	94.3%	62 - 133	03/16/2023 18:44	
1-Chloro-2-Fluorobenzene	348-51-6	93.3%	70 - 130	03/20/2023 06:00	
4-Bromofluorobenzene	460-00-4	99.9%	79 - 114	03/16/2023 18:44	
Dibromofluoromethane	1868-53-7	91%	78 - 116	03/16/2023 18:44	
Toluene-d8	2037-26-5	69.3**	76 - 127	03/16/2023 18:44	9

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
----------	--------	------	-------	-----	-----	--------	----------	--------------------	----	------



## Results

Client Sample ID	GWM-2	Collected	03/13/2023 15:07
Lab Sample ID	3292442006	Lab Receipt	03/13/2023 17:10

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	10	3,P1	mg/L	5	5	SM2320B-2011	1	03/23/2023 09:47	NML	F
Ammonia-N	0.132	P1	mg/L	0.100	0.03	ASTM D6919-17	10	03/15/2023 18:40	NML	G
Chemical Oxygen Demand (COD)	6J	J,P1	mg/L	15	5	EPA 410.4	1	03/17/2023 14:15	KMS	G
Chloride	77.3	P1	mg/L	2.0	1.5	EPA 300.0	2	03/14/2023 16:30	J1W	F
Nitrate-N	1.9	P1	mg/L	1.0	0.22	EPA 300.0	2	03/14/2023 16:30	J1W	F
Sulfate	17.1	P1	mg/L	2.0	1.5	EPA 300.0	2	03/14/2023 16:30	J1W	F
Total Dissolved Solids	182	P1	mg/L	25	25	SM2540C-15	1	03/15/2023 07:49	SMS	F





### Results

Client Sample ID	GWM-16D	Collected	03/13/2023 12:05
Lab Sample ID	3292442007	Lab Receipt	03/13/2023 17:10

### SUBCONTRACTED ANALYSIS

<u>Compound</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Dilution</u>	<u>Analysis Date/Time</u>	<u>By</u>	<u>Cntr</u>
Subcontracted Analysis	See attached	10,P1				Subcontract	1	03/28/2023 16:12	SUB	A



## Results

Client Sample ID	GWM-9	Collected	03/13/2023 13:50
Lab Sample ID	3292442008	Lab Receipt	03/13/2023 17:10

### SUBCONTRACTED ANALYSIS

<u>Compound</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Dilution</u>	<u>Analysis Date/Time</u>	<u>By</u>	<u>Cntr</u>
Subcontracted Analysis	See attached	10,P1				Subcontract	1	03/28/2023 16:14	SUB	A



## Results

Client Sample ID	GWM-2	Collected	03/13/2023 15:07
Lab Sample ID	3292442009	Lab Receipt	03/13/2023 17:10

### SUBCONTRACTED ANALYSIS

<u>Compound</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Dilution</u>	<u>Analysis Date/Time</u>	<u>By</u>	<u>Cntr</u>
Subcontracted Analysis	See attached	10,P1				Subcontract	1	03/28/2023 16:14	SUB	A



### Sample - Method Cross Reference Table

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3292442001	Trip Blank	SW846 8011	SW846 8011	
		SW846 8260C	N/A	
3292442002	Field Blank	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
		SM2540C-15	N/A	
3292442003	GWM-1	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
		SM2540C-15	N/A	
3292442004	GWM-16D	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
		SM2540C-15	N/A	
3292442005	GWM-9	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
SM2540C-15	N/A			
3292442006	GWM-2	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
		SM2540C-15	N/A	
3292442007	GWM-16D	Subcontract	N/A	
3292442008	GWM-9	Subcontract	N/A	



**Project** Eastern Sanitary Landfill  
**Workorder** 3292442

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3292442009	GWM-2	Subcontract	N/A	



### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Lab ID	Sample ID	Preparation Method	Prep Batch	Prep Date/Time	By	Analysis Method	Anly Batch
3292442001	Trip Blank	SW846 8011	963042	03/19/2023 20:25	EGO	SW846 8011	963053
		N/A	N/A	N/A		SW846 8260C	962669
3292442002	Field Blank	EPA TRMD	962308	03/15/2023 22:47	ANN	EPA 200.7	962729
		SW846 3015A	962306	03/16/2023 01:04	ANN	SW846 6020A	962876
		SW846 7470A	962094	03/15/2023 12:35	WDA	SW846 7470A	962631
		SW846 8011	963042	03/19/2023 20:25	EGO	SW846 8011	963053
		N/A	N/A	N/A		SW846 8260C	962669
		N/A	N/A	N/A		ASTM D6919-17	961542
		N/A	N/A	N/A		EPA 300.0	961389
		N/A	N/A	N/A		EPA 410.4	962843
		N/A	N/A	N/A		SM2320B-2011	964128
		N/A	N/A	N/A		SM2540C-15	961379
3292442003	GWM-1	EPA TRMD	962308	03/15/2023 22:47	ANN	EPA 200.7	962729
		SW846 3015A	962306	03/16/2023 01:04	ANN	SW846 6020A	962876
		SW846 7470A	962094	03/15/2023 12:35	WDA	SW846 7470A	962631
		SW846 8011	963042	03/19/2023 20:25	EGO	SW846 8011	963053
		N/A	N/A	N/A		SW846 8260C	962669
		N/A	N/A	N/A		ASTM D6919-17	961542
		N/A	N/A	N/A		EPA 300.0	961389
		N/A	N/A	N/A		EPA 410.4	962843
		N/A	N/A	N/A		SM2320B-2011	964128
		N/A	N/A	N/A		SM2540C-15	961379
3292442004	GWM-16D	EPA TRMD	962308	03/15/2023 22:47	ANN	EPA 200.7	962729
		SW846 3015A	962306	03/16/2023 01:04	ANN	SW846 6020A	962876
		SW846 7470A	962094	03/15/2023 12:35	WDA	SW846 7470A	962631
		SW846 8011	963042	03/19/2023 20:25	EGO	SW846 8011	963053
		N/A	N/A	N/A		SW846 8260C	962669
		N/A	N/A	N/A		ASTM D6919-17	961542
		N/A	N/A	N/A		EPA 300.0	961389
		N/A	N/A	N/A		EPA 410.4	962843
		N/A	N/A	N/A		SM2320B-2011	964128
		N/A	N/A	N/A		SM2540C-15	961379
3292442005	GWM-9	EPA TRMD	962308	03/15/2023 22:47	ANN	EPA 200.7	962729
		SW846 3015A	962306	03/16/2023 01:04	ANN	SW846 6020A	962876
		SW846 7470A	962094	03/15/2023 12:35	WDA	SW846 7470A	962631
		SW846 8011	963042	03/19/2023 20:25	EGO	SW846 8011	963053
		N/A	N/A	N/A		SW846 8260C	962669
		N/A	N/A	N/A		ASTM D6919-17	961542
		N/A	N/A	N/A		EPA 300.0	961389
		N/A	N/A	N/A		EPA 300.0	962587
		N/A	N/A	N/A		EPA 410.4	962843
		N/A	N/A	N/A		SM2320B-2011	964128
3292442006	GWM-2	EPA TRMD	962308	03/15/2023 22:47	ANN	EPA 200.7	962729
		SW846 3015A	962306	03/16/2023 01:04	ANN	SW846 6020A	962876
		SW846 7470A	962094	03/15/2023 12:35	WDA	SW846 7470A	962631
		SW846 8011	963042	03/19/2023 20:25	EGO	SW846 8011	963053
		N/A	N/A	N/A		SW846 8260C	962669
		N/A	N/A	N/A		ASTM D6919-17	961542
		N/A	N/A	N/A		EPA 300.0	961389
		N/A	N/A	N/A		EPA 410.4	962843
		N/A	N/A	N/A		SM2320B-2011	964128
		N/A	N/A	N/A		SM2540C-15	961379
3292442007	GWM-16D	N/A	N/A	N/A		Subcontract	
3292442008	GWM-9	N/A	N/A	N/A		Subcontract	
3292442009	GWM-2	N/A	N/A	N/A		Subcontract	

3292442

Logged By: MJE  
PM: GJM



# CHAIN OF CUSTODY / SAMPLE INFORMATION FORM

Maryland Environmental Service • 259 Najoles Rd. • Millersville, MD 21108 • (410) 729-8200 • FAX (410) 7-

Laboratory: ALS

Sampler: Laura Russell / Tom Reedy / Bro...

Client Name: Maryland Environmental Service, Attn: Cheryl Griffin

Facility Name: Eastern Sanitary Landfill

Client Address: 259 Najoles Rd, Millersville, MD 21108 410-729-8356

Project# / Purpose: 3926-2000

Invoice To: Same

Turnaround Time: Routine

Sample #	Sample ID	Grab or Composite	Container Description/Preservation Status	Matrix	# of Containers	Date	Time	Analyses Required/Comments
1	Trip Blank	N/A	40 mL G Na2S2O3	W	2	3-13-23	--	VOCs (8011)
2	Field Blank	G	40 mL G HCl	W	2	3-13-23	1050	VOCs (8260)
			40 mL G HCl	W	2			VOCs (8011)
			125 mL P HNO3	W	1			Metals - Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn (6020), Hg (7470), Hardness
			1 L P unpreserved	W	1			Alkalinity, TDS, Nitrate (EPA 300), Sulfate, Chloride
			250 mL P H2SO4	W	1			Ammonia, COD

Temp By: ME | 10 | 510 | Therm ID

Receipt Info Completed By: DPB  
 Cooler Custody Seal Intact Y N  
 Sample Custody Seal Intact Y N  
 Received on Ice Y N  
 Cooler & Samples Intact Y N  
 Correct Containers Provided Y N  
 Sample Label/COC Agree Y N  
 Adequate Sample Volumes Y N  
 CR6 Samples Filtered Y N  
 OP Samples Filtered Y N  
 VOA Headspace Present Y N  
 Voa Trip Blank Y N  
 MLE 4 Days? Y N  
 Rad Screen (uCi) Y N  
 Courier/Tracking #: Y N

(LAB USE ONLY)

SDWA Compliance Y N  
 PWSID Y N  
 WV Containers 0-6°C Y N

Transferred by: *Laura Russell* Date: 3-13-23 Time: 15:30

Received by: *Tom Reedy* Date: 3-13-23 Time: 17:10

Transferred by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

# CHAIN OF CUSTODY / SAMPLE INFORMATION FORM 3292442

Maryland Environmental Service • 259 Najoles Rd. • Millersville, MD 21108 • (410) 729-8200 • FAX (410) 729-8340

**Laboratory:** ALS  
**Sampler:** Laura Russell / Tom Reedy / Brooke Zibell  
**Client Name:** Maryland Environmental Service, Attn: Cheryl Griffin  
**Facility Name:** Eastern Sanitary Landfill  
**Client Address:** 259 Najoles Rd, Millersville, MD 21108 410-729-8356  
**Project# / Purpose:** 3926-2000

**Invoice To:** Same **Turnaround Time:** Routine

Sample #	Sample ID	Grab or Composite	Container Description/ Preservation Status	Matrix	# of Containers	Date	Time	Analyses Required/Comments
3	GWM-1	G	40 mL G Na2S2O3	NPW	2	3-13-23	1029	VOCs (8011)
			40 mL G HCl	NPW	2			VOCs (8260)
			125 mL P HNO3	NPW	2			Metals - Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn (6020), Hg (7470), Hardness
			1 L P unpreserved	NPW	1			Alkalinity, TDS, Nitrate (EPA 300), Sulfate, Chloride
			250 mL P H2SO4	NPW	1			Ammonia, COD
4	GWM-16D	G	Same as Sample #3	NPW	8	3-13-23	1205	Same as Sample #3
5	GMW-9	G	Same as Sample #3	NPW	8	3-13-23	1350	Same as Sample #3
6	GWM-2	G	Same as Sample #3	NPW	8	3-13-23	1507	Same as Sample #3

**Transferred by:** *[Signature]* **Received by:** *[Signature]* **Time:** 1530  
**Transferred by:** *[Signature]* **Received by:** *[Signature]* **Time:** 1710  
**Transferred by:** *[Signature]* **Received by:** *[Signature]* **Time:** 1710

**Cooler Receipt Information (LAB USE ONLY)**  
 Sufficient ice? - Yes/No  Yes  No Temp. = \_\_\_\_\_  
 Sample containers properly pres'd? - Yes/No  Yes  No If No, explain \_\_\_\_\_  
 Initials: \_\_\_\_\_ Date: \_\_\_\_\_



# CHAIN OF CUSTODY / SAMPLE INFORMATION FORM

3212492

Maryland Environmental Service • 259 Najoles Rd. • Millersville, MD 21108 • (410) 729-8200 • FAX (410) 729-8340

**Laboratory:** ALS

**Samplers:** Laura Russell / Tom Reedy / Brooke Zibell

**Client Name:** Maryland Environmental Service, Attn: Cheryl Griffin

**Facility Name:** Eastern Sanitary Landfill

**Client Address:** 259 Najoles Rd, Millersville, MD 21108 410-729-8356

**Project# / Purpose:** 3926-2000

**Invoice To:** Same

**Turnaround Time:** Routine

Sample #	Sample ID	Grab or Composite	Container Description/ Preservation Status	Matrix	# of Containers	Date	Time	Analyses Required/Comments
7	GWM-16D	G	1 L G Amb Unpreserved	NPW	1	3-13-23	1205	Pesticides (Low Level 608) subcontracted
8	GWM-9	G	1 L G Amb Unpreserved	NPW	1	3-13-23	1350	Pesticides (Low Level 608) subcontracted
9	GWM-2	G	1 L G Amb Unpreserved	NPW	1	3-13-23	1507	Pesticides (Low Level 608) subcontracted

Transferred by: *LAURA RUSSELL*

Received by: *BR*

Date: 3-13-23  
Time: 1530

Cooler Receipt Information (LAB USE ONLY)  
Sufficient ice? - Yes/No Temp. =  
Sample containers properly pres'd? - Yes/No If No, explain

Transferred by: *BR*

Received by: *BR*

Date: 3-13-23  
Time: 1710

Initials: \_\_\_\_\_ Date: \_\_\_\_\_

# ANALYTICAL REPORT

## PREPARED FOR

Attn: Meghan Pedro  
ALS Environmental  
1565 Jefferson Road  
Building 300, Suite 360  
Rochester, New York 14623

Generated 1/30/2024 9:56:59 AM Revision 1

## JOB DESCRIPTION

3292442

## JOB NUMBER

180-153775-1

# Eurofins Pittsburgh

## 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 Northeast, LLC Pittsburgh and its client. All questions regarding this report should be directed to the Eurofins Environment Testing Northeast, LLC Pittsburgh Project Manager or designee who has signed this report.

PA Lab ID: 02-00416

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 Pittsburgh Project Manager.

## Authorization



Authorized for release by  
Debra Bowen, Project Manager I  
[Debra.Bowen@et.eurofinsus.com](mailto:Debra.Bowen@et.eurofinsus.com)  
(412)963-2445

Generated  
1/30/2024 9:56:59 AM  
Revision 1



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# Case Narrative

Client: ALS Environmental  
Project: 3292442

Job ID: 180-153775-1

**Job ID: 180-153775-1**

**Eurofins Pittsburgh**

**Job Narrative**  
**180-153775-1**

**Revision 1**

The revised report contains the result for Methoxychor.

**Receipt**

The samples were received on 3/17/2023 6:00 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 3.2°C

**Pesticides**

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

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Eurofins Pittsburgh

# Definitions/Glossary

Client: ALS Environmental  
Project/Site: 3292442

Job ID: 180-153775-1

## Qualifiers

### GC Semi VOA

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

## Glossary

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

# Accreditation/Certification Summary

Client: ALS Environmental  
Project/Site: 3292442

Job ID: 180-153775-1

## Laboratory: Eurofins Pittsburgh

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

Authority	Program	Identification Number	Expiration Date
New York	NELAP	11182	03-31-23

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# Sample Summary

Client: ALS Environmental  
Project/Site: 3292442

Job ID: 180-153775-1

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<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Collected</u>	<u>Received</u>
180-153775-1	3292442-007	Water	03/13/23 12:05	03/17/23 18:00
180-153775-2	3292442-008	Water	03/13/23 13:50	03/17/23 18:00
180-153775-3	3292442-009	Water	03/13/23 15:07	03/17/23 18:00

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# Method Summary

Client: ALS Environmental  
Project/Site: 3292442

Job ID: 180-153775-1

Method	Method Description	Protocol	Laboratory
EPA 608.3	Organochlorine Pesticides in Water	40CFR136A	EET PIT
608	Liquid-Liquid Extraction (Separatory Funnel)	EPA	EET PIT

**Protocol References:**

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

EPA = US Environmental Protection Agency

**Laboratory References:**

EET PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058



# Lab Chronicle

Client: ALS Environmental  
Project/Site: 3292442

Job ID: 180-153775-1

**Client Sample ID: 3292442-007**

**Lab Sample ID: 180-153775-1**

**Date Collected: 03/13/23 12:05**

**Matrix: Water**

**Date Received: 03/17/23 18:00**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	608			1060 mL	1.0 mL	429673	03/19/23 13:44	VJC	EET PIT
Total/NA	Analysis	EPA 608.3		1	1 mL	1 mL	429842	03/21/23 19:44	JMO	EET PIT

Instrument ID: CHGC17

**Client Sample ID: 3292442-008**

**Lab Sample ID: 180-153775-2**

**Date Collected: 03/13/23 13:50**

**Matrix: Water**

**Date Received: 03/17/23 18:00**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	608			1060 mL	1.0 mL	429673	03/19/23 13:44	VJC	EET PIT
Total/NA	Analysis	EPA 608.3		1	1 mL	1 mL	429842	03/21/23 20:00	JMO	EET PIT

Instrument ID: CHGC17

**Client Sample ID: 3292442-009**

**Lab Sample ID: 180-153775-3**

**Date Collected: 03/13/23 15:07**

**Matrix: Water**

**Date Received: 03/17/23 18:00**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	608			1050 mL	1.0 mL	429797	03/20/23 18:06	VJC	EET PIT
Total/NA	Analysis	EPA 608.3		1	1 mL	1 mL	429961	03/22/23 10:51	JMO	EET PIT

Instrument ID: CHGC17

### Laboratory References:

EET PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

### Analyst References:

Lab: EET PIT

Batch Type: Prep

VJC = Vincent Cervone

Batch Type: Analysis

JMO = John Oravec

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# Client Sample Results

Client: ALS Environmental  
Project/Site: 3292442

Job ID: 180-153775-1

**Client Sample ID: 3292442-007**

**Lab Sample ID: 180-153775-1**

**Date Collected: 03/13/23 12:05**

**Matrix: Water**

**Date Received: 03/17/23 18:00**

**Method: 40CFR136A EPA 608.3 - Organochlorine Pesticides in Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 19:44	1
alpha-BHC	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 19:44	1
beta-BHC	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 19:44	1
gamma-BHC (Lindane)	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 19:44	1
delta-BHC	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 19:44	1
Chlordane (technical)	ND		0.0123		ug/L		03/19/23 13:44	03/21/23 19:44	1
4,4'-DDD	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 19:44	1
4,4'-DDE	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 19:44	1
4,4'-DDT	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 19:44	1
Dieldrin	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 19:44	1
Endosulfan I	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 19:44	1
Endosulfan II	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 19:44	1
Endosulfan sulfate	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 19:44	1
Endrin	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 19:44	1
Endrin aldehyde	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 19:44	1
Heptachlor	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 19:44	1
Heptachlor epoxide	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 19:44	1
Toxaphene	ND		0.0943		ug/L		03/19/23 13:44	03/21/23 19:44	1
Methoxychlor	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 19:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	62		20 - 138	03/19/23 13:44	03/21/23 19:44	1
Tetrachloro-m-xylene	66		20 - 138	03/19/23 13:44	03/21/23 19:44	1
DCB Decachlorobiphenyl (Surr)	74		43 - 143	03/19/23 13:44	03/21/23 19:44	1
DCB Decachlorobiphenyl (Surr)	65		43 - 143	03/19/23 13:44	03/21/23 19:44	1

**Client Sample ID: 3292442-008**

**Lab Sample ID: 180-153775-2**

**Date Collected: 03/13/23 13:50**

**Matrix: Water**

**Date Received: 03/17/23 18:00**

**Method: 40CFR136A EPA 608.3 - Organochlorine Pesticides in Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:00	1
alpha-BHC	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:00	1
beta-BHC	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:00	1
gamma-BHC (Lindane)	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:00	1
delta-BHC	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:00	1
Chlordane (technical)	ND		0.0123		ug/L		03/19/23 13:44	03/21/23 20:00	1
4,4'-DDD	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:00	1
4,4'-DDE	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:00	1
4,4'-DDT	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:00	1
Dieldrin	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:00	1
Endosulfan I	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:00	1
Endosulfan II	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:00	1
Endosulfan sulfate	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:00	1
Endrin	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:00	1
Endrin aldehyde	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:00	1
Heptachlor	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:00	1
Heptachlor epoxide	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:00	1
Toxaphene	ND		0.0943		ug/L		03/19/23 13:44	03/21/23 20:00	1

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# Client Sample Results

Client: ALS Environmental  
Project/Site: 3292442

Job ID: 180-153775-1

**Client Sample ID: 3292442-008**

**Lab Sample ID: 180-153775-2**

Date Collected: 03/13/23 13:50

Matrix: Water

Date Received: 03/17/23 18:00

**Method: 40CFR136A EPA 608.3 - Organochlorine Pesticides in Water (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methoxychlor	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	49		20 - 138				03/19/23 13:44	03/21/23 20:00	1
Tetrachloro-m-xylene	43		20 - 138				03/19/23 13:44	03/21/23 20:00	1
DCB Decachlorobiphenyl (Surr)	55		43 - 143				03/19/23 13:44	03/21/23 20:00	1
DCB Decachlorobiphenyl (Surr)	50		43 - 143				03/19/23 13:44	03/21/23 20:00	1

**Client Sample ID: 3292442-009**

**Lab Sample ID: 180-153775-3**

Date Collected: 03/13/23 15:07

Matrix: Water

Date Received: 03/17/23 18:00

**Method: 40CFR136A EPA 608.3 - Organochlorine Pesticides in Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.00124		ug/L		03/20/23 18:06	03/22/23 10:51	1
alpha-BHC	ND		0.00124		ug/L		03/20/23 18:06	03/22/23 10:51	1
beta-BHC	ND		0.00124		ug/L		03/20/23 18:06	03/22/23 10:51	1
gamma-BHC (Lindane)	ND		0.00124		ug/L		03/20/23 18:06	03/22/23 10:51	1
delta-BHC	ND		0.00124		ug/L		03/20/23 18:06	03/22/23 10:51	1
Chlordane (technical)	ND		0.0124		ug/L		03/20/23 18:06	03/22/23 10:51	1
4,4'-DDD	ND		0.00124		ug/L		03/20/23 18:06	03/22/23 10:51	1
4,4'-DDE	ND		0.00124		ug/L		03/20/23 18:06	03/22/23 10:51	1
4,4'-DDT	ND		0.00124		ug/L		03/20/23 18:06	03/22/23 10:51	1
<b>Dieldrin</b>	<b>0.0189</b>		0.00124		ug/L		03/20/23 18:06	03/22/23 10:51	1
Endosulfan I	ND		0.00124		ug/L		03/20/23 18:06	03/22/23 10:51	1
Endosulfan II	ND		0.00124		ug/L		03/20/23 18:06	03/22/23 10:51	1
Endosulfan sulfate	ND		0.00124		ug/L		03/20/23 18:06	03/22/23 10:51	1
Endrin	ND		0.00124		ug/L		03/20/23 18:06	03/22/23 10:51	1
Endrin aldehyde	ND	*+	0.00124		ug/L		03/20/23 18:06	03/22/23 10:51	1
Heptachlor	ND		0.00124		ug/L		03/20/23 18:06	03/22/23 10:51	1
Heptachlor epoxide	ND		0.00124		ug/L		03/20/23 18:06	03/22/23 10:51	1
Toxaphene	ND		0.0952		ug/L		03/20/23 18:06	03/22/23 10:51	1
Methoxychlor	ND		0.00124		ug/L		03/20/23 18:06	03/22/23 10:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	57		20 - 138				03/20/23 18:06	03/22/23 10:51	1
Tetrachloro-m-xylene	100		20 - 138				03/20/23 18:06	03/22/23 10:51	1
DCB Decachlorobiphenyl (Surr)	74		43 - 143				03/20/23 18:06	03/22/23 10:51	1
DCB Decachlorobiphenyl (Surr)	66		43 - 143				03/20/23 18:06	03/22/23 10:51	1

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# QC Sample Results

Client: ALS Environmental  
Project/Site: 3292442

Job ID: 180-153775-1

## Method: EPA 608.3 - Organochlorine Pesticides in Water

**Lab Sample ID: MB 180-429673/1-A**  
**Matrix: Water**  
**Analysis Batch: 429842**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 429673**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aldrin	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
alpha-BHC	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
beta-BHC	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
gamma-BHC (Lindane)	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
delta-BHC	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
Chlordane (technical)	ND		0.0130		ug/L		03/19/23 13:44	03/21/23 16:18	1
4,4'-DDD	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
4,4'-DDE	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
4,4'-DDT	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
Dieldrin	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
Endosulfan I	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
Endosulfan II	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
Endosulfan sulfate	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
Endrin	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
Endrin aldehyde	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
Heptachlor	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
Heptachlor epoxide	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
Toxaphene	ND		0.100		ug/L		03/19/23 13:44	03/21/23 16:18	1
Methoxychlor	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Tetrachloro-m-xylene	86		20 - 138	03/19/23 13:44	03/21/23 16:18	1
Tetrachloro-m-xylene	97		20 - 138	03/19/23 13:44	03/21/23 16:18	1
DCB Decachlorobiphenyl (Surr)	102		43 - 143	03/19/23 13:44	03/21/23 16:18	1
DCB Decachlorobiphenyl (Surr)	82		43 - 143	03/19/23 13:44	03/21/23 16:18	1

**Lab Sample ID: LCS 180-429673/2-A**  
**Matrix: Water**  
**Analysis Batch: 429842**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 429673**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
Aldrin	0.0250	0.02110		ug/L		84	42 - 140
alpha-BHC	0.0250	0.02080		ug/L		83	37 - 140
beta-BHC	0.0250	0.01947		ug/L		78	17 - 147
gamma-BHC (Lindane)	0.0250	0.02107		ug/L		84	32 - 140
delta-BHC	0.0250	0.01573		ug/L		63	19 - 140
4,4'-DDD	0.0250	0.02589		ug/L		104	31 - 141
4,4'-DDE	0.0250	0.02477		ug/L		99	30 - 145
4,4'-DDT	0.0250	0.02138		ug/L		86	25 - 150
Dieldrin	0.0250	0.02341		ug/L		94	36 - 146
Endosulfan I	0.0250	0.02051		ug/L		82	45 - 150
Endosulfan II	0.0250	0.02225		ug/L		89	10 - 150
Endosulfan sulfate	0.0250	0.02166		ug/L		87	26 - 144
Endrin	0.0250	0.02325		ug/L		93	30 - 147
Endrin aldehyde	0.0250	0.02554		ug/L		102	51 - 113
Heptachlor	0.0250	0.02109		ug/L		84	34 - 140
Heptachlor epoxide	0.0250	0.02210		ug/L		88	37 - 142
Methoxychlor	0.0250	0.02174		ug/L		87	41 - 140

Eurofins Pittsburgh

# QC Sample Results

Client: ALS Environmental  
Project/Site: 3292442

Job ID: 180-153775-1

## Method: EPA 608.3 - Organochlorine Pesticides in Water (Continued)

**Lab Sample ID: LCS 180-429673/2-A**  
**Matrix: Water**  
**Analysis Batch: 429842**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 429673**

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	85		20 - 138
Tetrachloro-m-xylene	96		20 - 138
DCB Decachlorobiphenyl (Surr)	106		43 - 143
DCB Decachlorobiphenyl (Surr)	81		43 - 143

**Lab Sample ID: LCSD 180-429673/3-A**  
**Matrix: Water**  
**Analysis Batch: 429842**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 429673**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits	RPD	Limit	Limit
Aldrin	0.0250	0.02080		ug/L		83	42 - 140	1	35	
alpha-BHC	0.0250	0.02051		ug/L		82	37 - 140	1	35	
beta-BHC	0.0250	0.01917		ug/L		77	17 - 147	2	35	
gamma-BHC (Lindane)	0.0250	0.02100		ug/L		84	32 - 140	0	35	
delta-BHC	0.0250	0.01562		ug/L		62	19 - 140	1	35	
4,4'-DDD	0.0250	0.02585		ug/L		103	31 - 141	0	35	
4,4'-DDE	0.0250	0.02415		ug/L		97	30 - 145	3	35	
4,4'-DDT	0.0250	0.02169		ug/L		87	25 - 150	1	35	
Dieldrin	0.0250	0.02405		ug/L		96	36 - 146	3	35	
Endosulfan I	0.0250	0.02082		ug/L		83	45 - 150	2	28	
Endosulfan II	0.0250	0.02207		ug/L		88	10 - 150	1	35	
Endosulfan sulfate	0.0250	0.02163		ug/L		87	26 - 144	0	35	
Endrin	0.0250	0.02423		ug/L		97	30 - 147	4	35	
Endrin aldehyde	0.0250	0.02557		ug/L		102	51 - 113	0	26	
Heptachlor	0.0250	0.02060		ug/L		82	34 - 140	2	35	
Heptachlor epoxide	0.0250	0.02158		ug/L		86	37 - 142	2	26	
Methoxychlor	0.0250	0.02211		ug/L		88	41 - 140	2	24	

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	84		20 - 138
Tetrachloro-m-xylene	92		20 - 138
DCB Decachlorobiphenyl (Surr)	96		43 - 143
DCB Decachlorobiphenyl (Surr)	80		43 - 143

**Lab Sample ID: MB 180-429797/1-A**  
**Matrix: Water**  
**Analysis Batch: 429961**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 429797**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
alpha-BHC	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
beta-BHC	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
gamma-BHC (Lindane)	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
delta-BHC	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
Chlordane (technical)	ND		0.0130		ug/L		03/20/23 18:06	03/22/23 10:04	1
4,4'-DDD	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
4,4'-DDE	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
4,4'-DDT	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1

Eurofins Pittsburgh

# QC Sample Results

Client: ALS Environmental  
Project/Site: 3292442

Job ID: 180-153775-1

## Method: EPA 608.3 - Organochlorine Pesticides in Water (Continued)

**Lab Sample ID: MB 180-429797/1-A**  
**Matrix: Water**  
**Analysis Batch: 429961**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 429797**

Analyte	MB MB		RL	MDL	Unit	D	Prepared		Analyzed		Dil Fac
	Result	Qualifier									
Dieldrin	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04		1	
Endosulfan I	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04		1	
Endosulfan II	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04		1	
Endosulfan sulfate	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04		1	
Endrin	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04		1	
Endrin aldehyde	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04		1	
Heptachlor	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04		1	
Heptachlor epoxide	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04		1	
Toxaphene	ND		0.100		ug/L		03/20/23 18:06	03/22/23 10:04		1	
Methoxychlor	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04		1	

Surrogate	MB MB		Limits	Prepared		Analyzed		Dil Fac
	%Recovery	Qualifier						
Tetrachloro-m-xylene	86		20 - 138	03/20/23 18:06	03/22/23 10:04		1	
Tetrachloro-m-xylene	88		20 - 138	03/20/23 18:06	03/22/23 10:04		1	
DCB Decachlorobiphenyl (Surr)	97		43 - 143	03/20/23 18:06	03/22/23 10:04		1	
DCB Decachlorobiphenyl (Surr)	80		43 - 143	03/20/23 18:06	03/22/23 10:04		1	

**Lab Sample ID: LCS 180-429797/2-A**  
**Matrix: Water**  
**Analysis Batch: 429961**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 429797**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	
Aldrin	0.0250	0.01990		ug/L		80	42 - 140	
alpha-BHC	0.0250	0.02010		ug/L		80	37 - 140	
beta-BHC	0.0250	0.01893		ug/L		76	17 - 147	
gamma-BHC (Lindane)	0.0250	0.02056		ug/L		82	32 - 140	
delta-BHC	0.0250	0.01635		ug/L		65	19 - 140	
4,4'-DDD	0.0250	0.02520		ug/L		101	31 - 141	
4,4'-DDE	0.0250	0.02415		ug/L		97	30 - 145	
4,4'-DDT	0.0250	0.02107		ug/L		84	25 - 150	
Dieldrin	0.0250	0.02349		ug/L		94	36 - 146	
Endosulfan I	0.0250	0.01933		ug/L		77	45 - 150	
Endosulfan II	0.0250	0.02268		ug/L		91	10 - 150	
Endosulfan sulfate	0.0250	0.02485		ug/L		99	26 - 144	
Endrin	0.0250	0.02332		ug/L		93	30 - 147	
Endrin aldehyde	0.0250	0.02639		ug/L		106	51 - 113	
Heptachlor	0.0250	0.01882		ug/L		75	34 - 140	
Heptachlor epoxide	0.0250	0.02036		ug/L		81	37 - 142	
Methoxychlor	0.0250	0.02060		ug/L		82	41 - 140	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	84		20 - 138
Tetrachloro-m-xylene	84		20 - 138
DCB Decachlorobiphenyl (Surr)	94		43 - 143
DCB Decachlorobiphenyl (Surr)	77		43 - 143

Eurofins Pittsburgh

# QC Sample Results

Client: ALS Environmental  
Project/Site: 3292442

Job ID: 180-153775-1

## Method: EPA 608.3 - Organochlorine Pesticides in Water (Continued)

**Lab Sample ID: LCSD 180-429797/3-A**  
**Matrix: Water**  
**Analysis Batch: 429961**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 429797**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Aldrin	0.0250	0.02200		ug/L		88	42 - 140	10	35	
alpha-BHC	0.0250	0.02204		ug/L		88	37 - 140	9	35	
beta-BHC	0.0250	0.02058		ug/L		82	17 - 147	8	35	
gamma-BHC (Lindane)	0.0250	0.02245		ug/L		90	32 - 140	9	35	
delta-BHC	0.0250	0.01751		ug/L		70	19 - 140	7	35	
4,4'-DDD	0.0250	0.02689		ug/L		108	31 - 141	6	35	
4,4'-DDE	0.0250	0.02544		ug/L		102	30 - 145	5	35	
4,4'-DDT	0.0250	0.02200		ug/L		88	25 - 150	4	35	
Dieldrin	0.0250	0.02468		ug/L		99	36 - 146	5	35	
Endosulfan I	0.0250	0.02137		ug/L		85	45 - 150	10	28	
Endosulfan II	0.0250	0.02395		ug/L		96	10 - 150	5	35	
Endosulfan sulfate	0.0250	0.02298		ug/L		92	26 - 144	8	35	
Endrin	0.0250	0.02479		ug/L		99	30 - 147	6	35	
Endrin aldehyde	0.0250	0.02703		ug/L		108	51 - 113	2	26	
Heptachlor	0.0250	0.02107		ug/L		84	34 - 140	11	35	
Heptachlor epoxide	0.0250	0.02277		ug/L		91	37 - 142	11	26	
Methoxychlor	0.0250	0.02166		ug/L		87	41 - 140	5	24	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	91		20 - 138
Tetrachloro-m-xylene	94		20 - 138
DCB Decachlorobiphenyl (Surr)	104		43 - 143
DCB Decachlorobiphenyl (Surr)	81		43 - 143

Eurofins Pittsburgh



# QC Association Summary

Client: ALS Environmental  
Project/Site: 3292442

Job ID: 180-153775-1

## GC Semi VOA

### Prep Batch: 429673

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-153775-1	3292442-007	Total/NA	Water	608	
180-153775-2	3292442-008	Total/NA	Water	608	
MB 180-429673/1-A	Method Blank	Total/NA	Water	608	
LCS 180-429673/2-A	Lab Control Sample	Total/NA	Water	608	
LCSD 180-429673/3-A	Lab Control Sample Dup	Total/NA	Water	608	

### Prep Batch: 429797

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-153775-3	3292442-009	Total/NA	Water	608	
MB 180-429797/1-A	Method Blank	Total/NA	Water	608	
LCS 180-429797/2-A	Lab Control Sample	Total/NA	Water	608	
LCSD 180-429797/3-A	Lab Control Sample Dup	Total/NA	Water	608	

### Analysis Batch: 429842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-153775-1	3292442-007	Total/NA	Water	EPA 608.3	429673
180-153775-2	3292442-008	Total/NA	Water	EPA 608.3	429673
MB 180-429673/1-A	Method Blank	Total/NA	Water	EPA 608.3	429673
LCS 180-429673/2-A	Lab Control Sample	Total/NA	Water	EPA 608.3	429673
LCSD 180-429673/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 608.3	429673

### Analysis Batch: 429961

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-153775-3	3292442-009	Total/NA	Water	EPA 608.3	429797
MB 180-429797/1-A	Method Blank	Total/NA	Water	EPA 608.3	429797
LCS 180-429797/2-A	Lab Control Sample	Total/NA	Water	EPA 608.3	429797
LCSD 180-429797/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 608.3	429797

Eurofins Pittsburgh



301 Fulling Mill Road  
Middletown, PA 17057  
P. 717-944-5541  
F. 717-944-1430

**CHAIN OF CUSTODY/  
REQUEST FOR ANALYSIS**  
ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT /  
SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: **40-3292442**  
ALS Quote #: **40-3292442**

Client Name: ALS Environmental		Container Type	A	Receipt Information (completed by Receiving Lab)	
Address: 301 Fulling Mill Road Middletown, PA 17057		Container Size	1L	W.O. Temp:	Therm ID:
Contact: George Methlie		Preservative	UNP	Courier/Tracking #:	
Phone#: 717-944-5541		Purchase Order #:			
Project Name#: 40-3292442		Project Comments:			
Bill To:		ALS Field Services: <input type="checkbox"/> Pickup <input type="checkbox"/> Labor <input type="checkbox"/> Composite Sampling <input type="checkbox"/> Rental Equipment Other:			
TAT <input checked="" type="checkbox"/> Normal-Standard TAT is 10-12 business days. <input type="checkbox"/> Rush-Subject to ALS approval and surcharges. Approved?		Sample/COC Comments			
Date Required: Email? <input checked="" type="checkbox"/> -Y namdt.subcontract@alsglobal.com Fax? <input type="checkbox"/> -Y No.:		***Please provide standard EDD***			
Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	Enter Number of Containers Per Sample or Field Results Below.		
1 3292442-007	3/13/23	12:05	1		
2 3292442-008	3/13/23	13:50	1		
3 3292442-009	3/13/23	15:07	1		
4					
5					
6					
7					
8					
9					
10					
SAMPLER COMMENTS: (Please Print):					
Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
<i>[Signature]</i>	3/13/23	18:00	2 Raymond E.P. FINE	3/13/23	18:00
Special Processing		State Samples Collected In			
<input checked="" type="checkbox"/> Standard		<input type="checkbox"/> USACE/IDOD		<input type="checkbox"/> NY	
<input type="checkbox"/> CLP-like		<input type="checkbox"/> Navy		<input type="checkbox"/> NJ	
<input type="checkbox"/> Reportable to PADEP?		<input type="checkbox"/> Lab		<input type="checkbox"/> PA	
Yes <input type="checkbox"/> No <input type="checkbox"/>		<input type="checkbox"/> Special		<input type="checkbox"/> NC	
PWSID #				<input checked="" type="checkbox"/> MD	
EDDS: Format Type				other	



# Login Sample Receipt Checklist

Client: ALS Environmental

Job Number: 180-153775-1

**Login Number: 153775**

**List Source: Eurofins Pittsburgh**

**List Number: 1**

**Creator: Abernathy, Eric 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.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
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.	N/A	
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	





301 Fulling Mill Road | Middletown, PA 17057 | Phone: 717-944-5541 | Fax: 717-944-1430 | [www.alsglobal.com](http://www.alsglobal.com)

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618  
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343, NJ PA101

Analytical Results Report For Maryland Environmental Services - Landfills

Report ID 300623 on 2/12/2024 (Revised report. See Project Notations Section.)

## Certificate of Analysis

Project Name:	<b>Eastern Sanitary Landfill</b>	Workorder:	<b>3292622</b>
Purchase Order:	<b>MA 3680</b>	Workorder ID:	<b>Eastern Sanitary Landfill</b>

Enclosed are the analytical results for samples received by the laboratory on Tuesday, March 14, 2023.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact George Methlie (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements.

The test results meet requirements of the current NELAP standards or state requirements, where applicable.

For a specific list of accredited analytes, refer to the certifications section of the ALS website at [www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads](http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads).

This laboratory report may not be reproduced, except in full, without the written approval of ALS Global. ALS Middletown: 301 Fulling Mill Road, Middletown, PA 17057 : 717-944-5541.

Recipient(s): Maryland Services-ENVOPS - Maryland Environmental Services - Landfills Jessica Cox - Maryland Environmental Services Maryland Services-LF Data - Maryland Environmental Services William Herpel - Maryland Environmental Service
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**George Methlie**  
Project Coordinator

(ALS Digital Signature)

*This page is included as part of the Analytical Report and must be retained as a permanent record thereof.*



## Sample Summary

<u>Lab ID</u>	<u>Sample ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>	<u>Collector</u>	<u>Collection Company</u>
3292622001	Trip Blank	Water	03/14/2023 00:00	03/14/2023 17:25	CBC	Collected By Client
3292622002	Field Blank	Water	03/14/2023 09:40	03/14/2023 17:25	CBC	Collected By Client
3292622003	GWM-11	Water	03/14/2023 10:10	03/14/2023 17:25	CBC	Collected By Client
3292622004	GWM-4	Water	03/14/2023 11:10	03/14/2023 17:25	CBC	Collected By Client
3292622005	GWM-17S	Water	03/14/2023 14:00	03/14/2023 17:25	CBC	Collected By Client
3292622006	GWM-17D	Water	03/14/2023 15:10	03/14/2023 17:25	CBC	Collected By Client
3292622007	GWM-4	Water	03/14/2023 11:10	03/14/2023 17:25	CBC	Collected By Client
3292622008	GWM-17S	Water	03/14/2023 14:00	03/14/2023 17:25	CBC	Collected By Client
3292622009	GWM-17D	Water	03/14/2023 15:10	03/14/2023 17:25	CBC	Collected By Client



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## Reference

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### Notes

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- Except as qualified, Clean Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 136, including but not limited to the following EPA Method reference revisions:
  - EPA 300.1 Rev. 1.0-1997
  - EPA 300.0 Rev. 2.1-1993
  - EPA 353.2 Rev. 2.0-1993
  - EPA 410.4 Rev. 1.0-1993
  - EPA 420.4 Rev. 1.0-1993
  - EPA 365.1 Rev. 2.0-1993
  - EPA 200.7 Rev. 4.4-1994
  - EPA 200.8 Rev. 5.4-1994
  - EPA 245.1 Rev. 3.0-1994
- Except as qualified, Safe Drinking Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 141.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are performed in the laboratory and are therefore analyzed out of hold time.
- Method references listed on this report beginning with the prefix "S" followed by a method number (such as S2310B-97) refer to methods from "Standard Methods for the Examination of Water and Wastewater".
- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.
- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

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### Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND) above the MDL
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Practical Quantitation Limit for this Project
ND	Not Detected - indicates that the analyte was Not Detected
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits
#	Please reference the result in the Results Section for analyte-level flags.



**Project** Eastern Sanitary Landfill  
**Workorder** 3292622

### Project Notations

**P1** This certificate of analysis is being re-issued to provide revised subcontract laboratory results. The revised subcontract report includes results for Methoxychor. SLW 1/31/2024

### Sample Notations

Lab ID	Sample ID
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## Result Notations

Notation Ref.	
1	The QC sample type LCS for method SW846 8260C was outside the control limits for the analyte Chlorobenzene. The % Recovery was reported as 84.8 and the control limits were 85 to 117.
2	The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.
3	This sample result was calculated and reported using Method SM2340B-2011.
4	The surrogate Toluene-d8 for method SW846 8260C was outside of control limits. The % Recovery was reported as 70.1 and the control limits were 76 to 127. This result was reported at a dilution of 1.
5	The QC sample type MS for method SW846 8260C was outside the control limits for the analyte Carbon Disulfide. The % Recovery was reported as 136 and the control limits were 57 to 131.
6	The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte Chlorobenzene. The RPD was reported as 16.4 and the upper control limit is 15.
7	The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte Chlorodibromomethane. The RPD was reported as 18.4 and the upper control limit is 15.
8	The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte Cyclohexane. The % Recovery was reported as 133 and the control limits were 66 to 130.
9	The QC sample type MS for method SW846 8260C was outside the control limits for the analyte Cyclohexane. The % Recovery was reported as 140 and the control limits were 66 to 130.
10	The QC sample type MS for method SW846 8260C was outside the control limits for the analyte 1,1-Dichloroethene. The % Recovery was reported as 133 and the control limits were 63 to 128.
11	The QC sample type MS for method SW846 8260C was outside the control limits for the analyte trans-1,2-Dichloroethene. The % Recovery was reported as 125 and the control limits were 71 to 122.
12	The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte 1,2-Dichloropropane. The RPD was reported as 18 and the upper control limit is 15.
13	The QC sample type MS for method SW846 8260C was outside the control limits for the analyte 1,2-Dichloropropane. The % Recovery was reported as 130 and the control limits were 81 to 127.
14	The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte cis-1,3-Dichloropropene. The % Recovery was reported as 80.2 and the control limits were 81 to 121.
15	The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte cis-1,3-Dichloropropene. The RPD was reported as 32.5 and the upper control limit is 16.
16	The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte trans-1,3-Dichloropropene. The RPD was reported as 21.9 and the upper control limit is 18.
17	The QC sample type MS for method SW846 8260C was outside the control limits for the analyte Methyl t-Butyl Ether. The % Recovery was reported as 129 and the control limits were 69 to 115.
18	The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte Methyl t-Butyl Ether. The % Recovery was reported as 122 and the control limits were 69 to 115.
19	The QC sample type MS for method SW846 8260C was outside the control limits for the analyte Methylene Chloride. The % Recovery was reported as 123 and the control limits were 76 to 121.
20	The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte Styrene. The RPD was reported as 18.3 and the upper control limit is 16.





**Project** Eastern Sanitary Landfill  
**Workorder** 3292622

21	The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte 1,1,1,2-Tetrachloroethane. The RPD was reported as 17.7 and the upper control limit is 16.
22	The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte Toluene. The RPD was reported as 26.1 and the upper control limit is 20.
23	The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte 1,1,2-Trichloroethane. The RPD was reported as 17.8 and the upper control limit is 15.
24	The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte Trichloroethene. The RPD was reported as 18.1 and the upper control limit is 18.
25	The QC sample type MS for method SW846 8260C was outside the control limits for the analyte Vinyl Chloride. The % Recovery was reported as 151 and the control limits were 27 to 138.
26	The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte o-Xylene. The RPD was reported as 28.8 and the upper control limit is 19.
27	The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte mp-Xylene. The RPD was reported as 21.9 and the upper control limit is 21.
28	The surrogate Toluene-d8 for method SW846 8260C was outside of control limits. The % Recovery was reported as 75.4 and the control limits were 76 to 127. This result was reported at a dilution of 1.
29	The surrogate Toluene-d8 for method SW846 8260C was outside of control limits. The % Recovery was reported as 69.9 and the control limits were 76 to 127. This result was reported at a dilution of 1.
30	This compound was recovered below the 20 percent 8260C criteria in the continuing calibration verification associated with this sample.
31	The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte Acrylonitrile. The RPD was reported as 20.4 and the upper control limit is 16.
32	The QC sample type MS for method SW846 8260C was outside the control limits for the analyte Chloroethane. The % Recovery was reported as 145 and the control limits were 51 to 142.
33	The QC sample type MS for method SW846 8260C was outside the control limits for the analyte Trichlorofluoromethane. The % Recovery was reported as 136 and the control limits were 38 to 123.
34	The QC sample type MS for method SW846 8260C was outside the control limits for the analyte Vinyl Chloride. The % Recovery was reported as 148 and the control limits were 27 to 138.
35	See attached subcontract 608 pesticides results from Eurofins Pittsburgh. SLW 03/31/2023



### Detected Results Summary

Client Sample ID	Trip Blank	Collected	03/14/2023 00:00
Lab Sample ID	3292622001	Lab Receipt	03/14/2023 17:25

<u>Compound</u>	<u>Result</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Flag</u>
<b>VOLATILE ORGANICS</b>						
Bromomethane	0.66J	ug/L	1.0	0.39	SW846 8260C	#
Iodomethane	0.53J	ug/L	1.0	0.42	SW846 8260C	#



**Detected Results Summary**

Client Sample ID	Field Blank	Collected	03/14/2023 09:40
Lab Sample ID	3292622002	Lab Receipt	03/14/2023 17:25

<b>Compound</b>	<b>Result</b>	<b>Units</b>	<b>RDL</b>	<b>MDL</b>	<b>Method</b>	<b>Flag</b>
<b>METALS</b>						
Calcium, Total	0.040J	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	0.090J	mg/L	0.11	0.037	SW846 6020A	#
<b>VOLATILE ORGANICS</b>						
Bromomethane	0.47J	ug/L	1.0	0.39	SW846 8260C	#
Iodomethane	0.48J	ug/L	1.0	0.42	SW846 8260C	#
<b>WET CHEMISTRY</b>						
Ammonia-N	0.035	mg/L	0.010	0.003	ASTM D6919-17	#
Chemical Oxygen Demand (COD)	52	mg/L	15	5	EPA 410.4	#



### Detected Results Summary

Client Sample ID	GWM-11	Collected	03/14/2023 10:10
Lab Sample ID	3292622003	Lab Receipt	03/14/2023 17:25

Compound	Result	Units	RDL	MDL	Method	Flag
<b>METALS</b>						
Barium, Total	0.22	mg/L	0.0056	0.0019	SW846 6020A	#
Calcium, Total	43.8	mg/L	0.11	0.037	SW846 6020A	#
Chromium, Total	0.0016J	mg/L	0.0022	0.00074	SW846 6020A	#
Cobalt, Total	0.19	mg/L	0.0056	0.0019	SW846 6020A	#
Copper, Total	0.013	mg/L	0.0056	0.0019	SW846 6020A	#
Hardness	191	mg/L	0.33	0.11	EPA 200.7	#
Iron, Total	69.2	mg/L	0.056	0.019	SW846 6020A	#
Magnesium, Total	19.4	mg/L	0.11	0.037	SW846 6020A	#
Manganese, Total	2.5	mg/L	0.0056	0.0019	SW846 6020A	#
Nickel, Total	0.011	mg/L	0.0056	0.0019	SW846 6020A	#
Potassium, Total	7.8	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	66.7	mg/L	0.11	0.037	SW846 6020A	#
Zinc, Total	0.0033J	mg/L	0.0056	0.0019	SW846 6020A	#
<b>VOLATILE ORGANICS</b>						
1,4-Dichlorobenzene	2.4	ug/L	1.0	0.27	SW846 8260C	#
Benzene	0.50J	ug/L	1.0	0.23	SW846 8260C	#
Bromomethane	0.59J	ug/L	1.0	0.39	SW846 8260C	#
cis-1,2-Dichloroethene	0.40J	ug/L	1.0	0.32	SW846 8260C	#
Iodomethane	0.64J	ug/L	1.0	0.42	SW846 8260C	#
Methyl t-Butyl Ether	1.4	ug/L	1.0	0.33	SW846 8260C	#
<b>WET CHEMISTRY</b>						
Alkalinity, Total	155	mg/L	5	5	SM2320B-2011	#
Ammonia-N	0.758	mg/L	0.100	0.03	ASTM D6919-17	#
Chemical Oxygen Demand (COD)	21	mg/L	15	5	EPA 410.4	#
Chloride	134	mg/L	2.0	1.5	EPA 300.0	#
Sulfate	21.9	mg/L	2.0	1.5	EPA 300.0	#
Total Dissolved Solids	474	mg/L	25	25	SM2540C-15	#



### Detected Results Summary

Client Sample ID	GWM-4	Collected	03/14/2023 11:10
Lab Sample ID	3292622004	Lab Receipt	03/14/2023 17:25

Compound	Result	Units	RDL	MDL	Method	Flag
<b>METALS</b>						
Barium, Total	0.15	mg/L	0.0056	0.0019	SW846 6020A	#
Calcium, Total	61.3	mg/L	0.11	0.037	SW846 6020A	#
Chromium, Total	0.0014J	mg/L	0.0022	0.00074	SW846 6020A	#
Cobalt, Total	0.050	mg/L	0.0056	0.0019	SW846 6020A	#
Copper, Total	0.0079	mg/L	0.0056	0.0019	SW846 6020A	#
Hardness	236	mg/L	0.33	0.11	EPA 200.7	#
Iron, Total	1.8	mg/L	0.056	0.019	SW846 6020A	#
Magnesium, Total	13.0	mg/L	0.11	0.037	SW846 6020A	#
Manganese, Total	0.76	mg/L	0.0056	0.0019	SW846 6020A	#
Nickel, Total	0.0090	mg/L	0.0056	0.0019	SW846 6020A	#
Potassium, Total	8.6	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	56.9	mg/L	0.11	0.037	SW846 6020A	#
Zinc, Total	0.0084	mg/L	0.0056	0.0019	SW846 6020A	#
<b>VOLATILE ORGANICS</b>						
1,4-Dichlorobenzene	1.3	ug/L	1.0	0.27	SW846 8260C	#
Methyl t-Butyl Ether	1.0	ug/L	1.0	0.33	SW846 8260C	#
<b>WET CHEMISTRY</b>						
Alkalinity, Total	159	mg/L	5	5	SM2320B-2011	#
Ammonia-N	0.520	mg/L	0.100	0.03	ASTM D6919-17	#
Chemical Oxygen Demand (COD)	56	mg/L	15	5	EPA 410.4	#
Chloride	112	mg/L	2.0	1.5	EPA 300.0	#
Nitrate-N	0.53J	mg/L	1.0	0.22	EPA 300.0	#
Sulfate	29.2	mg/L	2.0	1.5	EPA 300.0	#
Total Dissolved Solids	396	mg/L	25	25	SM2540C-15	#



### Detected Results Summary

Client Sample ID	GWM-17S	Collected	03/14/2023 14:00
Lab Sample ID	3292622005	Lab Receipt	03/14/2023 17:25

Compound	Result	Units	RDL	MDL	Method	Flag
<b>METALS</b>						
Arsenic, Total	0.0012J	mg/L	0.0033	0.0011	SW846 6020A	#
Barium, Total	0.28	mg/L	0.0056	0.0019	SW846 6020A	#
Calcium, Total	39.1	mg/L	0.11	0.037	SW846 6020A	#
Chromium, Total	0.0018J	mg/L	0.0022	0.00074	SW846 6020A	#
Cobalt, Total	0.64	mg/L	0.0056	0.0019	SW846 6020A	#
Hardness	216	mg/L	0.33	0.11	EPA 200.7	#
Iron, Total	102	mg/L	0.056	0.019	SW846 6020A	#
Magnesium, Total	24.0	mg/L	0.11	0.037	SW846 6020A	#
Manganese, Total	7.6	mg/L	0.0056	0.0019	SW846 6020A	#
Nickel, Total	0.024	mg/L	0.0056	0.0019	SW846 6020A	#
Potassium, Total	3.5	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	49.1	mg/L	0.11	0.037	SW846 6020A	#
Thallium, Total	0.00046J	mg/L	0.0011	0.00037	SW846 6020A	#
Vanadium, Total	0.00078J	mg/L	0.0022	0.00074	SW846 6020A	#
Zinc, Total	0.0090	mg/L	0.0056	0.0019	SW846 6020A	#
<b>VOLATILE ORGANICS</b>						
1,4-Dichlorobenzene	1.9	ug/L	1.0	0.27	SW846 8260C	#
Chlorobenzene	0.22J	ug/L	1.0	0.19	SW846 8260C	#
cis-1,2-Dichloroethene	0.35J	ug/L	1.0	0.32	SW846 8260C	#
Methyl t-Butyl Ether	0.82J	ug/L	1.0	0.33	SW846 8260C	#
<b>WET CHEMISTRY</b>						
Alkalinity, Total	176	mg/L	5	5	SM2320B-2011	#
Ammonia-N	0.548	mg/L	0.100	0.03	ASTM D6919-17	#
Chemical Oxygen Demand (COD)	26	mg/L	15	5	EPA 410.4	#
Chloride	110	mg/L	2.0	1.5	EPA 300.0	#
Sulfate	16.7	mg/L	2.0	1.5	EPA 300.0	#
Total Dissolved Solids	492	mg/L	25	25	SM2540C-15	#



### Detected Results Summary

Client Sample ID	GWM-17D	Collected	03/14/2023 15:10
Lab Sample ID	3292622006	Lab Receipt	03/14/2023 17:25

Compound	Result	Units	RDL	MDL	Method	Flag
<b>METALS</b>						
Barium, Total	0.29	mg/L	0.0056	0.0019	SW846 6020A	#
Calcium, Total	43.2	mg/L	0.11	0.037	SW846 6020A	#
Chromium, Total	0.0019J	mg/L	0.0022	0.00074	SW846 6020A	#
Cobalt, Total	0.33	mg/L	0.0056	0.0019	SW846 6020A	#
Hardness	227	mg/L	0.33	0.11	EPA 200.7	#
Iron, Total	0.18	mg/L	0.056	0.019	SW846 6020A	#
Magnesium, Total	23.6	mg/L	0.11	0.037	SW846 6020A	#
Manganese, Total	3.4	mg/L	0.0056	0.0019	SW846 6020A	#
Mercury, Total	0.00039J	mg/L	0.00050	0.00017	SW846 7470A	#
Nickel, Total	0.065	mg/L	0.0056	0.0019	SW846 6020A	#
Potassium, Total	4.1	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	41.4	mg/L	0.11	0.037	SW846 6020A	#
Vanadium, Total	0.0013J	mg/L	0.0022	0.00074	SW846 6020A	#
Zinc, Total	0.032	mg/L	0.0056	0.0019	SW846 6020A	#
<b>VOLATILE ORGANICS</b>						
1,4-Dichlorobenzene	1.4	ug/L	1.0	0.27	SW846 8260C	#
Methyl t-Butyl Ether	0.74J	ug/L	1.0	0.33	SW846 8260C	#
<b>WET CHEMISTRY</b>						
Alkalinity, Total	150	mg/L	5	5	SM2320B-2011	#
Ammonia-N	0.287	mg/L	0.100	0.03	ASTM D6919-17	#
Chemical Oxygen Demand (COD)	12J	mg/L	15	5	EPA 410.4	#
Chloride	99.7	mg/L	2.0	1.5	EPA 300.0	#
Sulfate	18.9	mg/L	2.0	1.5	EPA 300.0	#
Total Dissolved Solids	344	mg/L	25	25	SM2540C-15	#



### Detected Results Summary

Client Sample ID	GWM-4	Collected	03/14/2023 11:10
Lab Sample ID	3292622007	Lab Receipt	03/14/2023 17:25

<u>Compound</u>	<u>Result</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Flag</u>
<b>SUBCONTRACTED ANALYSIS</b>						
Subcontracted Analysis	See attached				Subcontract	#





### Detected Results Summary

Client Sample ID	GWM-17S	Collected	03/14/2023 14:00
Lab Sample ID	3292622008	Lab Receipt	03/14/2023 17:25

<u>Compound</u>	<u>Result</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Flag</u>
<b>SUBCONTRACTED ANALYSIS</b>						
Subcontracted Analysis	See attached				Subcontract	#



### Detected Results Summary

Client Sample ID	GWM-17D	Collected	03/14/2023 15:10
Lab Sample ID	3292622009	Lab Receipt	03/14/2023 17:25

<u>Compound</u>	<u>Result</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Flag</u>
<b>SUBCONTRACTED ANALYSIS</b>						
Subcontracted Analysis	See attached				Subcontract	#



## Results

Client Sample ID	Trip Blank	Collected	03/14/2023 00:00
Lab Sample ID	3292622001	Lab Receipt	03/14/2023 17:25

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.35	SW846 8260C	1	03/16/2023 14:32	TMP	C
1,1,1-Trichloroethane	ND	ND,P1	ug/L	1.0	0.22	SW846 8260C	1	03/16/2023 14:32	TMP	C
1,1,2,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.34	SW846 8260C	1	03/16/2023 14:32	TMP	C
1,1,2-Trichloroethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 14:32	TMP	C
1,1-Dichloroethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/16/2023 14:32	TMP	C
1,1-Dichloroethene	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 14:32	TMP	C
1,2,3-Trichloropropane	ND	ND,P1	ug/L	2.0	0.60	SW846 8260C	1	03/16/2023 14:32	TMP	C
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	0.019	0.0047	SW846 8011	1	03/21/2023 18:35	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	7.0	1.5	SW846 8260C	1	03/16/2023 14:32	TMP	C
1,2-Dibromoethane	ND	ND,P1	ug/L	0.019	0.0095	SW846 8011	1	03/21/2023 18:35	VLM	A
1,2-Dibromoethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/16/2023 14:32	TMP	C
1,2-Dichlorobenzene	ND	ND,P1	ug/L	1.0	0.38	SW846 8260C	1	03/16/2023 14:32	TMP	C
1,2-Dichloroethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 14:32	TMP	C
1,2-Dichloropropane	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 14:32	TMP	C
1,4-Dichlorobenzene	ND	ND,P1	ug/L	1.0	0.27	SW846 8260C	1	03/16/2023 14:32	TMP	C
2-Butanone	ND	ND,P1	ug/L	10.0	1.8	SW846 8260C	1	03/16/2023 14:32	TMP	C
2-Hexanone	ND	ND,P1	ug/L	5.0	1.3	SW846 8260C	1	03/16/2023 14:32	TMP	C
4-Methyl-2-Pentanone(MIBK)	ND	ND,P1	ug/L	5.0	1.5	SW846 8260C	1	03/16/2023 14:32	TMP	C
Acetone	ND	ND,P1	ug/L	10.0	3.1	SW846 8260C	1	03/16/2023 14:32	TMP	C
Acrylonitrile	ND	ND,P1	ug/L	5.0	1.2	SW846 8260C	1	03/16/2023 14:32	TMP	C
Benzene	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 14:32	TMP	C
Bromochloromethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 14:32	TMP	C
Bromodichloromethane	ND	ND,P1	ug/L	1.0	0.27	SW846 8260C	1	03/16/2023 14:32	TMP	C
Bromoform	ND	ND,P1	ug/L	1.0	0.40	SW846 8260C	1	03/16/2023 14:32	TMP	C
Bromomethane	0.66J	J,P1	ug/L	1.0	0.39	SW846 8260C	1	03/16/2023 14:32	TMP	C
Carbon Disulfide	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 14:32	TMP	C
Carbon Tetrachloride	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 14:32	TMP	C
Chlorobenzene	ND	ND,1,P1	ug/L	1.0	0.19	SW846 8260C	1	03/16/2023 14:32	TMP	C
Chlorodibromomethane	ND	ND,P1	ug/L	1.0	0.45	SW846 8260C	1	03/16/2023 14:32	TMP	C
Chloroethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 14:32	TMP	C
Chloroform	ND	ND,P1	ug/L	1.0	0.21	SW846 8260C	1	03/16/2023 14:32	TMP	C
Chloromethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 14:32	TMP	C
cis-1,2-Dichloroethene	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 14:32	TMP	C
cis-1,3-Dichloropropene	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 14:32	TMP	C
Cyclohexane	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 14:32	TMP	C
Dibromomethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 14:32	TMP	C
Dichlorodifluoromethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 14:32	TMP	C
Ethylbenzene	ND	ND,P1	ug/L	1.0	0.34	SW846 8260C	1	03/16/2023 14:32	TMP	C
Iodomethane	0.53J	J,P1	ug/L	1.0	0.42	SW846 8260C	1	03/16/2023 14:32	TMP	C
Methyl t-Butyl Ether	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 14:32	TMP	C
Methylene Chloride	ND	ND,P1	ug/L	1.0	0.45	SW846 8260C	1	03/16/2023 14:32	TMP	C
mp-Xylene	ND	ND,P1	ug/L	2.0	0.52	SW846 8260C	1	03/16/2023 14:32	TMP	C
o-Xylene	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 14:32	TMP	C
Styrene	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 14:32	TMP	C
Tetrachloroethene	ND	ND,P1	ug/L	1.0	0.35	SW846 8260C	1	03/16/2023 14:32	TMP	C
Toluene	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 14:32	TMP	C
Total Xylenes	ND	ND,P1	ug/L	3.0	0.66	SW846 8260C	1	03/16/2023 14:32	TMP	C



## Results

Client Sample ID	Trip Blank	Collected	03/14/2023 00:00
Lab Sample ID	3292622001	Lab Receipt	03/14/2023 17:25

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
trans-1,2-Dichloroethene	ND	ND,P1	ug/L	1.0	0.26	SW846 8260C	1	03/16/2023 14:32	TMP	C
trans-1,3-Dichloropropene	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 14:32	TMP	C
trans-1,4-Dichloro-2-butene	ND	ND,P1	ug/L	3.0	0.86	SW846 8260C	1	03/16/2023 14:32	TMP	C
Trichloroethene	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 14:32	TMP	C
Trichlorofluoromethane	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 14:32	TMP	C
Vinyl Acetate	ND	ND,P1	ug/L	5.0	1.6	SW846 8260C	1	03/16/2023 14:32	TMP	C
Vinyl Chloride	ND	ND,P1	ug/L	1.0	0.30	SW846 8260C	1	03/16/2023 14:32	TMP	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	91.4%	62 - 133	03/16/2023 14:32	
1-Chloro-2-Fluorobenzene	348-51-6	94.1%	70 - 130	03/21/2023 18:35	
4-Bromofluorobenzene	460-00-4	94.8%	79 - 114	03/16/2023 14:32	
Dibromofluoromethane	1868-53-7	89.1%	78 - 116	03/16/2023 14:32	
Toluene-d8	2037-26-5	78.7%	76 - 127	03/16/2023 14:32	



## Results

Client Sample ID	Field Blank	Collected	03/14/2023 09:40
Lab Sample ID	3292622002	Lab Receipt	03/14/2023 17:25

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 19:57	RMD	A2
Arsenic, Total	ND	ND,P1	mg/L	0.0033	0.0011	SW846 6020A	1	03/20/2023 19:57	RMD	A2
Barium, Total	ND	ND,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 19:57	RMD	A2
Beryllium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 19:57	RMD	A2
Cadmium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 19:57	RMD	A2
Calcium, Total	0.040J	J,P1	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 19:57	RMD	A2
Chromium, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 19:57	RMD	A2
Cobalt, Total	ND	ND,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 19:57	RMD	A2
Copper, Total	ND	ND,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 19:57	RMD	A2
Hardness	ND	ND,3,P1	mg/L	0.33	0.11	EPA 200.7	1	03/16/2023 22:06	MO	A1
Iron, Total	ND	ND,P1	mg/L	0.056	0.019	SW846 6020A	1	03/20/2023 19:57	RMD	A2
Lead, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 19:57	RMD	A2
Magnesium, Total	ND	ND,P1	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 19:57	RMD	A2
Manganese, Total	ND	ND,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 19:57	RMD	A2
Mercury, Total	ND	ND,P1	mg/L	0.00050	0.00017	SW846 7470A	1	03/16/2023 11:01	WDA	A
Nickel, Total	ND	ND,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 19:57	RMD	A2
Potassium, Total	ND	ND,P1	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 19:57	RMD	A2
Selenium, Total	ND	ND,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 19:57	RMD	A2
Silver, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 19:57	RMD	A2
Sodium, Total	0.090J	J,P1	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 19:57	RMD	A2
Thallium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 19:57	RMD	A2
Vanadium, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 19:57	RMD	A2
Zinc, Total	ND	ND,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 19:57	RMD	A2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.35	SW846 8260C	1	03/16/2023 15:18	TMP	D
1,1,1-Trichloroethane	ND	ND,P1	ug/L	1.0	0.22	SW846 8260C	1	03/16/2023 15:18	TMP	D
1,1,2,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.34	SW846 8260C	1	03/16/2023 15:18	TMP	D
1,1,2-Trichloroethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 15:18	TMP	D
1,1-Dichloroethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/16/2023 15:18	TMP	D
1,1-Dichloroethene	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 15:18	TMP	D
1,2,3-Trichloropropane	ND	ND,P1	ug/L	2.0	0.60	SW846 8260C	1	03/16/2023 15:18	TMP	D
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	0.020	0.0048	SW846 8011	1	03/21/2023 18:51	VLM	B
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	7.0	1.5	SW846 8260C	1	03/16/2023 15:18	TMP	D
1,2-Dibromoethane	ND	ND,P1	ug/L	0.020	0.0098	SW846 8011	1	03/21/2023 18:51	VLM	B
1,2-Dibromoethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/16/2023 15:18	TMP	D
1,2-Dichlorobenzene	ND	ND,P1	ug/L	1.0	0.38	SW846 8260C	1	03/16/2023 15:18	TMP	D
1,2-Dichloroethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 15:18	TMP	D
1,2-Dichloropropane	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 15:18	TMP	D
1,4-Dichlorobenzene	ND	ND,P1	ug/L	1.0	0.27	SW846 8260C	1	03/16/2023 15:18	TMP	D
2-Butanone	ND	ND,P1	ug/L	10.0	1.8	SW846 8260C	1	03/16/2023 15:18	TMP	D
2-Hexanone	ND	ND,P1	ug/L	5.0	1.3	SW846 8260C	1	03/16/2023 15:18	TMP	D
4-Methyl-2-Pentanone(MIBK)	ND	ND,P1	ug/L	5.0	1.5	SW846 8260C	1	03/16/2023 15:18	TMP	D
Acetone	ND	ND,P1	ug/L	10.0	3.1	SW846 8260C	1	03/16/2023 15:18	TMP	D
Acrylonitrile	ND	ND,P1	ug/L	5.0	1.2	SW846 8260C	1	03/16/2023 15:18	TMP	D



## Results

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### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 15:18	TMP	D
Bromochloromethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 15:18	TMP	D
Bromodichloromethane	ND	ND,P1	ug/L	1.0	0.27	SW846 8260C	1	03/16/2023 15:18	TMP	D
Bromoform	ND	ND,P1	ug/L	1.0	0.40	SW846 8260C	1	03/16/2023 15:18	TMP	D
Bromomethane	0.47J	J,P1	ug/L	1.0	0.39	SW846 8260C	1	03/16/2023 15:18	TMP	D
Carbon Disulfide	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 15:18	TMP	D
Carbon Tetrachloride	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 15:18	TMP	D
Chlorobenzene	ND	ND,1,P1	ug/L	1.0	0.19	SW846 8260C	1	03/16/2023 15:18	TMP	D
Chlorodibromomethane	ND	ND,P1	ug/L	1.0	0.45	SW846 8260C	1	03/16/2023 15:18	TMP	D
Chloroethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 15:18	TMP	D
Chloroform	ND	ND,P1	ug/L	1.0	0.21	SW846 8260C	1	03/16/2023 15:18	TMP	D
Chloromethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 15:18	TMP	D
cis-1,2-Dichloroethene	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 15:18	TMP	D
cis-1,3-Dichloropropene	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 15:18	TMP	D
Cyclohexane	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 15:18	TMP	D
Dibromomethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 15:18	TMP	D
Dichlorodifluoromethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 15:18	TMP	D
Ethylbenzene	ND	ND,P1	ug/L	1.0	0.34	SW846 8260C	1	03/16/2023 15:18	TMP	D
Iodomethane	0.48J	J,P1	ug/L	1.0	0.42	SW846 8260C	1	03/16/2023 15:18	TMP	D
Methyl t-Butyl Ether	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 15:18	TMP	D
Methylene Chloride	ND	ND,P1	ug/L	1.0	0.45	SW846 8260C	1	03/16/2023 15:18	TMP	D
mp-Xylene	ND	ND,P1	ug/L	2.0	0.52	SW846 8260C	1	03/16/2023 15:18	TMP	D
o-Xylene	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 15:18	TMP	D
Styrene	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 15:18	TMP	D
Tetrachloroethene	ND	ND,P1	ug/L	1.0	0.35	SW846 8260C	1	03/16/2023 15:18	TMP	D
Toluene	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 15:18	TMP	D
Total Xylenes	ND	ND,P1	ug/L	3.0	0.66	SW846 8260C	1	03/16/2023 15:18	TMP	D
trans-1,2-Dichloroethene	ND	ND,P1	ug/L	1.0	0.26	SW846 8260C	1	03/16/2023 15:18	TMP	D
trans-1,3-Dichloropropene	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 15:18	TMP	D
trans-1,4-Dichloro-2-butene	ND	ND,P1	ug/L	3.0	0.86	SW846 8260C	1	03/16/2023 15:18	TMP	D
Trichloroethene	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 15:18	TMP	D
Trichlorofluoromethane	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 15:18	TMP	D
Vinyl Acetate	ND	ND,P1	ug/L	5.0	1.6	SW846 8260C	1	03/16/2023 15:18	TMP	D
Vinyl Chloride	ND	ND,P1	ug/L	1.0	0.30	SW846 8260C	1	03/16/2023 15:18	TMP	D

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	91.5%	62 - 133	03/16/2023 15:18	
1-Chloro-2-Fluorobenzene	348-51-6	102%	70 - 130	03/21/2023 18:51	
4-Bromofluorobenzene	460-00-4	93.9%	79 - 114	03/16/2023 15:18	
Dibromofluoromethane	1868-53-7	89.4%	78 - 116	03/16/2023 15:18	
Toluene-d8	2037-26-5	70.1*%	76 - 127	03/16/2023 15:18	4

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	Field Blank	Collected	03/14/2023 09:40
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### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	ND	ND,2,P1	mg/L	5	5	SM2320B-2011	1	03/27/2023 14:43	NML	F
Ammonia-N	0.035	P1	mg/L	0.010	0.003	ASTM D6919-17	1	03/20/2023 20:59	NML	G
Chemical Oxygen Demand (COD)	52	P1	mg/L	15	5	EPA 410.4	1	03/20/2023 11:42	KMS	G
Chloride	ND	ND,P1	mg/L	2.0	1.5	EPA 300.0	2	03/15/2023 15:21	J1W	F
Nitrate-N	ND	ND,P1	mg/L	1.0	0.22	EPA 300.0	2	03/15/2023 15:21	J1W	F
Sulfate	ND	ND,P1	mg/L	2.0	1.5	EPA 300.0	2	03/15/2023 15:21	J1W	F
Total Dissolved Solids	ND	ND,P1	mg/L	25	25	SM2540C-15	1	03/15/2023 08:12	SMS	F



## Results

Client Sample ID	GWM-11	Collected	03/14/2023 10:10
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### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:11	RMD	A2
Arsenic, Total	ND	ND,P1	mg/L	0.0033	0.0011	SW846 6020A	1	03/20/2023 20:11	RMD	A2
Barium, Total	0.22	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:11	RMD	A2
Beryllium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:11	RMD	A2
Cadmium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:11	RMD	A2
Calcium, Total	43.8	P1	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:11	RMD	A2
Chromium, Total	0.0016J	J,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:11	RMD	A2
Cobalt, Total	0.19	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:11	RMD	A2
Copper, Total	0.013	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:11	RMD	A2
Hardness	191	3,P1	mg/L	0.33	0.11	EPA 200.7	1	03/16/2023 22:10	MO	A1
Iron, Total	69.2	P1	mg/L	0.056	0.019	SW846 6020A	1	03/20/2023 20:11	RMD	A2
Lead, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:11	RMD	A2
Magnesium, Total	19.4	P1	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:11	RMD	A2
Manganese, Total	2.5	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:11	RMD	A2
Mercury, Total	ND	ND,P1	mg/L	0.00050	0.00017	SW846 7470A	1	03/16/2023 11:03	WDA	A
Nickel, Total	0.011	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:11	RMD	A2
Potassium, Total	7.8	P1	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:11	RMD	A2
Selenium, Total	ND	ND,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:11	RMD	A2
Silver, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:11	RMD	A2
Sodium, Total	66.7	P1	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:11	RMD	A2
Thallium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:11	RMD	A2
Vanadium, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:11	RMD	A2
Zinc, Total	0.0033J	J,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:11	RMD	A2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND,21,P1	ug/L	1.0	0.35	SW846 8260C	1	03/16/2023 19:07	TMP	D
1,1,1-Trichloroethane	ND	ND,P1	ug/L	1.0	0.22	SW846 8260C	1	03/16/2023 19:07	TMP	D
1,1,2,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.34	SW846 8260C	1	03/16/2023 19:07	TMP	D
1,1,2-Trichloroethane	ND	ND,23,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 19:07	TMP	D
1,1-Dichloroethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/16/2023 19:07	TMP	D
1,1-Dichloroethene	ND	ND,10,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 19:07	TMP	D
1,2,3-Trichloropropane	ND	ND,P1	ug/L	2.0	0.60	SW846 8260C	1	03/16/2023 19:07	TMP	D
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	7.0	1.5	SW846 8260C	1	03/16/2023 19:07	TMP	D
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	0.020	0.0047	SW846 8011	1	03/21/2023 19:06	VLM	B
1,2-Dibromoethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/16/2023 19:07	TMP	D
1,2-Dibromoethane	ND	ND,P1	ug/L	0.020	0.0097	SW846 8011	1	03/21/2023 19:06	VLM	B
1,2-Dichlorobenzene	ND	ND,P1	ug/L	1.0	0.38	SW846 8260C	1	03/16/2023 19:07	TMP	D
1,2-Dichloroethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 19:07	TMP	D
1,2-Dichloropropane	ND	ND,12,13,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 19:07	TMP	D
1,4-Dichlorobenzene	2.4	P1	ug/L	1.0	0.27	SW846 8260C	1	03/16/2023 19:07	TMP	D
2-Butanone	ND	ND,P1	ug/L	10.0	1.8	SW846 8260C	1	03/16/2023 19:07	TMP	D
2-Hexanone	ND	ND,P1	ug/L	5.0	1.3	SW846 8260C	1	03/16/2023 19:07	TMP	D
4-Methyl-2-Pentanone(MIBK)	ND	ND,P1	ug/L	5.0	1.5	SW846 8260C	1	03/16/2023 19:07	TMP	D





## Results

Client Sample ID	GWM-11	Collected	03/14/2023 10:10
Lab Sample ID	3292622003	Lab Receipt	03/14/2023 17:25

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Acetone	ND	ND,P1	ug/L	10.0	3.1	SW846 8260C	1	03/16/2023 19:07	TMP	D
Acrylonitrile	ND	ND,P1	ug/L	5.0	1.2	SW846 8260C	1	03/16/2023 19:07	TMP	D
Benzene	0.50J	J,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 19:07	TMP	D
Bromochloromethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 19:07	TMP	D
Bromodichloromethane	ND	ND,P1	ug/L	1.0	0.27	SW846 8260C	1	03/16/2023 19:07	TMP	D
Bromoform	ND	ND,P1	ug/L	1.0	0.40	SW846 8260C	1	03/16/2023 19:07	TMP	D
Bromomethane	0.59J	J,P1	ug/L	1.0	0.39	SW846 8260C	1	03/16/2023 19:07	TMP	D
Carbon Disulfide	ND	ND,5,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 19:07	TMP	D
Carbon Tetrachloride	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 19:07	TMP	D
Chlorobenzene	ND	ND,1,6,P1	ug/L	1.0	0.19	SW846 8260C	1	03/16/2023 19:07	TMP	D
Chlorodibromomethane	ND	ND,7,P1	ug/L	1.0	0.45	SW846 8260C	1	03/16/2023 19:07	TMP	D
Chloroethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 19:07	TMP	D
Chloroform	ND	ND,P1	ug/L	1.0	0.21	SW846 8260C	1	03/16/2023 19:07	TMP	D
Chloromethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 19:07	TMP	D
cis-1,2-Dichloroethene	0.40J	J,P1	ug/L	1.0	0.32	SW846 8260C	1	03/16/2023 19:07	TMP	D
cis-1,3-Dichloropropene	ND	ND,14,15,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 19:07	TMP	D
Cyclohexane	ND	ND,8,9,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 19:07	TMP	D
Dibromomethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/16/2023 19:07	TMP	D
Dichlorodifluoromethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 19:07	TMP	D
Ethylbenzene	ND	ND,P1	ug/L	1.0	0.34	SW846 8260C	1	03/16/2023 19:07	TMP	D
Iodomethane	0.64J	J,P1	ug/L	1.0	0.42	SW846 8260C	1	03/16/2023 19:07	TMP	D
Methyl t-Butyl Ether	1.4	17,18,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 19:07	TMP	D
Methylene Chloride	ND	ND,19,P1	ug/L	1.0	0.45	SW846 8260C	1	03/16/2023 19:07	TMP	D
mp-Xylene	ND	ND,27,P1	ug/L	2.0	0.52	SW846 8260C	1	03/16/2023 19:07	TMP	D
o-Xylene	ND	ND,26,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 19:07	TMP	D
Styrene	ND	ND,20,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 19:07	TMP	D
Tetrachloroethene	ND	ND,P1	ug/L	1.0	0.35	SW846 8260C	1	03/16/2023 19:07	TMP	D
Toluene	ND	ND,22,P1	ug/L	1.0	0.23	SW846 8260C	1	03/16/2023 19:07	TMP	D
Total Xylenes	ND	ND,P1	ug/L	3.0	0.66	SW846 8260C	1	03/16/2023 19:07	TMP	D
trans-1,2-Dichloroethene	ND	ND,11,P1	ug/L	1.0	0.26	SW846 8260C	1	03/16/2023 19:07	TMP	D
trans-1,3-Dichloropropene	ND	ND,16,P1	ug/L	1.0	0.29	SW846 8260C	1	03/16/2023 19:07	TMP	D
trans-1,4-Dichloro-2-butene	ND	ND,P1	ug/L	3.0	0.86	SW846 8260C	1	03/16/2023 19:07	TMP	D
Trichloroethene	ND	ND,24,P1	ug/L	1.0	0.33	SW846 8260C	1	03/16/2023 19:07	TMP	D
Trichlorofluoromethane	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/16/2023 19:07	TMP	D
Vinyl Acetate	ND	ND,P1	ug/L	5.0	1.6	SW846 8260C	1	03/16/2023 19:07	TMP	D
Vinyl Chloride	ND	ND,25,P1	ug/L	1.0	0.30	SW846 8260C	1	03/16/2023 19:07	TMP	D



## Results

Client Sample ID	GWM-11	Collected	03/14/2023 10:10
Lab Sample ID	3292622003	Lab Receipt	03/14/2023 17:25

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
<i>SURROGATES</i>										
Compound	CAS No			Recovery		Limits(%)		Analysis Date/Time		Qualifiers
1,2-Dichloroethane-d4	17060-07-0			92.1%		62 - 133		03/16/2023 19:07		
1-Chloro-2-Fluorobenzene	348-51-6			73.1%		70 - 130		03/21/2023 19:06		
4-Bromofluorobenzene	460-00-4			99.2%		79 - 114		03/16/2023 19:07		
Dibromofluoromethane	1868-53-7			89.9%		78 - 116		03/16/2023 19:07		
Toluene-d8	2037-26-5			69.9*		76 - 127		03/16/2023 19:07		28,29

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	155	2,P1	mg/L	5	5	SM2320B-2011	1	03/27/2023 14:56	NML	F
Ammonia-N	0.758	P1	mg/L	0.100	0.03	ASTM D6919-17	10	03/20/2023 21:13	NML	G
Chemical Oxygen Demand (COD)	21	P1	mg/L	15	5	EPA 410.4	1	03/17/2023 15:10	KMS	G
Chloride	134	P1	mg/L	2.0	1.5	EPA 300.0	2	03/15/2023 15:32	J1W	F
Nitrate-N	ND	ND,P1	mg/L	1.0	0.22	EPA 300.0	2	03/15/2023 15:32	J1W	F
Sulfate	21.9	P1	mg/L	2.0	1.5	EPA 300.0	2	03/15/2023 15:32	J1W	F
Total Dissolved Solids	474	P1	mg/L	25	25	SM2540C-15	1	03/15/2023 08:12	SMS	F



## Results

Client Sample ID	GWM-4	Collected	03/14/2023 11:10
Lab Sample ID	3292622004	Lab Receipt	03/14/2023 17:25

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:13	RMD	A2
Arsenic, Total	ND	ND,P1	mg/L	0.0033	0.0011	SW846 6020A	1	03/20/2023 20:13	RMD	A2
Barium, Total	0.15	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:13	RMD	A2
Beryllium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:13	RMD	A2
Cadmium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:13	RMD	A2
Calcium, Total	61.3	P1	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:13	RMD	A2
Chromium, Total	0.0014J	J,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:13	RMD	A2
Cobalt, Total	0.050	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:13	RMD	A2
Copper, Total	0.0079	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:13	RMD	A2
Hardness	236	3,P1	mg/L	0.33	0.11	EPA 200.7	1	03/27/2023 15:12	MO	A1
Iron, Total	1.8	P1	mg/L	0.056	0.019	SW846 6020A	1	03/20/2023 20:13	RMD	A2
Lead, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:13	RMD	A2
Magnesium, Total	13.0	P1	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:13	RMD	A2
Manganese, Total	0.76	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:13	RMD	A2
Mercury, Total	ND	ND,P1	mg/L	0.00050	0.00017	SW846 7470A	1	03/16/2023 11:06	WDA	A
Nickel, Total	0.0090	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:13	RMD	A2
Potassium, Total	8.6	P1	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:13	RMD	A2
Selenium, Total	ND	ND,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:13	RMD	A2
Silver, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:13	RMD	A2
Sodium, Total	56.9	P1	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:13	RMD	A2
Thallium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:13	RMD	A2
Vanadium, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:13	RMD	A2
Zinc, Total	0.0084	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:13	RMD	A2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.35	SW846 8260C	1	03/22/2023 19:16	TMP	D
1,1,1-Trichloroethane	ND	ND,P1	ug/L	1.0	0.22	SW846 8260C	1	03/22/2023 19:16	TMP	D
1,1,2,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.34	SW846 8260C	1	03/22/2023 19:16	TMP	D
1,1,2-Trichloroethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/22/2023 19:16	TMP	D
1,1-Dichloroethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/22/2023 19:16	TMP	D
1,1-Dichloroethene	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/22/2023 19:16	TMP	D
1,2,3-Trichloropropane	ND	ND,P1	ug/L	2.0	0.60	SW846 8260C	1	03/22/2023 19:16	TMP	D
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	0.020	0.0047	SW846 8011	1	03/21/2023 19:22	VLM	B
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	7.0	1.5	SW846 8260C	1	03/22/2023 19:16	TMP	D
1,2-Dibromoethane	ND	ND,P1	ug/L	0.020	0.0097	SW846 8011	1	03/21/2023 19:22	VLM	B
1,2-Dibromoethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/22/2023 19:16	TMP	D
1,2-Dichlorobenzene	ND	ND,P1	ug/L	1.0	0.38	SW846 8260C	1	03/22/2023 19:16	TMP	D
1,2-Dichloroethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/22/2023 19:16	TMP	D
1,2-Dichloropropane	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/22/2023 19:16	TMP	D
1,4-Dichlorobenzene	1.3	P1	ug/L	1.0	0.27	SW846 8260C	1	03/22/2023 19:16	TMP	D
2-Butanone	ND	ND,P1	ug/L	10.0	1.8	SW846 8260C	1	03/22/2023 19:16	TMP	D
2-Hexanone	ND	ND,P1	ug/L	5.0	1.3	SW846 8260C	1	03/22/2023 19:16	TMP	D
4-Methyl-2-Pentanone(MIBK)	ND	ND,P1	ug/L	5.0	1.5	SW846 8260C	1	03/22/2023 19:16	TMP	D
Acetone	ND	ND,P1	ug/L	10.0	3.1	SW846 8260C	1	03/22/2023 19:16	TMP	D
Acrylonitrile	ND	ND,P1	ug/L	5.0	1.2	SW846 8260C	1	03/22/2023 19:16	TMP	D



## Results

Client Sample ID	GWM-4	Collected	03/14/2023 11:10
Lab Sample ID	3292622004	Lab Receipt	03/14/2023 17:25

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/22/2023 19:16	TMP	D
Bromochloromethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/22/2023 19:16	TMP	D
Bromodichloromethane	ND	ND,P1	ug/L	1.0	0.27	SW846 8260C	1	03/22/2023 19:16	TMP	D
Bromoform	ND	ND,P1	ug/L	1.0	0.40	SW846 8260C	1	03/22/2023 19:16	TMP	D
Bromomethane	ND	ND,P1	ug/L	1.0	0.39	SW846 8260C	1	03/22/2023 19:16	TMP	D
Carbon Disulfide	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/22/2023 19:16	TMP	D
Carbon Tetrachloride	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/22/2023 19:16	TMP	D
Chlorobenzene	ND	ND,P1	ug/L	1.0	0.19	SW846 8260C	1	03/22/2023 19:16	TMP	D
Chlorodibromomethane	ND	ND,P1	ug/L	1.0	0.45	SW846 8260C	1	03/22/2023 19:16	TMP	D
Chloroethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/22/2023 19:16	TMP	D
Chloroform	ND	ND,P1	ug/L	1.0	0.21	SW846 8260C	1	03/22/2023 19:16	TMP	D
Chloromethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/22/2023 19:16	TMP	D
cis-1,2-Dichloroethene	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/22/2023 19:16	TMP	D
cis-1,3-Dichloropropene	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/22/2023 19:16	TMP	D
Cyclohexane	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/22/2023 19:16	TMP	D
Dibromomethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/22/2023 19:16	TMP	D
Dichlorodifluoromethane	ND	ND,30,P1	ug/L	1.0	0.33	SW846 8260C	1	03/22/2023 19:16	TMP	D
Ethylbenzene	ND	ND,P1	ug/L	1.0	0.34	SW846 8260C	1	03/22/2023 19:16	TMP	D
Iodomethane	ND	ND,P1	ug/L	1.0	0.42	SW846 8260C	1	03/22/2023 19:16	TMP	D
Methyl t-Butyl Ether	1.0	P1	ug/L	1.0	0.33	SW846 8260C	1	03/22/2023 19:16	TMP	D
Methylene Chloride	ND	ND,P1	ug/L	1.0	0.45	SW846 8260C	1	03/22/2023 19:16	TMP	D
mp-Xylene	ND	ND,P1	ug/L	2.0	0.52	SW846 8260C	1	03/22/2023 19:16	TMP	D
o-Xylene	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/22/2023 19:16	TMP	D
Styrene	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/22/2023 19:16	TMP	D
Tetrachloroethene	ND	ND,P1	ug/L	1.0	0.35	SW846 8260C	1	03/22/2023 19:16	TMP	D
Toluene	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/22/2023 19:16	TMP	D
Total Xylenes	ND	ND,P1	ug/L	3.0	0.66	SW846 8260C	1	03/22/2023 19:16	TMP	D
trans-1,2-Dichloroethene	ND	ND,P1	ug/L	1.0	0.26	SW846 8260C	1	03/22/2023 19:16	TMP	D
trans-1,3-Dichloropropene	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/22/2023 19:16	TMP	D
trans-1,4-Dichloro-2-butene	ND	ND,P1	ug/L	3.0	0.86	SW846 8260C	1	03/22/2023 19:16	TMP	D
Trichloroethene	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/22/2023 19:16	TMP	D
Trichlorofluoromethane	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/22/2023 19:16	TMP	D
Vinyl Acetate	ND	ND,P1	ug/L	5.0	1.6	SW846 8260C	1	03/22/2023 19:16	TMP	D
Vinyl Chloride	ND	ND,P1	ug/L	1.0	0.30	SW846 8260C	1	03/22/2023 19:16	TMP	D

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	98.1%	62 - 133	03/22/2023 19:16	
1-Chloro-2-Fluorobenzene	348-51-6	81.1%	70 - 130	03/21/2023 19:22	
4-Bromofluorobenzene	460-00-4	110%	79 - 114	03/22/2023 19:16	
Dibromofluoromethane	1868-53-7	96.3%	78 - 116	03/22/2023 19:16	
Toluene-d8	2037-26-5	101%	76 - 127	03/22/2023 19:16	

### WET CHEMISTRY



## Results

Client Sample ID	GWM-4	Collected	03/14/2023 11:10
Lab Sample ID	3292622004	Lab Receipt	03/14/2023 17:25

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	159	2,P1	mg/L	5	5	SM2320B-2011	1	03/27/2023 15:08	NML	F
Ammonia-N	0.520	P1	mg/L	0.100	0.03	ASTM D6919-17	10	03/20/2023 21:26	NML	G
Chemical Oxygen Demand (COD)	56	P1	mg/L	15	5	EPA 410.4	1	03/20/2023 11:42	KMS	G
Chloride	112	P1	mg/L	2.0	1.5	EPA 300.0	2	03/15/2023 15:42	J1W	F
Nitrate-N	0.53J	J,P1	mg/L	1.0	0.22	EPA 300.0	2	03/15/2023 15:42	J1W	F
Sulfate	29.2	P1	mg/L	2.0	1.5	EPA 300.0	2	03/15/2023 15:42	J1W	F
Total Dissolved Solids	396	P1	mg/L	25	25	SM2540C-15	1	03/15/2023 08:12	SMS	F



## Results

Client Sample ID	GWM-17S	Collected	03/14/2023 14:00
Lab Sample ID	3292622005	Lab Receipt	03/14/2023 17:25

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:15	RMD	A2
Arsenic, Total	0.0012J	J,P1	mg/L	0.0033	0.0011	SW846 6020A	1	03/20/2023 20:15	RMD	A2
Barium, Total	0.28	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:15	RMD	A2
Beryllium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:15	RMD	A2
Cadmium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:15	RMD	A2
Calcium, Total	39.1	P1	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:15	RMD	A2
Chromium, Total	0.0018J	J,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:15	RMD	A2
Cobalt, Total	0.64	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:15	RMD	A2
Copper, Total	ND	ND,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:15	RMD	A2
Hardness	216	3,P1	mg/L	0.33	0.11	EPA 200.7	1	03/27/2023 15:15	MO	A1
Iron, Total	102	P1	mg/L	0.056	0.019	SW846 6020A	1	03/20/2023 20:15	RMD	A2
Lead, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:15	RMD	A2
Magnesium, Total	24.0	P1	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:15	RMD	A2
Manganese, Total	7.6	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:15	RMD	A2
Mercury, Total	ND	ND,P1	mg/L	0.00050	0.00017	SW846 7470A	1	03/16/2023 11:07	WDA	A
Nickel, Total	0.024	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:15	RMD	A2
Potassium, Total	3.5	P1	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:15	RMD	A2
Selenium, Total	ND	ND,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:15	RMD	A2
Silver, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:15	RMD	A2
Sodium, Total	49.1	P1	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:15	RMD	A2
Thallium, Total	0.00046J	J,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:15	RMD	A2
Vanadium, Total	0.00078J	J,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:15	RMD	A2
Zinc, Total	0.0090	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:15	RMD	A2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.35	SW846 8260C	1	03/22/2023 19:40	TMP	D
1,1,1-Trichloroethane	ND	ND,P1	ug/L	1.0	0.22	SW846 8260C	1	03/22/2023 19:40	TMP	D
1,1,2,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.34	SW846 8260C	1	03/22/2023 19:40	TMP	D
1,1,2-Trichloroethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/22/2023 19:40	TMP	D
1,1-Dichloroethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/22/2023 19:40	TMP	D
1,1-Dichloroethene	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/22/2023 19:40	TMP	D
1,2,3-Trichloropropane	ND	ND,P1	ug/L	2.0	0.60	SW846 8260C	1	03/22/2023 19:40	TMP	D
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	0.020	0.0048	SW846 8011	1	03/21/2023 19:52	VLM	B
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	7.0	1.5	SW846 8260C	1	03/22/2023 19:40	TMP	D
1,2-Dibromoethane	ND	ND,P1	ug/L	0.020	0.0098	SW846 8011	1	03/21/2023 19:52	VLM	B
1,2-Dibromoethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/22/2023 19:40	TMP	D
1,2-Dichlorobenzene	ND	ND,P1	ug/L	1.0	0.38	SW846 8260C	1	03/22/2023 19:40	TMP	D
1,2-Dichloroethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/22/2023 19:40	TMP	D
1,2-Dichloropropane	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/22/2023 19:40	TMP	D
1,4-Dichlorobenzene	1.9	P1	ug/L	1.0	0.27	SW846 8260C	1	03/22/2023 19:40	TMP	D
2-Butanone	ND	ND,P1	ug/L	10.0	1.8	SW846 8260C	1	03/22/2023 19:40	TMP	D
2-Hexanone	ND	ND,P1	ug/L	5.0	1.3	SW846 8260C	1	03/22/2023 19:40	TMP	D
4-Methyl-2-Pentanone(MIBK)	ND	ND,P1	ug/L	5.0	1.5	SW846 8260C	1	03/22/2023 19:40	TMP	D
Acetone	ND	ND,P1	ug/L	10.0	3.1	SW846 8260C	1	03/22/2023 19:40	TMP	D
Acrylonitrile	ND	ND,P1	ug/L	5.0	1.2	SW846 8260C	1	03/22/2023 19:40	TMP	D



## Results

Client Sample ID	GWM-17S	Collected	03/14/2023 14:00
Lab Sample ID	3292622005	Lab Receipt	03/14/2023 17:25

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/22/2023 19:40	TMP	D
Bromochloromethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/22/2023 19:40	TMP	D
Bromodichloromethane	ND	ND,P1	ug/L	1.0	0.27	SW846 8260C	1	03/22/2023 19:40	TMP	D
Bromoform	ND	ND,P1	ug/L	1.0	0.40	SW846 8260C	1	03/22/2023 19:40	TMP	D
Bromomethane	ND	ND,P1	ug/L	1.0	0.39	SW846 8260C	1	03/22/2023 19:40	TMP	D
Carbon Disulfide	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/22/2023 19:40	TMP	D
Carbon Tetrachloride	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/22/2023 19:40	TMP	D
Chlorobenzene	0.22J	J,P1	ug/L	1.0	0.19	SW846 8260C	1	03/22/2023 19:40	TMP	D
Chlorodibromomethane	ND	ND,P1	ug/L	1.0	0.45	SW846 8260C	1	03/22/2023 19:40	TMP	D
Chloroethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/22/2023 19:40	TMP	D
Chloroform	ND	ND,P1	ug/L	1.0	0.21	SW846 8260C	1	03/22/2023 19:40	TMP	D
Chloromethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/22/2023 19:40	TMP	D
cis-1,2-Dichloroethene	0.35J	J,P1	ug/L	1.0	0.32	SW846 8260C	1	03/22/2023 19:40	TMP	D
cis-1,3-Dichloropropene	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/22/2023 19:40	TMP	D
Cyclohexane	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/22/2023 19:40	TMP	D
Dibromomethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/22/2023 19:40	TMP	D
Dichlorodifluoromethane	ND	ND,30,P1	ug/L	1.0	0.33	SW846 8260C	1	03/22/2023 19:40	TMP	D
Ethylbenzene	ND	ND,P1	ug/L	1.0	0.34	SW846 8260C	1	03/22/2023 19:40	TMP	D
Iodomethane	ND	ND,P1	ug/L	1.0	0.42	SW846 8260C	1	03/22/2023 19:40	TMP	D
Methyl t-Butyl Ether	0.82J	J,P1	ug/L	1.0	0.33	SW846 8260C	1	03/22/2023 19:40	TMP	D
Methylene Chloride	ND	ND,P1	ug/L	1.0	0.45	SW846 8260C	1	03/22/2023 19:40	TMP	D
mp-Xylene	ND	ND,P1	ug/L	2.0	0.52	SW846 8260C	1	03/22/2023 19:40	TMP	D
o-Xylene	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/22/2023 19:40	TMP	D
Styrene	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/22/2023 19:40	TMP	D
Tetrachloroethene	ND	ND,P1	ug/L	1.0	0.35	SW846 8260C	1	03/22/2023 19:40	TMP	D
Toluene	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/22/2023 19:40	TMP	D
Total Xylenes	ND	ND,P1	ug/L	3.0	0.66	SW846 8260C	1	03/22/2023 19:40	TMP	D
trans-1,2-Dichloroethene	ND	ND,P1	ug/L	1.0	0.26	SW846 8260C	1	03/22/2023 19:40	TMP	D
trans-1,3-Dichloropropene	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/22/2023 19:40	TMP	D
trans-1,4-Dichloro-2-butene	ND	ND,P1	ug/L	3.0	0.86	SW846 8260C	1	03/22/2023 19:40	TMP	D
Trichloroethene	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/22/2023 19:40	TMP	D
Trichlorofluoromethane	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/22/2023 19:40	TMP	D
Vinyl Acetate	ND	ND,P1	ug/L	5.0	1.6	SW846 8260C	1	03/22/2023 19:40	TMP	D
Vinyl Chloride	ND	ND,P1	ug/L	1.0	0.30	SW846 8260C	1	03/22/2023 19:40	TMP	D

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	98.6%	62 - 133	03/22/2023 19:40	
1-Chloro-2-Fluorobenzene	348-51-6	83.1%	70 - 130	03/21/2023 19:52	
4-Bromofluorobenzene	460-00-4	111%	79 - 114	03/22/2023 19:40	
Dibromofluoromethane	1868-53-7	97.6%	78 - 116	03/22/2023 19:40	
Toluene-d8	2037-26-5	103%	76 - 127	03/22/2023 19:40	

### WET CHEMISTRY



## Results

Client Sample ID	GWM-17S	Collected	03/14/2023 14:00
Lab Sample ID	3292622005	Lab Receipt	03/14/2023 17:25

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	176	2,P1	mg/L	5	5	SM2320B-2011	1	03/27/2023 15:23	NML	F
Ammonia-N	0.548	P1	mg/L	0.100	0.03	ASTM D6919-17	10	03/20/2023 21:40	NML	G
Chemical Oxygen Demand (COD)	26	P1	mg/L	15	5	EPA 410.4	1	03/17/2023 15:10	KMS	G
Chloride	110	P1	mg/L	2.0	1.5	EPA 300.0	2	03/15/2023 15:53	J1W	F
Nitrate-N	ND	ND,P1	mg/L	1.0	0.22	EPA 300.0	2	03/15/2023 15:53	J1W	F
Sulfate	16.7	P1	mg/L	2.0	1.5	EPA 300.0	2	03/15/2023 15:53	J1W	F
Total Dissolved Solids	492	P1	mg/L	25	25	SM2540C-15	1	03/15/2023 08:12	SMS	F





## Results

Client Sample ID	GWM-17D	Collected	03/14/2023 15:10
Lab Sample ID	3292622006	Lab Receipt	03/14/2023 17:25

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:17	RMD	A2
Arsenic, Total	ND	ND,P1	mg/L	0.0033	0.0011	SW846 6020A	1	03/20/2023 20:17	RMD	A2
Barium, Total	0.29	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:17	RMD	A2
Beryllium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:17	RMD	A2
Cadmium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:17	RMD	A2
Calcium, Total	43.2	P1	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:17	RMD	A2
Chromium, Total	0.0019J	J,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:17	RMD	A2
Cobalt, Total	0.33	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:17	RMD	A2
Copper, Total	ND	ND,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:17	RMD	A2
Hardness	227	3,P1	mg/L	0.33	0.11	EPA 200.7	1	03/27/2023 15:19	MO	A1
Iron, Total	0.18	P1	mg/L	0.056	0.019	SW846 6020A	1	03/20/2023 20:17	RMD	A2
Lead, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:17	RMD	A2
Magnesium, Total	23.6	P1	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:17	RMD	A2
Manganese, Total	3.4	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:17	RMD	A2
Mercury, Total	0.00039J	J,P1	mg/L	0.00050	0.00017	SW846 7470A	1	03/16/2023 11:08	WDA	A
Nickel, Total	0.065	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:17	RMD	A2
Potassium, Total	4.1	P1	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:17	RMD	A2
Selenium, Total	ND	ND,P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:17	RMD	A2
Silver, Total	ND	ND,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:17	RMD	A2
Sodium, Total	41.4	P1	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:17	RMD	A2
Thallium, Total	ND	ND,P1	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:17	RMD	A2
Vanadium, Total	0.0013J	J,P1	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:17	RMD	A2
Zinc, Total	0.032	P1	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:17	RMD	A2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.35	SW846 8260C	1	03/22/2023 20:03	TMP	D
1,1,1-Trichloroethane	ND	ND,P1	ug/L	1.0	0.22	SW846 8260C	1	03/22/2023 20:03	TMP	D
1,1,2,2-Tetrachloroethane	ND	ND,P1	ug/L	1.0	0.34	SW846 8260C	1	03/22/2023 20:03	TMP	D
1,1,2-Trichloroethane	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/22/2023 20:03	TMP	D
1,1-Dichloroethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/22/2023 20:03	TMP	D
1,1-Dichloroethene	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/22/2023 20:03	TMP	D
1,2,3-Trichloropropane	ND	ND,P1	ug/L	2.0	0.60	SW846 8260C	1	03/22/2023 20:03	TMP	D
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	0.020	0.0047	SW846 8011	1	03/21/2023 20:08	VLM	B
1,2-Dibromo-3-chloropropane	ND	ND,P1	ug/L	7.0	1.5	SW846 8260C	1	03/22/2023 20:03	TMP	D
1,2-Dibromoethane	ND	ND,P1	ug/L	0.020	0.0097	SW846 8011	1	03/21/2023 20:08	VLM	B
1,2-Dibromoethane	ND	ND,P1	ug/L	1.0	0.28	SW846 8260C	1	03/22/2023 20:03	TMP	D
1,2-Dichlorobenzene	ND	ND,P1	ug/L	1.0	0.38	SW846 8260C	1	03/22/2023 20:03	TMP	D
1,2-Dichloroethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/22/2023 20:03	TMP	D
1,2-Dichloropropane	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/22/2023 20:03	TMP	D
1,4-Dichlorobenzene	1.4	P1	ug/L	1.0	0.27	SW846 8260C	1	03/22/2023 20:03	TMP	D
2-Butanone	ND	ND,P1	ug/L	10.0	1.8	SW846 8260C	1	03/22/2023 20:03	TMP	D
2-Hexanone	ND	ND,P1	ug/L	5.0	1.3	SW846 8260C	1	03/22/2023 20:03	TMP	D
4-Methyl-2-Pentanone(MIBK)	ND	ND,P1	ug/L	5.0	1.5	SW846 8260C	1	03/22/2023 20:03	TMP	D
Acetone	ND	ND,P1	ug/L	10.0	3.1	SW846 8260C	1	03/22/2023 20:03	TMP	D



## Results

Client Sample ID	GWM-17D	Collected	03/14/2023 15:10
Lab Sample ID	3292622006	Lab Receipt	03/14/2023 17:25

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Acrylonitrile	ND	ND,31,P 1	ug/L	5.0	1.2	SW846 8260C	1	03/22/2023 20:03	TMP	D
Benzene	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/22/2023 20:03	TMP	D
Bromochloromethane	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/22/2023 20:03	TMP	D
Bromodichloromethane	ND	ND,P1	ug/L	1.0	0.27	SW846 8260C	1	03/22/2023 20:03	TMP	D
Bromoform	ND	ND,P1	ug/L	1.0	0.40	SW846 8260C	1	03/22/2023 20:03	TMP	D
Bromomethane	ND	ND,P1	ug/L	1.0	0.39	SW846 8260C	1	03/22/2023 20:03	TMP	D
Carbon Disulfide	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/22/2023 20:03	TMP	D
Carbon Tetrachloride	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/22/2023 20:03	TMP	D
Chlorobenzene	ND	ND,P1	ug/L	1.0	0.19	SW846 8260C	1	03/22/2023 20:03	TMP	D
Chlorodibromomethane	ND	ND,P1	ug/L	1.0	0.45	SW846 8260C	1	03/22/2023 20:03	TMP	D
Chloroethane	ND	ND,32,P 1	ug/L	1.0	0.33	SW846 8260C	1	03/22/2023 20:03	TMP	D
Chloroform	ND	ND,P1	ug/L	1.0	0.21	SW846 8260C	1	03/22/2023 20:03	TMP	D
Chloromethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/22/2023 20:03	TMP	D
cis-1,2-Dichloroethene	ND	ND,P1	ug/L	1.0	0.32	SW846 8260C	1	03/22/2023 20:03	TMP	D
cis-1,3-Dichloropropene	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/22/2023 20:03	TMP	D
Cyclohexane	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/22/2023 20:03	TMP	D
Dibromomethane	ND	ND,P1	ug/L	1.0	0.31	SW846 8260C	1	03/22/2023 20:03	TMP	D
Dichlorodifluoromethane	ND	ND,30,P 1	ug/L	1.0	0.33	SW846 8260C	1	03/22/2023 20:03	TMP	D
Ethylbenzene	ND	ND,P1	ug/L	1.0	0.34	SW846 8260C	1	03/22/2023 20:03	TMP	D
Iodomethane	ND	ND,P1	ug/L	1.0	0.42	SW846 8260C	1	03/22/2023 20:03	TMP	D
Methyl t-Butyl Ether	0.74J	J,P1	ug/L	1.0	0.33	SW846 8260C	1	03/22/2023 20:03	TMP	D
Methylene Chloride	ND	ND,P1	ug/L	1.0	0.45	SW846 8260C	1	03/22/2023 20:03	TMP	D
mp-Xylene	ND	ND,P1	ug/L	2.0	0.52	SW846 8260C	1	03/22/2023 20:03	TMP	D
o-Xylene	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/22/2023 20:03	TMP	D
Styrene	ND	ND,P1	ug/L	1.0	0.24	SW846 8260C	1	03/22/2023 20:03	TMP	D
Tetrachloroethene	ND	ND,P1	ug/L	1.0	0.35	SW846 8260C	1	03/22/2023 20:03	TMP	D
Toluene	ND	ND,P1	ug/L	1.0	0.23	SW846 8260C	1	03/22/2023 20:03	TMP	D
Total Xylenes	ND	ND,P1	ug/L	3.0	0.66	SW846 8260C	1	03/22/2023 20:03	TMP	D
trans-1,2-Dichloroethene	ND	ND,P1	ug/L	1.0	0.26	SW846 8260C	1	03/22/2023 20:03	TMP	D
trans-1,3-Dichloropropene	ND	ND,P1	ug/L	1.0	0.29	SW846 8260C	1	03/22/2023 20:03	TMP	D
trans-1,4-Dichloro-2-butene	ND	ND,P1	ug/L	3.0	0.86	SW846 8260C	1	03/22/2023 20:03	TMP	D
Trichloroethene	ND	ND,P1	ug/L	1.0	0.33	SW846 8260C	1	03/22/2023 20:03	TMP	D
Trichlorofluoromethane	ND	ND,33,P 1	ug/L	1.0	0.24	SW846 8260C	1	03/22/2023 20:03	TMP	D
Vinyl Acetate	ND	ND,P1	ug/L	5.0	1.6	SW846 8260C	1	03/22/2023 20:03	TMP	D
Vinyl Chloride	ND	ND,34,P 1	ug/L	1.0	0.30	SW846 8260C	1	03/22/2023 20:03	TMP	D

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	99.7%	62 - 133	03/22/2023 20:03	
1-Chloro-2-Fluorobenzene	348-51-6	77.1%	70 - 130	03/21/2023 20:08	
4-Bromofluorobenzene	460-00-4	108%	79 - 114	03/22/2023 20:03	
Dibromofluoromethane	1868-53-7	97.6%	78 - 116	03/22/2023 20:03	
Toluene-d8	2037-26-5	103%	76 - 127	03/22/2023 20:03	



## Results

Client Sample ID	GWM-17D	Collected	03/14/2023 15:10
Lab Sample ID	3292622006	Lab Receipt	03/14/2023 17:25

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	150	2,P1	mg/L	5	5	SM2320B-2011	1	03/27/2023 15:36	NML	F
Ammonia-N	0.287	P1	mg/L	0.100	0.03	ASTM D6919-17	10	03/20/2023 20:45	NML	G
Chemical Oxygen Demand (COD)	12J	J,P1	mg/L	15	5	EPA 410.4	1	03/17/2023 15:10	KMS	G
Chloride	99.7	P1	mg/L	2.0	1.5	EPA 300.0	2	03/15/2023 16:03	J1W	F
Nitrate-N	ND	ND,P1	mg/L	1.0	0.22	EPA 300.0	2	03/15/2023 16:03	J1W	F
Sulfate	18.9	P1	mg/L	2.0	1.5	EPA 300.0	2	03/15/2023 16:03	J1W	F
Total Dissolved Solids	344	P1	mg/L	25	25	SM2540C-15	1	03/16/2023 07:42	SMS	F

**Project** Eastern Sanitary Landfill  
**Workorder** 3292622



## Results

Client Sample ID	GWM-4	Collected	03/14/2023 11:10
Lab Sample ID	3292622007	Lab Receipt	03/14/2023 17:25

### SUBCONTRACTED ANALYSIS

<u>Compound</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Dilution</u>	<u>Analysis Date/Time</u>	<u>By</u>	<u>Cntr</u>
Subcontracted Analysis	See attached	35,P1				Subcontract	1	03/31/2023 16:39	SUB	A



## Results

Client Sample ID	GWM-17S	Collected	03/14/2023 14:00
Lab Sample ID	3292622008	Lab Receipt	03/14/2023 17:25

### SUBCONTRACTED ANALYSIS

<u>Compound</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Dilution</u>	<u>Analysis Date/Time</u>	<u>By</u>	<u>Cntr</u>
Subcontracted Analysis	See attached	35,P1				Subcontract	1	03/31/2023 16:40	SUB	A

**Project** Eastern Sanitary Landfill  
**Workorder** 3292622



## Results

Client Sample ID	GWM-17D	Collected	03/14/2023 15:10
Lab Sample ID	3292622009	Lab Receipt	03/14/2023 17:25

### SUBCONTRACTED ANALYSIS

<u>Compound</u>	<u>Result</u>	<u>Flag</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Dilution</u>	<u>Analysis Date/Time</u>	<u>By</u>	<u>Cntr</u>
Subcontracted Analysis	See attached	35,P1				Subcontract	1	03/31/2023 16:40	SUB	A



### Sample - Method Cross Reference Table

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3292622001	Trip Blank	SW846 8011	SW846 8011	
		SW846 8260C	N/A	
3292622002	Field Blank	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
		SM2540C-15	N/A	
3292622003	GWM-11	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
		SM2540C-15	N/A	
3292622004	GWM-4	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
		SM2540C-15	N/A	
3292622005	GWM-17S	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
		SM2540C-15	N/A	
3292622006	GWM-17D	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
		SM2540C-15	N/A	
3292622007	GWM-4	Subcontract	N/A	
3292622008	GWM-17S	Subcontract	N/A	



**Project** Eastern Sanitary Landfill  
**Workorder** 3292622

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3292622009	GWM-17D	Subcontract	N/A	





**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Lab ID	Sample ID	Preparation Method	Prep Batch	Prep Date/Time	By	Analysis Method	Anly Batch
3292622001	Trip Blank	SW846 8011	963780	03/21/2023 15:50	VLM	SW846 8011	963823
		N/A	N/A	N/A		SW846 8260C	962669
3292622002	Field Blank	EPA TRMD	962308	03/15/2023 22:47	ANN	EPA 200.7	962729
		SW846 3015A	962865	03/20/2023 13:13	JSE	SW846 6020A	963427
		SW846 7470A	962096	03/15/2023 12:35	WDA	SW846 7470A	962632
		SW846 8011	963780	03/21/2023 15:50	VLM	SW846 8011	963823
		N/A	N/A	N/A		SW846 8260C	962669
		N/A	N/A	N/A		ASTM D6919-17	963084
		N/A	N/A	N/A		EPA 300.0	962071
		N/A	N/A	N/A		EPA 410.4	963080
		N/A	N/A	N/A		SM2320B-2011	966333
		N/A	N/A	N/A	SM2540C-15	962005	
3292622003	GWM-11	EPA TRMD	962308	03/15/2023 22:47	ANN	EPA 200.7	962729
		SW846 3015A	962865	03/20/2023 13:13	JSE	SW846 6020A	963427
		SW846 7470A	962096	03/15/2023 12:35	WDA	SW846 7470A	962632
		SW846 8011	963780	03/21/2023 15:50	VLM	SW846 8011	963823
		N/A	N/A	N/A		SW846 8260C	962669
		N/A	N/A	N/A		ASTM D6919-17	963084
		N/A	N/A	N/A		EPA 300.0	962071
		N/A	N/A	N/A		EPA 410.4	962866
		N/A	N/A	N/A		SM2320B-2011	966333
		N/A	N/A	N/A	SM2540C-15	962005	
3292622004	GWM-4	EPA TRMD	962604	03/16/2023 10:25	JSE	EPA 200.7	965884
		SW846 3015A	962865	03/20/2023 13:13	JSE	SW846 6020A	963427
		SW846 7470A	962096	03/15/2023 12:35	WDA	SW846 7470A	962632
		SW846 8011	963780	03/21/2023 15:50	VLM	SW846 8011	963823
		N/A	N/A	N/A		SW846 8260C	964357
		N/A	N/A	N/A		ASTM D6919-17	963084
		N/A	N/A	N/A		EPA 300.0	962071
		N/A	N/A	N/A		EPA 410.4	963080
		N/A	N/A	N/A		SM2320B-2011	966333
		N/A	N/A	N/A	SM2540C-15	962005	
3292622005	GWM-17S	EPA TRMD	962604	03/16/2023 10:25	JSE	EPA 200.7	965884
		SW846 3015A	962865	03/20/2023 13:13	JSE	SW846 6020A	963427
		SW846 7470A	962096	03/15/2023 12:35	WDA	SW846 7470A	962632
		SW846 8011	963780	03/21/2023 15:50	VLM	SW846 8011	963823
		N/A	N/A	N/A		SW846 8260C	964357
		N/A	N/A	N/A		ASTM D6919-17	963084
		N/A	N/A	N/A		EPA 300.0	962071
		N/A	N/A	N/A		EPA 410.4	962866
		N/A	N/A	N/A		SM2320B-2011	966333
		N/A	N/A	N/A	SM2540C-15	962005	
3292622006	GWM-17D	EPA TRMD	962604	03/16/2023 10:25	JSE	EPA 200.7	965884
		SW846 3015A	962865	03/20/2023 13:13	JSE	SW846 6020A	963427
		SW846 7470A	962096	03/15/2023 12:35	WDA	SW846 7470A	962632
		SW846 8011	963780	03/21/2023 15:50	VLM	SW846 8011	963823
		N/A	N/A	N/A		SW846 8260C	964357
		N/A	N/A	N/A		ASTM D6919-17	963084
		N/A	N/A	N/A		EPA 300.0	962071
		N/A	N/A	N/A		EPA 410.4	962866
		N/A	N/A	N/A		SM2320B-2011	966333
		N/A	N/A	N/A	SM2540C-15	962574	
3292622007	GWM-4	N/A	N/A	N/A		Subcontract	
3292622008	GWM-17S	N/A	N/A	N/A		Subcontract	
3292622009	GWM-17D	N/A	N/A	N/A		Subcontract	

3292622

Logged By: MJE  
PM: GJM



# CHAIN OF CUSTODY / SAMPLE INFORMATION FORM

Maryland Environmental Service • 259 Najoles Rd. • Millersville, MD 21108 • (410) 729-8200 • FAX (410) 729

**Laboratory:** ALS

**Sampler:** Laura Russell / Tom Reedy

**Facility Name:** Eastern Sanitary Landfill

**Project# / Purpose:** 3926-2000

**Turnaround Time:** Routine

Sample #	Sample ID	Grab or Composite	Container Description/Preservation Status	Matrix	# of Containers	Date	Time	Analyses Required/Comments
1	Trip Blank	N/A	40 mL G Na2S2O3	W	2	3-14-23	--	VOCs (8011)
			40 mL G HCl	W	2			VOCs (8260)
2	Field Blank	G	40 mL G Na2S2O3	W	2	3-14-23	0940	VOCs (8011)
			40 mL G HCl	W	2			VOCs (8260)
			125 mL P HNO3	W	1			Metals - Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn (6020), Hg (7470), Hardness
			1 L P unpreserved	W	1			Alkalinity, TDS, Nitrate (EPA 300), Sulfate, Chloride
			250 mL P H2SO4	W	1			Ammonia, COD

Temp By: **MP** | WO Temp (°C) **2.0** | Therm ID **570**

Receipt Info Completed By: **[Signature]**

Cooler Custody Seal Intact  
 Sample Custody Seal Intact  
 Received on Ice  
 Cooler & Samples Intact  
 Correct Containers Provided  
 Sample Label/COC Agree  
 Adequate Sample Volumes  
 CR6 Samples Filtered  
 OP Samples Filtered  
 VOA Headspace Present  
 Voa Trip Blank  
 NLS 4 Days?  
 Rad Screen (uCi)  
 Courier/Tracking #: \_\_\_\_\_ Yes/No If No, explain

SDWA Compliance   
 PWSID   
 WV Containers 0-6°C

Transferred by: **[Signature]** | Received by: **[Signature]** | Date: **3-14-23** | Time: **15:30**  
 Transferred by: **[Signature]** | Received by: **[Signature]** | Date: **3-14-23** | Time: **17:25**  
 Transferred by: \_\_\_\_\_ | Received by: \_\_\_\_\_ | Date: \_\_\_\_\_ | Time: \_\_\_\_\_

# CHAIN OF CUSTODY / SAMPLE INFORMATION FORM 3292622

Maryland Environmental Service • 259 Najoles Rd. • Millersville, MD 21108 • (410) 729-8200 • FAX (410) 729-8340

**Laboratory:** ALS      **Sampler:** Laura Russell / Tom Reedy

**Client Name:** Maryland Environmental Service, Attn: Cheryl Griffin      **Facility Name:** Eastern Sanitary Landfill

**Client Address:** 259 Najoles Rd, Millersville, MD 21108 410-729-8356      **Project# / Purpose:** 3926-2000

**Invoice To:** Same      **Turnaround Time:** Routine

Sample #	Sample ID	Grab or Composite	Container Description/Preservation Status	Matrix	# of Containers	Date	Time	Analyses Required/Comments
3	<del>GWM-11</del> GWM-11	G	40 mL G Na2S2O3	NPW	2	3-14-23	1010	VOCs (8011)
			40 mL G HCl	NPW	2			VOCs (8260)
			125 mL P HNO3	NPW	2			Metals - Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn (6020), Hg (7470), Hardness
			1 L P unpreserved	NPW	1			Alkalinity, TDS, Nitrate (EPA 300), Sulfate, Chloride
			250 mL P H2SO4	NPW	1			Ammonia, COD
4	<del>GWM-14</del> GWM-14	G	Same as Sample # 3	NPW	8	3-14-23	1110	Same as Sample # 3
5	GWM-17S	G	Same as Sample # 3	NPW	8	3-14-23	1400	Same as Sample # 3
6	GWM-17D	G	Same as Sample # 3	NPW	8	3-14-23	1510	Same as Sample # 3

**Transferred by:** Laura Russell      **Received by:** [Signature]

**Transferred by:** [Signature]      **Received by:** [Signature]

**Transferred by:** [Signature]      **Received by:** [Signature]

**Time:** 1530      **Date:** 3-14-23

**Time:** 1715      **Date:** 3-17-23

**Time:**      **Date:**      **Initials:**      **Date:**

**Cooler Receipt Information (LAB USE ONLY)**  
 Sufficient ice? - Yes/No      Temp =  
 Sample containers properly pres'd? - Yes/No      If No, explain

# CHAIN OF CUSTODY / SAMPLE INFORMATION FORM 3292422

Maryland Environmental Service • 259 Najoles Rd. • Millersville, MD 21108 • (410) 729-8200 • FAX (410) 729-8340

Laboratory: ALS

Sampler: Laura Russell / Tom Reedy

Client Name: Maryland Environmental Service, Attn: Cheryl Griffin

Facility Name: Eastern Sanitary Landfill

Client Address: 259 Najoles Rd, Millersville, MD 21108 410-729-8356

Project# / Purpose: 3926-2000

Invoice To: Same

Turnaround Time: Routine

Sample #	Sample ID	Grab or Composite	Container Description/ Preservation Status	Matrix	# of Containers	Date	Time	Analyses Required/Comments
7	GWM-4	G	1 L G Amb Unpreserved	NPW	1	3-14-23	1110	Pesticides (Low Level 608) subcontracted
8	GWM-17S	G	1 L G Amb Unpreserved	NPW	1	3-14-23	1400	Pesticides (Low Level 608) subcontracted
9	GWM-17D	G	1 L G Amb Unpreserved	NPW	1	3-14-23	1510	Pesticides (Low Level 608) subcontracted
Transferred by: <i>Laura Russell</i>	Received by: <i>Bea</i>	Date: 3-14-23		Time: 1530		Cooler Receipt Information (LAB USE ONLY)		
Transferred by: <i>Bea</i>	Received by: <i>Tom Reedy</i>	Date: 3-14-23		Time: 1725		Sufficient ice? - Yes/No _____ Temp. = _____		
Transferred by:	Received by:	Date:		Time:		Sample containers properly preserved? - Yes/No _____ If No, explain		
Initials: _____		Date: _____						

# ANALYTICAL REPORT

## PREPARED FOR

Attn: Meghan Pedro  
ALS Environmental  
1565 Jefferson Road  
Building 300, Suite 360  
Rochester, New York 14623

Generated 1/30/2024 10:07:04 AM Revision 1

## JOB DESCRIPTION

3292622

## JOB NUMBER

180-153776-1

# Eurofins Pittsburgh

## 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 Northeast, LLC Pittsburgh and its client. All questions regarding this report should be directed to the Eurofins Environment Testing Northeast, LLC Pittsburgh Project Manager or designee who has signed this report.

PA Lab ID: 02-00416

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 Pittsburgh Project Manager.

## Authorization



Authorized for release by  
Debra Bowen, Project Manager I  
[Debra.Bowen@et.eurofinsus.com](mailto:Debra.Bowen@et.eurofinsus.com)  
(412)963-2445

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1/30/2024 10:07:04 AM  
Revision 1



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# Case Narrative

Client: ALS Environmental  
Project: 3292622

Job ID: 180-153776-1

**Job ID: 180-153776-1**

**Eurofins Pittsburgh**

## Job Narrative

180-153776-1

### Revision 1

The revised report contains the result for Methoxychor.

#### Receipt

The samples were received on 3/17/2023 6:00 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 3.2°C

#### Pesticides

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

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Eurofins Pittsburgh



# Definitions/Glossary

Client: ALS Environmental  
Project/Site: 3292622

Job ID: 180-153776-1

## Qualifiers

### GC Semi VOA

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

## Glossary

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

# Accreditation/Certification Summary

Client: ALS Environmental  
Project/Site: 3292622

Job ID: 180-153776-1

## Laboratory: Eurofins Pittsburgh

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

Authority	Program	Identification Number	Expiration Date
New York	NELAP	11182	03-31-23

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# Sample Summary

Client: ALS Environmental  
Project/Site: 3292622

Job ID: 180-153776-1

---

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Collected</u>	<u>Received</u>
180-153776-1	3292622-007	Water	03/14/23 11:00	03/17/23 18:00
180-153776-2	3292622-008	Water	03/14/23 14:00	03/17/23 18:00
180-153776-3	3292622-009	Water	03/14/23 15:10	03/17/23 18:00

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# Method Summary

Client: ALS Environmental  
Project/Site: 3292622

Job ID: 180-153776-1

Method	Method Description	Protocol	Laboratory
EPA 608.3	Organochlorine Pesticides in Water	40CFR136A	EET PIT
608	Liquid-Liquid Extraction (Separatory Funnel)	EPA	EET PIT

**Protocol References:**

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

EPA = US Environmental Protection Agency

**Laboratory References:**

EET PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058



# Lab Chronicle

Client: ALS Environmental  
Project/Site: 3292622

Job ID: 180-153776-1

**Client Sample ID: 3292622-007**

**Lab Sample ID: 180-153776-1**

**Date Collected: 03/14/23 11:00**

**Matrix: Water**

**Date Received: 03/17/23 18:00**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	608			1060 mL	1.0 mL	429673	03/19/23 13:44	VJC	EET PIT
Total/NA	Analysis	EPA 608.3		1	1 mL	1 mL	429842	03/21/23 20:15	JMO	EET PIT

Instrument ID: CHGC17

**Client Sample ID: 3292622-008**

**Lab Sample ID: 180-153776-2**

**Date Collected: 03/14/23 14:00**

**Matrix: Water**

**Date Received: 03/17/23 18:00**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	608			1060 mL	1.0 mL	429673	03/19/23 13:44	VJC	EET PIT
Total/NA	Analysis	EPA 608.3		1	1 mL	1 mL	429842	03/21/23 20:31	JMO	EET PIT

Instrument ID: CHGC17

**Client Sample ID: 3292622-009**

**Lab Sample ID: 180-153776-3**

**Date Collected: 03/14/23 15:10**

**Matrix: Water**

**Date Received: 03/17/23 18:00**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	608			1060 mL	1.0 mL	429797	03/20/23 18:06	VJC	EET PIT
Total/NA	Analysis	EPA 608.3		1	1 mL	1 mL	429961	03/22/23 11:07	JMO	EET PIT

Instrument ID: CHGC17

### Laboratory References:

EET PIT = Eurofins Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

### Analyst References:

Lab: EET PIT

Batch Type: Prep

VJC = Vincent Cervone

Batch Type: Analysis

JMO = John Oravec

Eurofins Pittsburgh

# Client Sample Results

Client: ALS Environmental  
Project/Site: 3292622

Job ID: 180-153776-1

**Client Sample ID: 3292622-007**

**Lab Sample ID: 180-153776-1**

**Date Collected: 03/14/23 11:00**

**Matrix: Water**

**Date Received: 03/17/23 18:00**

**Method: 40CFR136A EPA 608.3 - Organochlorine Pesticides in Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:15	1
alpha-BHC	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:15	1
beta-BHC	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:15	1
gamma-BHC (Lindane)	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:15	1
delta-BHC	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:15	1
Chlordane (technical)	ND		0.0123		ug/L		03/19/23 13:44	03/21/23 20:15	1
4,4'-DDD	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:15	1
4,4'-DDE	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:15	1
4,4'-DDT	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:15	1
<b>Dieldrin</b>	<b>0.00669</b>		0.00123		ug/L		03/19/23 13:44	03/21/23 20:15	1
Endosulfan I	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:15	1
Endosulfan II	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:15	1
Endosulfan sulfate	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:15	1
Endrin	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:15	1
Endrin aldehyde	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:15	1
Heptachlor	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:15	1
Heptachlor epoxide	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:15	1
Toxaphene	ND		0.0943		ug/L		03/19/23 13:44	03/21/23 20:15	1
Methoxychlor	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	55		20 - 138	03/19/23 13:44	03/21/23 20:15	1
Tetrachloro-m-xylene	64		20 - 138	03/19/23 13:44	03/21/23 20:15	1
DCB Decachlorobiphenyl (Surr)	71		43 - 143	03/19/23 13:44	03/21/23 20:15	1
DCB Decachlorobiphenyl (Surr)	82		43 - 143	03/19/23 13:44	03/21/23 20:15	1

**Client Sample ID: 3292622-008**

**Lab Sample ID: 180-153776-2**

**Date Collected: 03/14/23 14:00**

**Matrix: Water**

**Date Received: 03/17/23 18:00**

**Method: 40CFR136A EPA 608.3 - Organochlorine Pesticides in Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:31	1
alpha-BHC	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:31	1
beta-BHC	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:31	1
gamma-BHC (Lindane)	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:31	1
delta-BHC	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:31	1
Chlordane (technical)	ND		0.0123		ug/L		03/19/23 13:44	03/21/23 20:31	1
4,4'-DDD	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:31	1
4,4'-DDE	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:31	1
4,4'-DDT	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:31	1
<b>Dieldrin</b>	<b>0.00408</b>		0.00123		ug/L		03/19/23 13:44	03/21/23 20:31	1
Endosulfan I	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:31	1
Endosulfan II	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:31	1
Endosulfan sulfate	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:31	1
Endrin	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:31	1
Endrin aldehyde	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:31	1
Heptachlor	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:31	1
Heptachlor epoxide	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:31	1
Toxaphene	ND		0.0943		ug/L		03/19/23 13:44	03/21/23 20:31	1

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# Client Sample Results

Client: ALS Environmental  
Project/Site: 3292622

Job ID: 180-153776-1

**Client Sample ID: 3292622-008**

**Lab Sample ID: 180-153776-2**

Date Collected: 03/14/23 14:00

Matrix: Water

Date Received: 03/17/23 18:00

**Method: 40CFR136A EPA 608.3 - Organochlorine Pesticides in Water (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methoxychlor	ND		0.00123		ug/L		03/19/23 13:44	03/21/23 20:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	91		20 - 138				03/19/23 13:44	03/21/23 20:31	1
Tetrachloro-m-xylene	56		20 - 138				03/19/23 13:44	03/21/23 20:31	1
DCB Decachlorobiphenyl (Surr)	56		43 - 143				03/19/23 13:44	03/21/23 20:31	1
DCB Decachlorobiphenyl (Surr)	56		43 - 143				03/19/23 13:44	03/21/23 20:31	1

**Client Sample ID: 3292622-009**

**Lab Sample ID: 180-153776-3**

Date Collected: 03/14/23 15:10

Matrix: Water

Date Received: 03/17/23 18:00

**Method: 40CFR136A EPA 608.3 - Organochlorine Pesticides in Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.00123		ug/L		03/20/23 18:06	03/22/23 11:07	1
alpha-BHC	ND		0.00123		ug/L		03/20/23 18:06	03/22/23 11:07	1
beta-BHC	ND		0.00123		ug/L		03/20/23 18:06	03/22/23 11:07	1
gamma-BHC (Lindane)	ND		0.00123		ug/L		03/20/23 18:06	03/22/23 11:07	1
delta-BHC	ND		0.00123		ug/L		03/20/23 18:06	03/22/23 11:07	1
Chlordane (technical)	ND		0.0123		ug/L		03/20/23 18:06	03/22/23 11:07	1
4,4'-DDD	ND		0.00123		ug/L		03/20/23 18:06	03/22/23 11:07	1
4,4'-DDE	ND		0.00123		ug/L		03/20/23 18:06	03/22/23 11:07	1
4,4'-DDT	ND		0.00123		ug/L		03/20/23 18:06	03/22/23 11:07	1
<b>Dieldrin</b>	<b>0.00488</b>		0.00123		ug/L		03/20/23 18:06	03/22/23 11:07	1
Endosulfan I	ND		0.00123		ug/L		03/20/23 18:06	03/22/23 11:07	1
Endosulfan II	ND		0.00123		ug/L		03/20/23 18:06	03/22/23 11:07	1
Endosulfan sulfate	ND		0.00123		ug/L		03/20/23 18:06	03/22/23 11:07	1
Endrin	ND		0.00123		ug/L		03/20/23 18:06	03/22/23 11:07	1
Endrin aldehyde	ND	*+	0.00123		ug/L		03/20/23 18:06	03/22/23 11:07	1
Heptachlor	ND		0.00123		ug/L		03/20/23 18:06	03/22/23 11:07	1
Heptachlor epoxide	ND		0.00123		ug/L		03/20/23 18:06	03/22/23 11:07	1
Toxaphene	ND		0.0943		ug/L		03/20/23 18:06	03/22/23 11:07	1
Methoxychlor	ND		0.00123		ug/L		03/20/23 18:06	03/22/23 11:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	55		20 - 138				03/20/23 18:06	03/22/23 11:07	1
Tetrachloro-m-xylene	57		20 - 138				03/20/23 18:06	03/22/23 11:07	1
DCB Decachlorobiphenyl (Surr)	67		43 - 143				03/20/23 18:06	03/22/23 11:07	1
DCB Decachlorobiphenyl (Surr)	62		43 - 143				03/20/23 18:06	03/22/23 11:07	1

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# QC Sample Results

Client: ALS Environmental  
Project/Site: 3292622

Job ID: 180-153776-1

## Method: EPA 608.3 - Organochlorine Pesticides in Water

**Lab Sample ID: MB 180-429673/1-A**  
**Matrix: Water**  
**Analysis Batch: 429842**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 429673**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
alpha-BHC	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
beta-BHC	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
gamma-BHC (Lindane)	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
delta-BHC	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
Chlordane (technical)	ND		0.0130		ug/L		03/19/23 13:44	03/21/23 16:18	1
4,4'-DDD	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
4,4'-DDE	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
4,4'-DDT	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
Dieldrin	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
Endosulfan I	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
Endosulfan II	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
Endosulfan sulfate	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
Endrin	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
Endrin aldehyde	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
Heptachlor	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
Heptachlor epoxide	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1
Toxaphene	ND		0.100		ug/L		03/19/23 13:44	03/21/23 16:18	1
Methoxychlor	ND		0.00130		ug/L		03/19/23 13:44	03/21/23 16:18	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	86		20 - 138	03/19/23 13:44	03/21/23 16:18	1
Tetrachloro-m-xylene	97		20 - 138	03/19/23 13:44	03/21/23 16:18	1
DCB Decachlorobiphenyl (Surr)	102		43 - 143	03/19/23 13:44	03/21/23 16:18	1
DCB Decachlorobiphenyl (Surr)	82		43 - 143	03/19/23 13:44	03/21/23 16:18	1

**Lab Sample ID: LCS 180-429673/2-A**  
**Matrix: Water**  
**Analysis Batch: 429842**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 429673**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aldrin	0.0250	0.02110		ug/L		84	42 - 140
alpha-BHC	0.0250	0.02080		ug/L		83	37 - 140
beta-BHC	0.0250	0.01947		ug/L		78	17 - 147
gamma-BHC (Lindane)	0.0250	0.02107		ug/L		84	32 - 140
delta-BHC	0.0250	0.01573		ug/L		63	19 - 140
4,4'-DDD	0.0250	0.02589		ug/L		104	31 - 141
4,4'-DDE	0.0250	0.02477		ug/L		99	30 - 145
4,4'-DDT	0.0250	0.02138		ug/L		86	25 - 150
Dieldrin	0.0250	0.02341		ug/L		94	36 - 146
Endosulfan I	0.0250	0.02051		ug/L		82	45 - 150
Endosulfan II	0.0250	0.02225		ug/L		89	10 - 150
Endosulfan sulfate	0.0250	0.02166		ug/L		87	26 - 144
Endrin	0.0250	0.02325		ug/L		93	30 - 147
Endrin aldehyde	0.0250	0.02554		ug/L		102	51 - 113
Heptachlor	0.0250	0.02109		ug/L		84	34 - 140
Heptachlor epoxide	0.0250	0.02210		ug/L		88	37 - 142
Methoxychlor	0.0250	0.02174		ug/L		87	41 - 140

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# QC Sample Results

Client: ALS Environmental  
Project/Site: 3292622

Job ID: 180-153776-1

## Method: EPA 608.3 - Organochlorine Pesticides in Water (Continued)

**Lab Sample ID: LCS 180-429673/2-A**  
**Matrix: Water**  
**Analysis Batch: 429842**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 429673**

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	85		20 - 138
Tetrachloro-m-xylene	96		20 - 138
DCB Decachlorobiphenyl (Surr)	106		43 - 143
DCB Decachlorobiphenyl (Surr)	81		43 - 143

**Lab Sample ID: LCSD 180-429673/3-A**  
**Matrix: Water**  
**Analysis Batch: 429842**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 429673**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Aldrin	0.0250	0.02080		ug/L		83	42 - 140	1	35
alpha-BHC	0.0250	0.02051		ug/L		82	37 - 140	1	35
beta-BHC	0.0250	0.01917		ug/L		77	17 - 147	2	35
gamma-BHC (Lindane)	0.0250	0.02100		ug/L		84	32 - 140	0	35
delta-BHC	0.0250	0.01562		ug/L		62	19 - 140	1	35
4,4'-DDD	0.0250	0.02585		ug/L		103	31 - 141	0	35
4,4'-DDE	0.0250	0.02415		ug/L		97	30 - 145	3	35
4,4'-DDT	0.0250	0.02169		ug/L		87	25 - 150	1	35
Dieldrin	0.0250	0.02405		ug/L		96	36 - 146	3	35
Endosulfan I	0.0250	0.02082		ug/L		83	45 - 150	2	28
Endosulfan II	0.0250	0.02207		ug/L		88	10 - 150	1	35
Endosulfan sulfate	0.0250	0.02163		ug/L		87	26 - 144	0	35
Endrin	0.0250	0.02423		ug/L		97	30 - 147	4	35
Endrin aldehyde	0.0250	0.02557		ug/L		102	51 - 113	0	26
Heptachlor	0.0250	0.02060		ug/L		82	34 - 140	2	35
Heptachlor epoxide	0.0250	0.02158		ug/L		86	37 - 142	2	26
Methoxychlor	0.0250	0.02211		ug/L		88	41 - 140	2	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	84		20 - 138
Tetrachloro-m-xylene	92		20 - 138
DCB Decachlorobiphenyl (Surr)	96		43 - 143
DCB Decachlorobiphenyl (Surr)	80		43 - 143

**Lab Sample ID: MB 180-429797/1-A**  
**Matrix: Water**  
**Analysis Batch: 429961**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 429797**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
alpha-BHC	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
beta-BHC	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
gamma-BHC (Lindane)	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
delta-BHC	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
Chlordane (technical)	ND		0.0130		ug/L		03/20/23 18:06	03/22/23 10:04	1
4,4'-DDD	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
4,4'-DDE	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
4,4'-DDT	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1

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# QC Sample Results

Client: ALS Environmental  
Project/Site: 3292622

Job ID: 180-153776-1

## Method: EPA 608.3 - Organochlorine Pesticides in Water (Continued)

**Lab Sample ID: MB 180-429797/1-A**  
**Matrix: Water**  
**Analysis Batch: 429961**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 429797**

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Dieldrin	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
Endosulfan I	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
Endosulfan II	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
Endosulfan sulfate	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
Endrin	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
Endrin aldehyde	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
Heptachlor	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
Heptachlor epoxide	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
Toxaphene	ND		0.100		ug/L		03/20/23 18:06	03/22/23 10:04	1
Methoxychlor	ND		0.00130		ug/L		03/20/23 18:06	03/22/23 10:04	1
Surrogate	MB MB		Limits				Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
Tetrachloro-m-xylene	86		20 - 138				03/20/23 18:06	03/22/23 10:04	1
Tetrachloro-m-xylene	88		20 - 138				03/20/23 18:06	03/22/23 10:04	1
DCB Decachlorobiphenyl (Surr)	97		43 - 143				03/20/23 18:06	03/22/23 10:04	1
DCB Decachlorobiphenyl (Surr)	80		43 - 143				03/20/23 18:06	03/22/23 10:04	1

**Lab Sample ID: LCS 180-429797/2-A**  
**Matrix: Water**  
**Analysis Batch: 429961**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 429797**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
alpha-BHC	0.0250	0.02010		ug/L		80	37 - 140
beta-BHC	0.0250	0.01893		ug/L		76	17 - 147
gamma-BHC (Lindane)	0.0250	0.02056		ug/L		82	32 - 140
delta-BHC	0.0250	0.01635		ug/L		65	19 - 140
4,4'-DDD	0.0250	0.02520		ug/L		101	31 - 141
4,4'-DDE	0.0250	0.02415		ug/L		97	30 - 145
4,4'-DDT	0.0250	0.02107		ug/L		84	25 - 150
Dieldrin	0.0250	0.02349		ug/L		94	36 - 146
Endosulfan I	0.0250	0.01933		ug/L		77	45 - 150
Endosulfan II	0.0250	0.02268		ug/L		91	10 - 150
Endosulfan sulfate	0.0250	0.02485		ug/L		99	26 - 144
Endrin	0.0250	0.02332		ug/L		93	30 - 147
Endrin aldehyde	0.0250	0.02639		ug/L		106	51 - 113
Heptachlor	0.0250	0.01882		ug/L		75	34 - 140
Heptachlor epoxide	0.0250	0.02036		ug/L		81	37 - 142
Methoxychlor	0.0250	0.02060		ug/L		82	41 - 140
Surrogate	LCS LCS		Limits				
	%Recovery	Qualifier					
Tetrachloro-m-xylene	84		20 - 138				
Tetrachloro-m-xylene	84		20 - 138				
DCB Decachlorobiphenyl (Surr)	94		43 - 143				
DCB Decachlorobiphenyl (Surr)	77		43 - 143				

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# QC Sample Results

Client: ALS Environmental  
Project/Site: 3292622

Job ID: 180-153776-1

## Method: EPA 608.3 - Organochlorine Pesticides in Water (Continued)

**Lab Sample ID: LCSD 180-429797/3-A**  
**Matrix: Water**  
**Analysis Batch: 429961**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 429797**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Aldrin	0.0250	0.02200		ug/L		88	42 - 140	10	35	
alpha-BHC	0.0250	0.02204		ug/L		88	37 - 140	9	35	
beta-BHC	0.0250	0.02058		ug/L		82	17 - 147	8	35	
gamma-BHC (Lindane)	0.0250	0.02245		ug/L		90	32 - 140	9	35	
delta-BHC	0.0250	0.01751		ug/L		70	19 - 140	7	35	
4,4'-DDD	0.0250	0.02689		ug/L		108	31 - 141	6	35	
4,4'-DDE	0.0250	0.02544		ug/L		102	30 - 145	5	35	
4,4'-DDT	0.0250	0.02200		ug/L		88	25 - 150	4	35	
Dieldrin	0.0250	0.02468		ug/L		99	36 - 146	5	35	
Endosulfan I	0.0250	0.02137		ug/L		85	45 - 150	10	28	
Endosulfan II	0.0250	0.02395		ug/L		96	10 - 150	5	35	
Endosulfan sulfate	0.0250	0.02298		ug/L		92	26 - 144	8	35	
Endrin	0.0250	0.02479		ug/L		99	30 - 147	6	35	
Endrin aldehyde	0.0250	0.02703		ug/L		108	51 - 113	2	26	
Heptachlor	0.0250	0.02107		ug/L		84	34 - 140	11	35	
Heptachlor epoxide	0.0250	0.02277		ug/L		91	37 - 142	11	26	
Methoxychlor	0.0250	0.02166		ug/L		87	41 - 140	5	24	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
Tetrachloro-m-xylene	91		20 - 138
Tetrachloro-m-xylene	94		20 - 138
DCB Decachlorobiphenyl (Surr)	104		43 - 143
DCB Decachlorobiphenyl (Surr)	81		43 - 143

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# QC Association Summary

Client: ALS Environmental  
Project/Site: 3292622

Job ID: 180-153776-1

## GC Semi VOA

### Prep Batch: 429673

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-153776-1	3292622-007	Total/NA	Water	608	
180-153776-2	3292622-008	Total/NA	Water	608	
MB 180-429673/1-A	Method Blank	Total/NA	Water	608	
LCS 180-429673/2-A	Lab Control Sample	Total/NA	Water	608	
LCSD 180-429673/3-A	Lab Control Sample Dup	Total/NA	Water	608	

### Prep Batch: 429797

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-153776-3	3292622-009	Total/NA	Water	608	
MB 180-429797/1-A	Method Blank	Total/NA	Water	608	
LCS 180-429797/2-A	Lab Control Sample	Total/NA	Water	608	
LCSD 180-429797/3-A	Lab Control Sample Dup	Total/NA	Water	608	

### Analysis Batch: 429842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-153776-1	3292622-007	Total/NA	Water	EPA 608.3	429673
180-153776-2	3292622-008	Total/NA	Water	EPA 608.3	429673
MB 180-429673/1-A	Method Blank	Total/NA	Water	EPA 608.3	429673
LCS 180-429673/2-A	Lab Control Sample	Total/NA	Water	EPA 608.3	429673
LCSD 180-429673/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 608.3	429673

### Analysis Batch: 429961

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-153776-3	3292622-009	Total/NA	Water	EPA 608.3	429797
MB 180-429797/1-A	Method Blank	Total/NA	Water	EPA 608.3	429797
LCS 180-429797/2-A	Lab Control Sample	Total/NA	Water	EPA 608.3	429797
LCSD 180-429797/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 608.3	429797

Eurofins Pittsburgh




301 Fulling Mill Road  
Middletown, PA 17057  
P. 717-944-5541  
F. 717-944-1430

**CHAIN OF CUSTODY/  
REQUEST FOR ANALYSIS**  
ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT /  
SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: **1** of **1**  
ALS Quote #: **40-3292622**

Client Name: ALS Environmental		Container Type: A		Receipt Information (completed by Receiving Lab)			
Address: 301 Fulling Mill Road		Container Size: 1L		W.O. Temp: _____ Therm ID: _____			
Middletown, PA 17057		Preservative: UNP		Courier/Tracking #: _____			
Contact: George Methlie		ANALYSES/METHOD REQUESTED				Purchase Order #: _____	
Phone#: 717-944-5541						Project Comments:	
Project Name/ #: 40-3292622						ALS Field Services: <input type="checkbox"/> Pickup <input type="checkbox"/> Labor <input type="checkbox"/> Composite Sampling <input type="checkbox"/> Rental Equipment Other: _____	
Bill To:						Sample/COC Comments	
TAT: <input checked="" type="checkbox"/> Normal-Standard TAT is 10-12 business days. <input type="checkbox"/> Rush-Subject to ALS approval and surcharges.						***Please provide standard EDD***	
Date Required: _____ Approved? _____							
Email? <input checked="" type="checkbox"/> -Y namdt.subcontract@alsglobal.com							
Fax? <input type="checkbox"/> -Y No.:							
Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	G or C	**Matrix	Enter Number of Containers Per Sample or Field Results Below.		
1 3292622-007	3/14/23	11:00	G	WW	1		
2 3292622-008	3/14/23	14:00	G	WW	1		
3 3292622-009	3/14/23	15:10	G	WW	1		
4							
5							
6							
7							
8							
9							
10							



180-153776 Chain of Custody

SAMPLER COMMENTS:		Data Deliverables		Special Processing		State Samples Collected In	
Reinquired By / Company Name		<input checked="" type="checkbox"/> Standard	<input type="checkbox"/> CLP-like	<input type="checkbox"/> USACE	<input type="checkbox"/> Navy	<input type="checkbox"/> NY	<input type="checkbox"/> NJ
Date	Time	<input type="checkbox"/> USACE/IOD	<input type="checkbox"/> Reportable to PADEP?	Sample Disposal		<input type="checkbox"/> PA	<input type="checkbox"/> NC
3-17-23	1800		Yes <input type="checkbox"/> No <input type="checkbox"/>	Lab <input type="checkbox"/>	Special <input type="checkbox"/>	<input type="checkbox"/> MD	other
			PWSID #	EDDS: Format Type-			

\* G=Grab, C=Composite \*\*Matrix - A=Air, DW=Drinking Water, GW=Groundwater, OI=Oil, OL=Other Liquid, SL=Sludge, SO=Soil, WF=Wipe, WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Middletown, PA 17057

# Login Sample Receipt Checklist

Client: ALS Environmental

Job Number: 180-153776-1

**Login Number: 153776**

**List Source: Eurofins Pittsburgh**

**List Number: 1**

**Creator: Abernathy, Eric 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.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
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.	N/A	
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	





301 Fulling Mill Road | Middletown, PA 17057 | Phone: 717-944-5541 | Fax: 717-944-1430 | [www.alsglobal.com](http://www.alsglobal.com)

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618  
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

Analytical Results Report For Maryland Environmental Services - Landfills

Report ID [233861 on 3/29/2023](#)

## Certificate of Analysis

Project Name:	<b>Eastern Sanitary Landfill</b>	Workorder:	<b>3292841</b>
Purchase Order:	<b>MA 3680</b>	Workorder ID:	<b>Eastern Sanitary Landfill</b>

Enclosed are the analytical results for samples received by the laboratory on Wednesday, March 15, 2023.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact George Methlie (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements.

The test results meet requirements of the current NELAP standards or state requirements, where applicable.

For a specific list of accredited analytes, refer to the certifications section of the ALS website at [www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads](http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads).

This laboratory report may not be reproduced, except in full, without the written approval of ALS Global.  
ALS Middletown: 301 Fulling Mill Road, Middletown, PA 17057 : 717-944-5541.

Recipient(s): Maryland Services-ENVOPS - Maryland Environmental Services - Landfills Cheryl Griffin - Maryland Environmental Services Liz Ostermann - Maryland Environmental Services Maryland Services-LF Data - Maryland Environmental Services
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**George Methlie**  
Project Coordinator

(ALS Digital Signature)

*This page is included as part of the Analytical Report and must be retained as a permanent record thereof.*



## Sample Summary

<u>Lab ID</u>	<u>Sample ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>	<u>Collector</u>	<u>Collection Company</u>
3292841001	Trip Blank	Water	03/15/2023 00:00	03/15/2023 16:53	CBC	Collected By Client
3292841002	Field Blank	Water	03/15/2023 11:15	03/15/2023 16:53	CBC	Collected By Client





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## Reference

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### Notes

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- Except as qualified, Clean Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 136.
- Except as qualified, Safe Drinking Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 141.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are performed in the laboratory and are therefore analyzed out of hold time.
- Method references listed on this report beginning with the prefix "S" followed by a method number (such as S2310B-97) refer to methods from "Standard Methods for the Examination of Water and Wastewater".
- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.
- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

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### Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND) above the MDL
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Practical Quantitation Limit for this Project
ND	Not Detected - indicates that the analyte was Not Detected
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits
#	Please reference the result in the Results Section for analyte-level flags.

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**Project** Eastern Sanitary Landfill  
**Workorder** 3292841

**Project Notations**

**Sample Notations**

**Lab ID**      **Sample ID**

**Result Notations**

**Notation Ref.**

- |   |                                                                                                                                         |
|---|-----------------------------------------------------------------------------------------------------------------------------------------|
| 1 | This compound was recovered above the 20 percent 8260C criteria in the continuing calibration verification associated with this sample. |
| 2 | The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.                                                             |
| 3 | This sample result was calculated and reported using Method SM2340B-2011.                                                               |



**Detected Results Summary**

Client Sample ID	Field Blank	Collected	03/15/2023 11:15
Lab Sample ID	3292841002	Lab Receipt	03/15/2023 16:53

<u>Compound</u>	<u>Result</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Flag</u>
<b>METALS</b>						
Sodium, Total	0.10J	mg/L	0.11	0.037	SW846 6020A	#
<b>WET CHEMISTRY</b>						
Ammonia-N	0.031J	mg/L	0.100	0.003	ASTM D6919-17	#
Chemical Oxygen Demand (COD)	52	mg/L	15	5	EPA 410.4	#



## Results

Client Sample ID	Trip Blank	Collected	03/15/2023 00:00
Lab Sample ID	3292841001	Lab Receipt	03/15/2023 16:53

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 13:02	TMP	C
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	0.22	SW846 8260C	1	03/23/2023 13:02	TMP	C
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 13:02	TMP	C
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 13:02	TMP	C
1,1-Dichloroethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 13:02	TMP	C
1,1-Dichloroethene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 13:02	TMP	C
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	0.60	SW846 8260C	1	03/23/2023 13:02	TMP	C
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.019	0.0047	SW846 8011	1	03/22/2023 18:35	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	7.0	1.5	SW846 8260C	1	03/23/2023 13:02	TMP	C
1,2-Dibromoethane	ND	ND	ug/L	0.019	0.0095	SW846 8011	1	03/22/2023 18:35	VLM	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 13:02	TMP	C
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	0.38	SW846 8260C	1	03/23/2023 13:02	TMP	C
1,2-Dichloroethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 13:02	TMP	C
1,2-Dichloropropane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 13:02	TMP	C
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 13:02	TMP	C
2-Butanone	ND	ND	ug/L	10.0	1.8	SW846 8260C	1	03/23/2023 13:02	TMP	C
2-Hexanone	ND	ND	ug/L	5.0	1.3	SW846 8260C	1	03/23/2023 13:02	TMP	C
4-Methyl-2-Pentanone(MIBK)	ND	ND	ug/L	5.0	1.5	SW846 8260C	1	03/23/2023 13:02	TMP	C
Acetone	ND	ND	ug/L	10.0	3.1	SW846 8260C	1	03/23/2023 13:02	TMP	C
Acrylonitrile	ND	ND	ug/L	5.0	1.2	SW846 8260C	1	03/23/2023 13:02	TMP	C
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 13:02	TMP	C
Bromochloromethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 13:02	TMP	C
Bromodichloromethane	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 13:02	TMP	C
Bromoform	ND	ND	ug/L	1.0	0.40	SW846 8260C	1	03/23/2023 13:02	TMP	C
Bromomethane	ND	ND,1	ug/L	1.0	0.39	SW846 8260C	1	03/23/2023 13:02	TMP	C
Carbon Disulfide	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 13:02	TMP	C
Carbon Tetrachloride	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 13:02	TMP	C
Chlorobenzene	ND	ND	ug/L	1.0	0.19	SW846 8260C	1	03/23/2023 13:02	TMP	C
Chlorodibromomethane	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 13:02	TMP	C
Chloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 13:02	TMP	C
Chloroform	ND	ND	ug/L	1.0	0.21	SW846 8260C	1	03/23/2023 13:02	TMP	C
Chloromethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 13:02	TMP	C
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 13:02	TMP	C
cis-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 13:02	TMP	C
Cyclohexane	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 13:02	TMP	C
Dibromomethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 13:02	TMP	C
Dichlorodifluoromethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 13:02	TMP	C
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 13:02	TMP	C
Iodomethane	ND	ND	ug/L	1.0	0.42	SW846 8260C	1	03/23/2023 13:02	TMP	C
Methyl t-Butyl Ether	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 13:02	TMP	C
Methylene Chloride	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 13:02	TMP	C
mp-Xylene	ND	ND	ug/L	2.0	0.52	SW846 8260C	1	03/23/2023 13:02	TMP	C
o-Xylene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 13:02	TMP	C
Styrene	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 13:02	TMP	C
Tetrachloroethene	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 13:02	TMP	C
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 13:02	TMP	C
Total Xylenes	ND	ND	ug/L	3.0	0.66	SW846 8260C	1	03/23/2023 13:02	TMP	C



## Results

Client Sample ID	Trip Blank	Collected	03/15/2023 00:00
Lab Sample ID	3292841001	Lab Receipt	03/15/2023 16:53

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.26	SW846 8260C	1	03/23/2023 13:02	TMP	C
trans-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 13:02	TMP	C
trans-1,4-Dichloro-2-butene	ND	ND	ug/L	3.0	0.86	SW846 8260C	1	03/23/2023 13:02	TMP	C
Trichloroethene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 13:02	TMP	C
Trichlorofluoromethane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 13:02	TMP	C
Vinyl Acetate	ND	ND	ug/L	5.0	1.6	SW846 8260C	1	03/23/2023 13:02	TMP	C
Vinyl Chloride	ND	ND	ug/L	1.0	0.30	SW846 8260C	1	03/23/2023 13:02	TMP	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	95.3%	62 - 133	03/23/2023 13:02	
1-Chloro-2-Fluorobenzene	348-51-6	88.2%	70 - 130	03/22/2023 18:35	
4-Bromofluorobenzene	460-00-4	108%	79 - 114	03/23/2023 13:02	
Dibromofluoromethane	1868-53-7	95.3%	78 - 116	03/23/2023 13:02	
Toluene-d8	2037-26-5	102%	76 - 127	03/23/2023 13:02	



## Results

Client Sample ID	Field Blank	Collected	03/15/2023 11:15
Lab Sample ID	3292841002	Lab Receipt	03/15/2023 16:53

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:19	RMD	E2
Arsenic, Total	ND	ND	mg/L	0.0033	0.0011	SW846 6020A	1	03/20/2023 20:19	RMD	E2
Barium, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:19	RMD	E2
Beryllium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:19	RMD	E2
Cadmium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:19	RMD	E2
Calcium, Total	ND	ND	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:19	RMD	E2
Chromium, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:19	RMD	E2
Cobalt, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:19	RMD	E2
Copper, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:19	RMD	E2
Hardness	ND	ND,3	mg/L	0.33	0.11	EPA 200.7	1	03/20/2023 20:26	MO	E1
Iron, Total	ND	ND	mg/L	0.056	0.019	SW846 6020A	1	03/20/2023 20:19	RMD	E2
Lead, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:19	RMD	E2
Magnesium, Total	ND	ND	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:19	RMD	E2
Manganese, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:19	RMD	E2
Mercury, Total	ND	ND	mg/L	0.00050	0.00017	SW846 7470A	1	03/16/2023 16:58	WDA	E
Nickel, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:19	RMD	E2
Potassium, Total	ND	ND	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:19	RMD	E2
Selenium, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:19	RMD	E2
Silver, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:19	RMD	E2
Sodium, Total	0.10J	J	mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:19	RMD	E2
Thallium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:19	RMD	E2
Vanadium, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:19	RMD	E2
Zinc, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:19	RMD	E2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 13:25	TMP	C
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	0.22	SW846 8260C	1	03/23/2023 13:25	TMP	C
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 13:25	TMP	C
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 13:25	TMP	C
1,1-Dichloroethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 13:25	TMP	C
1,1-Dichloroethene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 13:25	TMP	C
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	0.60	SW846 8260C	1	03/23/2023 13:25	TMP	C
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.020	0.0047	SW846 8011	1	03/22/2023 18:50	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	7.0	1.5	SW846 8260C	1	03/23/2023 13:25	TMP	C
1,2-Dibromoethane	ND	ND	ug/L	0.020	0.0096	SW846 8011	1	03/22/2023 18:50	VLM	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 13:25	TMP	C
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	0.38	SW846 8260C	1	03/23/2023 13:25	TMP	C
1,2-Dichloroethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 13:25	TMP	C
1,2-Dichloropropane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 13:25	TMP	C
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 13:25	TMP	C
2-Butanone	ND	ND	ug/L	10.0	1.8	SW846 8260C	1	03/23/2023 13:25	TMP	C
2-Hexanone	ND	ND	ug/L	5.0	1.3	SW846 8260C	1	03/23/2023 13:25	TMP	C
4-Methyl-2-Pentanone(MIBK)	ND	ND	ug/L	5.0	1.5	SW846 8260C	1	03/23/2023 13:25	TMP	C
Acetone	ND	ND	ug/L	10.0	3.1	SW846 8260C	1	03/23/2023 13:25	TMP	C
Acrylonitrile	ND	ND	ug/L	5.0	1.2	SW846 8260C	1	03/23/2023 13:25	TMP	C



## Results

Client Sample ID	Field Blank	Collected	03/15/2023 11:15
Lab Sample ID	3292841002	Lab Receipt	03/15/2023 16:53

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 13:25	TMP	C
Bromochloromethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 13:25	TMP	C
Bromodichloromethane	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 13:25	TMP	C
Bromoform	ND	ND	ug/L	1.0	0.40	SW846 8260C	1	03/23/2023 13:25	TMP	C
Bromomethane	ND	ND,1	ug/L	1.0	0.39	SW846 8260C	1	03/23/2023 13:25	TMP	C
Carbon Disulfide	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 13:25	TMP	C
Carbon Tetrachloride	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 13:25	TMP	C
Chlorobenzene	ND	ND	ug/L	1.0	0.19	SW846 8260C	1	03/23/2023 13:25	TMP	C
Chlorodibromomethane	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 13:25	TMP	C
Chloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 13:25	TMP	C
Chloroform	ND	ND	ug/L	1.0	0.21	SW846 8260C	1	03/23/2023 13:25	TMP	C
Chloromethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 13:25	TMP	C
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 13:25	TMP	C
cis-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 13:25	TMP	C
Cyclohexane	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 13:25	TMP	C
Dibromomethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 13:25	TMP	C
Dichlorodifluoromethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 13:25	TMP	C
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 13:25	TMP	C
Iodomethane	ND	ND	ug/L	1.0	0.42	SW846 8260C	1	03/23/2023 13:25	TMP	C
Methyl t-Butyl Ether	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 13:25	TMP	C
Methylene Chloride	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 13:25	TMP	C
mp-Xylene	ND	ND	ug/L	2.0	0.52	SW846 8260C	1	03/23/2023 13:25	TMP	C
o-Xylene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 13:25	TMP	C
Styrene	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 13:25	TMP	C
Tetrachloroethene	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 13:25	TMP	C
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 13:25	TMP	C
Total Xylenes	ND	ND	ug/L	3.0	0.66	SW846 8260C	1	03/23/2023 13:25	TMP	C
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.26	SW846 8260C	1	03/23/2023 13:25	TMP	C
trans-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 13:25	TMP	C
trans-1,4-Dichloro-2-butene	ND	ND	ug/L	3.0	0.86	SW846 8260C	1	03/23/2023 13:25	TMP	C
Trichloroethene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 13:25	TMP	C
Trichlorofluoromethane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 13:25	TMP	C
Vinyl Acetate	ND	ND	ug/L	5.0	1.6	SW846 8260C	1	03/23/2023 13:25	TMP	C
Vinyl Chloride	ND	ND	ug/L	1.0	0.30	SW846 8260C	1	03/23/2023 13:25	TMP	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	95.6%	62 - 133	03/23/2023 13:25	
1-Chloro-2-Fluorobenzene	348-51-6	95.5%	70 - 130	03/22/2023 18:50	
4-Bromofluorobenzene	460-00-4	107%	79 - 114	03/23/2023 13:25	
Dibromofluoromethane	1868-53-7	94.4%	78 - 116	03/23/2023 13:25	
Toluene-d8	2037-26-5	99.7%	76 - 127	03/23/2023 13:25	

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	Field Blank	Collected	03/15/2023 11:15
Lab Sample ID	3292841002	Lab Receipt	03/15/2023 16:53

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	ND	ND,2	mg/L	5	5	SM2320B-2011	1	03/27/2023 22:01	NML	F
Ammonia-N	0.031J	J	mg/L	0.100	0.003	ASTM D6919-17	1	03/21/2023 05:52	NML	G
Chemical Oxygen Demand (COD)	52		mg/L	15	5	EPA 410.4	1	03/20/2023 11:42	KMS	G
Chloride	ND	ND	mg/L	2.0	1.5	EPA 300.0	2	03/16/2023 17:28	J1W	F
Nitrate-N	ND	ND	mg/L	1.0	0.22	EPA 300.0	2	03/16/2023 17:28	J1W	F
Sulfate	ND	ND	mg/L	2.0	1.5	EPA 300.0	2	03/16/2023 17:28	J1W	F
Total Dissolved Solids	ND	ND	mg/L	25	25	SM2540C-15	1	03/17/2023 06:31	SMS	F





### Sample - Method Cross Reference Table

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3292841001	Trip Blank	SW846 8011	SW846 8011	
		SW846 8260C	N/A	
3292841002	Field Blank	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
		SM2540C-15	N/A	



**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Lab ID	Sample ID	Preparation Method	Prep Batch	Prep Date/Time	By	Analysis Method	Anly Batch
3292841001	Trip Blank	SW846 8011	964331	03/22/2023 15:05	VLM	SW846 8011	964428
		N/A	N/A	N/A		SW846 8260C	965300
3292841002	Field Blank	EPA TRMD	962825	03/17/2023 10:29	JSE	EPA 200.7	963436
		SW846 3015A	962865	03/20/2023 13:13	JSE	SW846 6020A	963427
		SW846 7470A	962582	03/16/2023 11:40	WDA	SW846 7470A	962903
		SW846 8011	964331	03/22/2023 15:05	VLM	SW846 8011	964428
		N/A	N/A	N/A		SW846 8260C	965300
		N/A	N/A	N/A		ASTM D6919-17	963088
		N/A	N/A	N/A		EPA 300.0	962587
		N/A	N/A	N/A		EPA 410.4	963080
		N/A	N/A	N/A		SM2320B-2011	966333
N/A	N/A	N/A		SM2540C-15	962576		



3292841

Logged By: SLS  
PM: GJM



# CHAIN OF CUSTODY / SAMPLE INFORMATION FORM

Maryland Environmental Service • 259 Najoles Rd. • Millersville, MD 21108 • (410) 729-8200 • FAX (410) 72

**Laboratory:** ALS

**Sampler:** Laura Russell / Brooke Zibell / To.

**Client Name:** Maryland Environmental Service, Attn: Cheryl Griffin

**Facility Name:** Eastern Sanitary Landfill

**Client Address:** 259 Najoles Rd, Millersville, MD 21108 410-729-8356

**Project# / Purpose:** 3926-2000

**Invoice To:** Same

**Turnaround Time:** Routine

Sample #	Sample ID	Grab or Composite	Container Description/Preservation Status	Matrix	# of Containers	Date	Time	Analyses Required/Comments
1	Trip Blank	N/A	40 mL G Na2S2O3	W	2	3-15-23	--	VOCs (8011)
2	Field Blank	G	40 mL G HCl	W	2	3-15-23	--	VOCs (8260)
			40 mL G Na2S2O3	W	2	3-15-23	1115	VOCs (8011)
			40 mL G HCl	W	2			VOCs (8260)
			125 mL P HNO3	W	1			Metals - Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn (6020), Hg (7470), Hardness
			1 L P unpreserved	W	1			Alkalinity, TDS, Nitrate (EPA 300), Sulfate, Chloride
			250 mL P H2SO4	W	1			Ammonia, COD

Temp By: **ME** | WO Temp (°C) **0°** | Therm ID **570**

- Receipt Info Completed By: **DPB**
- Cooler Custody Seal Intact: **Y N N A**
- Sample Custody Seal Intact: **Y N N A**
- Received on Ice: **Y N N A**
- Cooler & Samples Intact: **Y N N A**
- Correct Containers Provided: **Y N N A**
- Sample Label/COC Agree: **Y N N A**
- Adequate Sample Volumes: **Y N N A**
- CR6 Samples Filtered: **Y N N A**
- OP Samples Filtered: **Y N N A**
- VOA Headspace Present: **Y N N A**
- Voa Trip Blank: **Y N N A**
- NIS 4 Days?: **Y**
- Rad Screen (UCI): **Y**
- Courier/Tracking #: **Y**
- SDWA Compliance: **Y**
- PWSID: **Y**
- WV Containers 0-6°C: **Y**

Transferred by: **Laura Russell** | Received by: **Cheryl Griffin** | Date: **3-15-23** | Time: **1515**

Transferred by: **Brooke Zibell** | Received by: **Cheryl Griffin** | Date: **3-15-23** | Time: **1653**

Transferred by: **Brooke Zibell** | Received by: **Cheryl Griffin** | Date: **3-15-23** | Time: **1653**



301 Fulling Mill Road | Middletown, PA 17057 | Phone: 717-944-5541 | Fax: 717-944-1430 | [www.alsglobal.com](http://www.alsglobal.com)

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618  
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

Analytical Results Report For Maryland Environmental Services - Landfills

Report ID [233841 on 3/29/2023](#)

## Certificate of Analysis

Project Name:	<b>Eastern Sanitary Landfill</b>	Workorder:	<b>3292842</b>
Purchase Order:	<b>MA 3680</b>	Workorder ID:	<b>Eastern Sanitary Landfill</b>

Enclosed are the analytical results for samples received by the laboratory on Wednesday, March 15, 2023.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact George Methlie (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements.

The test results meet requirements of the current NELAP standards or state requirements, where applicable.

For a specific list of accredited analytes, refer to the certifications section of the ALS website at [www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads](http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads).

This laboratory report may not be reproduced, except in full, without the written approval of ALS Global.  
ALS Middletown: 301 Fulling Mill Road, Middletown, PA 17057 : 717-944-5541.

Recipient(s): Maryland Services-ENVOPS - Maryland Environmental Services - Landfills Cheryl Griffin - Maryland Environmental Services Liz Ostermann - Maryland Environmental Services Maryland Services-LF Data - Maryland Environmental Services
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**George Methlie**  
Project Coordinator

(ALS Digital Signature)

*This page is included as part of the Analytical Report and must be retained as a permanent record thereof.*



## Sample Summary

<u>Lab ID</u>	<u>Sample ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>	<u>Collector</u>	<u>Collection Company</u>
3292842001	GWM-3	Water	03/15/2023 10:45	03/15/2023 16:53	CBC	Collected By Client
3292842002	GWM-10	Water	03/15/2023 12:10	03/15/2023 16:53	CBC	Collected By Client
3292842003	MW-15A	Water	03/15/2023 12:50	03/15/2023 16:53	CBC	Collected By Client
3292842004	GWM-8	Water	03/15/2023 14:50	03/15/2023 16:53	CBC	Collected By Client



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## Reference

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### Notes

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- Except as qualified, Clean Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 136.
- Except as qualified, Safe Drinking Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 141.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are performed in the laboratory and are therefore analyzed out of hold time.
- Method references listed on this report beginning with the prefix "S" followed by a method number (such as S2310B-97) refer to methods from "Standard Methods for the Examination of Water and Wastewater".
- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.
- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

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### Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND) above the MDL
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Practical Quantitation Limit for this Project
ND	Not Detected - indicates that the analyte was Not Detected
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits
#	Please reference the result in the Results Section for analyte-level flags.

---



**Project** Eastern Sanitary Landfill  
**Workorder** 3292842

**Project Notations**

**Sample Notations**

**Lab ID**      **Sample ID**

**Result Notations**

**Notation Ref.**

- |   |                                                                                                                                         |
|---|-----------------------------------------------------------------------------------------------------------------------------------------|
| 1 | This compound was recovered above the 20 percent 8260C criteria in the continuing calibration verification associated with this sample. |
| 2 | The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.                                                             |
| 3 | This sample result was calculated and reported using Method SM2340B-2011.                                                               |



### Detected Results Summary

Client Sample ID	GWM-3	Collected	03/15/2023 10:45
Lab Sample ID	3292842001	Lab Receipt	03/15/2023 16:53

Compound	Result	Units	RDL	MDL	Method	Flag
<b>METALS</b>						
Barium, Total	0.067	mg/L	0.0056	0.0019	SW846 6020A	#
Calcium, Total	8.3	mg/L	0.11	0.037	SW846 6020A	#
Chromium, Total	0.0067	mg/L	0.0022	0.00074	SW846 6020A	#
Cobalt, Total	0.0037J	mg/L	0.0056	0.0019	SW846 6020A	#
Hardness	47.0	mg/L	0.33	0.11	EPA 200.7	#
Iron, Total	0.043J	mg/L	0.056	0.019	SW846 6020A	#
Magnesium, Total	6.7	mg/L	0.11	0.037	SW846 6020A	#
Manganese, Total	0.012	mg/L	0.0056	0.0019	SW846 6020A	#
Mercury, Total	0.00034J	mg/L	0.00050	0.00017	SW846 7470A	#
Nickel, Total	0.0040J	mg/L	0.0056	0.0019	SW846 6020A	#
Potassium, Total	1.9	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	19.1	mg/L	0.11	0.037	SW846 6020A	#
Zinc, Total	0.0042J	mg/L	0.0056	0.0019	SW846 6020A	#
<b>WET CHEMISTRY</b>						
Alkalinity, Total	14	mg/L	5	5	SM2320B-2011	#
Ammonia-N	0.233	mg/L	0.100	0.03	ASTM D6919-17	#
Chemical Oxygen Demand (COD)	17	mg/L	15	5	EPA 410.4	#
Chloride	31.2	mg/L	2.0	1.5	EPA 300.0	#
Nitrate-N	2.1	mg/L	1.0	0.22	EPA 300.0	#
Sulfate	24.2	mg/L	2.0	1.5	EPA 300.0	#
Total Dissolved Solids	88	mg/L	25	25	SM2540C-15	#





### Detected Results Summary

Client Sample ID	GWM-10	Collected	03/15/2023 12:10
Lab Sample ID	3292842002	Lab Receipt	03/15/2023 16:53

Compound	Result	Units	RDL	MDL	Method	Flag
<b>METALS</b>						
Barium, Total	0.028	mg/L	0.0056	0.0019	SW846 6020A	#
Cadmium, Total	0.0052	mg/L	0.0011	0.00037	SW846 6020A	#
Calcium, Total	2.3	mg/L	0.11	0.037	SW846 6020A	#
Chromium, Total	0.0036	mg/L	0.0022	0.00074	SW846 6020A	#
Cobalt, Total	0.033	mg/L	0.0056	0.0019	SW846 6020A	#
Copper, Total	0.046	mg/L	0.0056	0.0019	SW846 6020A	#
Hardness	9.5	mg/L	0.33	0.11	EPA 200.7	#
Iron, Total	0.078	mg/L	0.056	0.019	SW846 6020A	#
Magnesium, Total	1.1	mg/L	0.11	0.037	SW846 6020A	#
Manganese, Total	0.11	mg/L	0.0056	0.0019	SW846 6020A	#
Nickel, Total	0.060	mg/L	0.0056	0.0019	SW846 6020A	#
Potassium, Total	1.6	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	3.0	mg/L	0.11	0.037	SW846 6020A	#
Zinc, Total	0.049	mg/L	0.0056	0.0019	SW846 6020A	#
<b>VOLATILE ORGANICS</b>						
2-Butanone	12.8	ug/L	10.0	1.8	SW846 8260C	#
<b>WET CHEMISTRY</b>						
Ammonia-N	0.156	mg/L	0.100	0.03	ASTM D6919-17	#
Chemical Oxygen Demand (COD)	8J	mg/L	15	5	EPA 410.4	#
Sulfate	16.8	mg/L	2.0	1.5	EPA 300.0	#
Total Dissolved Solids	42	mg/L	25	25	SM2540C-15	#



**Detected Results Summary**

Client Sample ID MW-15A Collected 03/15/2023 12:50  
 Lab Sample ID 3292842003 Lab Receipt 03/15/2023 16:53

<u>Compound</u>	<u>Result</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Flag</u>
<b>METALS</b>						
Barium, Total	0.029	mg/L	0.0056	0.0019	SW846 6020A	#
Beryllium, Total	0.00049J	mg/L	0.0011	0.00037	SW846 6020A	#
Cadmium, Total	0.0058	mg/L	0.0011	0.00037	SW846 6020A	#
Calcium, Total	2.2	mg/L	0.11	0.037	SW846 6020A	#
Chromium, Total	0.0017J	mg/L	0.0022	0.00074	SW846 6020A	#
Cobalt, Total	0.032	mg/L	0.0056	0.0019	SW846 6020A	#
Copper, Total	0.046	mg/L	0.0056	0.0019	SW846 6020A	#
Hardness	9.5	mg/L	0.33	0.11	EPA 200.7	#
Iron, Total	0.070	mg/L	0.056	0.019	SW846 6020A	#
Magnesium, Total	1.1	mg/L	0.11	0.037	SW846 6020A	#
Manganese, Total	0.11	mg/L	0.0056	0.0019	SW846 6020A	#
Nickel, Total	0.060	mg/L	0.0056	0.0019	SW846 6020A	#
Potassium, Total	1.6	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	3.1	mg/L	0.11	0.037	SW846 6020A	#
Zinc, Total	0.050	mg/L	0.0056	0.0019	SW846 6020A	#
<b>WET CHEMISTRY</b>						
Ammonia-N	0.144	mg/L	0.100	0.03	ASTM D6919-17	#
Chemical Oxygen Demand (COD)	29	mg/L	15	5	EPA 410.4	#
Sulfate	17.1	mg/L	2.0	1.5	EPA 300.0	#
Total Dissolved Solids	43	mg/L	25	25	SM2540C-15	#



### Detected Results Summary

Client Sample ID	GWM-8	Collected	03/15/2023 14:50
Lab Sample ID	3292842004	Lab Receipt	03/15/2023 16:53

Compound	Result	Units	RDL	MDL	Method	Flag
<b>METALS</b>						
Barium, Total	0.071	mg/L	0.0056	0.0019	SW846 6020A	#
Cadmium, Total	0.0012	mg/L	0.0011	0.00037	SW846 6020A	#
Calcium, Total	8.9	mg/L	0.11	0.037	SW846 6020A	#
Chromium, Total	0.0030	mg/L	0.0022	0.00074	SW846 6020A	#
Cobalt, Total	0.0030J	mg/L	0.0056	0.0019	SW846 6020A	#
Hardness	24.9	mg/L	0.33	0.11	EPA 200.7	#
Iron, Total	0.95	mg/L	0.056	0.019	SW846 6020A	#
Magnesium, Total	0.90	mg/L	0.11	0.037	SW846 6020A	#
Manganese, Total	0.045	mg/L	0.0056	0.0019	SW846 6020A	#
Nickel, Total	0.0049J	mg/L	0.0056	0.0019	SW846 6020A	#
Potassium, Total	6.6	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	49.7	mg/L	0.11	0.037	SW846 6020A	#
Zinc, Total	0.0072	mg/L	0.0056	0.0019	SW846 6020A	#
<b>WET CHEMISTRY</b>						
Alkalinity, Total	29	mg/L	5	5	SM2320B-2011	#
Ammonia-N	0.119	mg/L	0.100	0.03	ASTM D6919-17	#
Chemical Oxygen Demand (COD)	14J	mg/L	15	5	EPA 410.4	#
Chloride	17.5	mg/L	2.0	1.5	EPA 300.0	#
Nitrate-N	0.29J	mg/L	1.0	0.22	EPA 300.0	#
Sulfate	86.5	mg/L	2.0	1.5	EPA 300.0	#
Total Dissolved Solids	192	mg/L	25	25	SM2540C-15	#



## Results

Client Sample ID	GWM-3	Collected	03/15/2023 10:45
Lab Sample ID	3292842001	Lab Receipt	03/15/2023 16:53

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:22	RMD	E2
Arsenic, Total	ND	ND	mg/L	0.0033	0.0011	SW846 6020A	1	03/20/2023 20:22	RMD	E2
Barium, Total	0.067		mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:22	RMD	E2
Beryllium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:22	RMD	E2
Cadmium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:22	RMD	E2
Calcium, Total	8.3		mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:22	RMD	E2
Chromium, Total	0.0067		mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:22	RMD	E2
Cobalt, Total	0.0037J	J	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:22	RMD	E2
Copper, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:22	RMD	E2
Hardness	47.0	3	mg/L	0.33	0.11	EPA 200.7	1	03/20/2023 20:29	MO	E1
Iron, Total	0.043J	J	mg/L	0.056	0.019	SW846 6020A	1	03/20/2023 20:22	RMD	E2
Lead, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:22	RMD	E2
Magnesium, Total	6.7		mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:22	RMD	E2
Manganese, Total	0.012		mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:22	RMD	E2
Mercury, Total	0.00034J	J	mg/L	0.00050	0.00017	SW846 7470A	1	03/16/2023 16:59	WDA	E
Nickel, Total	0.0040J	J	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:22	RMD	E2
Potassium, Total	1.9		mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:22	RMD	E2
Selenium, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:22	RMD	E2
Silver, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:22	RMD	E2
Sodium, Total	19.1		mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:22	RMD	E2
Thallium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:22	RMD	E2
Vanadium, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:22	RMD	E2
Zinc, Total	0.0042J	J	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:22	RMD	E2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 17:13	TMP	C
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	0.22	SW846 8260C	1	03/23/2023 17:13	TMP	C
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 17:13	TMP	C
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 17:13	TMP	C
1,1-Dichloroethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 17:13	TMP	C
1,1-Dichloroethene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 17:13	TMP	C
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	0.60	SW846 8260C	1	03/23/2023 17:13	TMP	C
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.020	0.0048	SW846 8011	1	03/22/2023 19:06	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	7.0	1.5	SW846 8260C	1	03/23/2023 17:13	TMP	C
1,2-Dibromoethane	ND	ND	ug/L	0.020	0.0097	SW846 8011	1	03/22/2023 19:06	VLM	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 17:13	TMP	C
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	0.38	SW846 8260C	1	03/23/2023 17:13	TMP	C
1,2-Dichloroethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 17:13	TMP	C
1,2-Dichloropropane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 17:13	TMP	C
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 17:13	TMP	C
2-Butanone	ND	ND	ug/L	10.0	1.8	SW846 8260C	1	03/23/2023 17:13	TMP	C
2-Hexanone	ND	ND	ug/L	5.0	1.3	SW846 8260C	1	03/23/2023 17:13	TMP	C
4-Methyl-2-Pentanone(MIBK)	ND	ND	ug/L	5.0	1.5	SW846 8260C	1	03/23/2023 17:13	TMP	C
Acetone	ND	ND	ug/L	10.0	3.1	SW846 8260C	1	03/23/2023 17:13	TMP	C
Acrylonitrile	ND	ND	ug/L	5.0	1.2	SW846 8260C	1	03/23/2023 17:13	TMP	C



## Results

Client Sample ID	GWM-3	Collected	03/15/2023 10:45
Lab Sample ID	3292842001	Lab Receipt	03/15/2023 16:53

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 17:13	TMP	C
Bromochloromethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 17:13	TMP	C
Bromodichloromethane	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 17:13	TMP	C
Bromoform	ND	ND	ug/L	1.0	0.40	SW846 8260C	1	03/23/2023 17:13	TMP	C
Bromomethane	ND	ND,1	ug/L	1.0	0.39	SW846 8260C	1	03/23/2023 17:13	TMP	C
Carbon Disulfide	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 17:13	TMP	C
Carbon Tetrachloride	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 17:13	TMP	C
Chlorobenzene	ND	ND	ug/L	1.0	0.19	SW846 8260C	1	03/23/2023 17:13	TMP	C
Chlorodibromomethane	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 17:13	TMP	C
Chloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 17:13	TMP	C
Chloroform	ND	ND	ug/L	1.0	0.21	SW846 8260C	1	03/23/2023 17:13	TMP	C
Chloromethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 17:13	TMP	C
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 17:13	TMP	C
cis-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 17:13	TMP	C
Cyclohexane	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 17:13	TMP	C
Dibromomethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 17:13	TMP	C
Dichlorodifluoromethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 17:13	TMP	C
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 17:13	TMP	C
Iodomethane	ND	ND	ug/L	1.0	0.42	SW846 8260C	1	03/23/2023 17:13	TMP	C
Methyl t-Butyl Ether	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 17:13	TMP	C
Methylene Chloride	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 17:13	TMP	C
mp-Xylene	ND	ND	ug/L	2.0	0.52	SW846 8260C	1	03/23/2023 17:13	TMP	C
o-Xylene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 17:13	TMP	C
Styrene	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 17:13	TMP	C
Tetrachloroethene	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 17:13	TMP	C
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 17:13	TMP	C
Total Xylenes	ND	ND	ug/L	3.0	0.66	SW846 8260C	1	03/23/2023 17:13	TMP	C
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.26	SW846 8260C	1	03/23/2023 17:13	TMP	C
trans-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 17:13	TMP	C
trans-1,4-Dichloro-2-butene	ND	ND	ug/L	3.0	0.86	SW846 8260C	1	03/23/2023 17:13	TMP	C
Trichloroethene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 17:13	TMP	C
Trichlorofluoromethane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 17:13	TMP	C
Vinyl Acetate	ND	ND	ug/L	5.0	1.6	SW846 8260C	1	03/23/2023 17:13	TMP	C
Vinyl Chloride	ND	ND	ug/L	1.0	0.30	SW846 8260C	1	03/23/2023 17:13	TMP	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	96.4%	62 - 133	03/23/2023 17:13	
1-Chloro-2-Fluorobenzene	348-51-6	83.4%	70 - 130	03/22/2023 19:06	
4-Bromofluorobenzene	460-00-4	108%	79 - 114	03/23/2023 17:13	
Dibromofluoromethane	1868-53-7	95.2%	78 - 116	03/23/2023 17:13	
Toluene-d8	2037-26-5	100%	76 - 127	03/23/2023 17:13	

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	GWM-3	Collected	03/15/2023 10:45
Lab Sample ID	3292842001	Lab Receipt	03/15/2023 16:53

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	14	2	mg/L	5	5	SM2320B-2011	1	03/27/2023 22:17	NML	G
Ammonia-N	0.233		mg/L	0.100	0.03	ASTM D6919-17	10	03/21/2023 05:39	NML	H
Chemical Oxygen Demand (COD)	17		mg/L	15	5	EPA 410.4	1	03/17/2023 15:10	KMS	H
Chloride	31.2		mg/L	2.0	1.5	EPA 300.0	2	03/16/2023 17:39	J1W	G
Nitrate-N	2.1		mg/L	1.0	0.22	EPA 300.0	2	03/16/2023 17:39	J1W	G
Sulfate	24.2		mg/L	2.0	1.5	EPA 300.0	2	03/16/2023 17:39	J1W	G
Total Dissolved Solids	88		mg/L	25	25	SM2540C-15	1	03/17/2023 06:31	SMS	G



## Results

Client Sample ID	GWM-10	Collected	03/15/2023 12:10
Lab Sample ID	3292842002	Lab Receipt	03/15/2023 16:53

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:24	RMD	E2
Arsenic, Total	ND	ND	mg/L	0.0033	0.0011	SW846 6020A	1	03/20/2023 20:24	RMD	E2
Barium, Total	0.028		mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:24	RMD	E2
Beryllium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:24	RMD	E2
Cadmium, Total	0.0052		mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:24	RMD	E2
Calcium, Total	2.3		mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:24	RMD	E2
Chromium, Total	0.0036		mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:24	RMD	E2
Cobalt, Total	0.033		mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:24	RMD	E2
Copper, Total	0.046		mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:24	RMD	E2
Hardness	9.5	3	mg/L	0.33	0.11	EPA 200.7	1	03/20/2023 20:46	MO	E1
Iron, Total	0.078		mg/L	0.056	0.019	SW846 6020A	1	03/20/2023 20:24	RMD	E2
Lead, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:24	RMD	E2
Magnesium, Total	1.1		mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:24	RMD	E2
Manganese, Total	0.11		mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:24	RMD	E2
Mercury, Total	ND	ND	mg/L	0.00050	0.00017	SW846 7470A	1	03/16/2023 17:00	WDA	E
Nickel, Total	0.060		mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:24	RMD	E2
Potassium, Total	1.6		mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:24	RMD	E2
Selenium, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:24	RMD	E2
Silver, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:24	RMD	E2
Sodium, Total	3.0		mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:24	RMD	E2
Thallium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:24	RMD	E2
Vanadium, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:24	RMD	E2
Zinc, Total	0.049		mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:24	RMD	E2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 17:36	TMP	C
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	0.22	SW846 8260C	1	03/23/2023 17:36	TMP	C
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 17:36	TMP	C
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 17:36	TMP	C
1,1-Dichloroethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 17:36	TMP	C
1,1-Dichloroethene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 17:36	TMP	C
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	0.60	SW846 8260C	1	03/23/2023 17:36	TMP	C
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	7.0	1.5	SW846 8260C	1	03/23/2023 17:36	TMP	C
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.020	0.0047	SW846 8011	1	03/22/2023 19:21	VLM	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 17:36	TMP	C
1,2-Dibromoethane	ND	ND	ug/L	0.020	0.0096	SW846 8011	1	03/22/2023 19:21	VLM	A
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	0.38	SW846 8260C	1	03/23/2023 17:36	TMP	C
1,2-Dichloroethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 17:36	TMP	C
1,2-Dichloropropane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 17:36	TMP	C
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 17:36	TMP	C
2-Butanone	12.8		ug/L	10.0	1.8	SW846 8260C	1	03/23/2023 17:36	TMP	C
2-Hexanone	ND	ND	ug/L	5.0	1.3	SW846 8260C	1	03/23/2023 17:36	TMP	C
4-Methyl-2-Pentanone(MIBK)	ND	ND	ug/L	5.0	1.5	SW846 8260C	1	03/23/2023 17:36	TMP	C
Acetone	ND	ND	ug/L	10.0	3.1	SW846 8260C	1	03/23/2023 17:36	TMP	C
Acrylonitrile	ND	ND	ug/L	5.0	1.2	SW846 8260C	1	03/23/2023 17:36	TMP	C



## Results

Client Sample ID	GWM-10	Collected	03/15/2023 12:10
Lab Sample ID	3292842002	Lab Receipt	03/15/2023 16:53

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 17:36	TMP	C
Bromochloromethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 17:36	TMP	C
Bromodichloromethane	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 17:36	TMP	C
Bromoform	ND	ND	ug/L	1.0	0.40	SW846 8260C	1	03/23/2023 17:36	TMP	C
Bromomethane	ND	ND,1	ug/L	1.0	0.39	SW846 8260C	1	03/23/2023 17:36	TMP	C
Carbon Disulfide	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 17:36	TMP	C
Carbon Tetrachloride	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 17:36	TMP	C
Chlorobenzene	ND	ND	ug/L	1.0	0.19	SW846 8260C	1	03/23/2023 17:36	TMP	C
Chlorodibromomethane	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 17:36	TMP	C
Chloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 17:36	TMP	C
Chloroform	ND	ND	ug/L	1.0	0.21	SW846 8260C	1	03/23/2023 17:36	TMP	C
Chloromethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 17:36	TMP	C
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 17:36	TMP	C
cis-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 17:36	TMP	C
Cyclohexane	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 17:36	TMP	C
Dibromomethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 17:36	TMP	C
Dichlorodifluoromethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 17:36	TMP	C
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 17:36	TMP	C
Iodomethane	ND	ND	ug/L	1.0	0.42	SW846 8260C	1	03/23/2023 17:36	TMP	C
Methyl t-Butyl Ether	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 17:36	TMP	C
Methylene Chloride	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 17:36	TMP	C
mp-Xylene	ND	ND	ug/L	2.0	0.52	SW846 8260C	1	03/23/2023 17:36	TMP	C
o-Xylene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 17:36	TMP	C
Styrene	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 17:36	TMP	C
Tetrachloroethene	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 17:36	TMP	C
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 17:36	TMP	C
Total Xylenes	ND	ND	ug/L	3.0	0.66	SW846 8260C	1	03/23/2023 17:36	TMP	C
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.26	SW846 8260C	1	03/23/2023 17:36	TMP	C
trans-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 17:36	TMP	C
trans-1,4-Dichloro-2-butene	ND	ND	ug/L	3.0	0.86	SW846 8260C	1	03/23/2023 17:36	TMP	C
Trichloroethene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 17:36	TMP	C
Trichlorofluoromethane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 17:36	TMP	C
Vinyl Acetate	ND	ND	ug/L	5.0	1.6	SW846 8260C	1	03/23/2023 17:36	TMP	C
Vinyl Chloride	ND	ND	ug/L	1.0	0.30	SW846 8260C	1	03/23/2023 17:36	TMP	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	92.8%	62 - 133	03/23/2023 17:36	
1-Chloro-2-Fluorobenzene	348-51-6	86.4%	70 - 130	03/22/2023 19:21	
4-Bromofluorobenzene	460-00-4	110%	79 - 114	03/23/2023 17:36	
Dibromofluoromethane	1868-53-7	92.7%	78 - 116	03/23/2023 17:36	
Toluene-d8	2037-26-5	99%	76 - 127	03/23/2023 17:36	

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	GWM-10	Collected	03/15/2023 12:10
Lab Sample ID	3292842002	Lab Receipt	03/15/2023 16:53

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	ND	ND,2	mg/L	5	5	SM2320B-2011	1	03/27/2023 22:27	NML	G
Ammonia-N	0.156		mg/L	0.100	0.03	ASTM D6919-17	10	03/21/2023 05:11	NML	H
Chemical Oxygen Demand (COD)	8J	J	mg/L	15	5	EPA 410.4	1	03/17/2023 15:10	KMS	H
Chloride	ND	ND	mg/L	2.0	1.5	EPA 300.0	2	03/16/2023 18:31	J1W	G
Nitrate-N	ND	ND	mg/L	1.0	0.22	EPA 300.0	2	03/16/2023 18:31	J1W	G
Sulfate	16.8		mg/L	2.0	1.5	EPA 300.0	2	03/16/2023 18:31	J1W	G
Total Dissolved Solids	42		mg/L	25	25	SM2540C-15	1	03/17/2023 06:31	SMS	G



## Results

Client Sample ID	MW-15A	Collected	03/15/2023 12:50
Lab Sample ID	3292842003	Lab Receipt	03/15/2023 16:53

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:26	RMD	E2
Arsenic, Total	ND	ND	mg/L	0.0033	0.0011	SW846 6020A	1	03/20/2023 20:26	RMD	E2
Barium, Total	0.029		mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:26	RMD	E2
Beryllium, Total	0.00049J	J	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:26	RMD	E2
Cadmium, Total	0.0058		mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:26	RMD	E2
Calcium, Total	2.2		mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:26	RMD	E2
Chromium, Total	0.0017J	J	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:26	RMD	E2
Cobalt, Total	0.032		mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:26	RMD	E2
Copper, Total	0.046		mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:26	RMD	E2
Hardness	9.5	3	mg/L	0.33	0.11	EPA 200.7	1	03/20/2023 20:49	MO	E1
Iron, Total	0.070		mg/L	0.056	0.019	SW846 6020A	1	03/20/2023 20:26	RMD	E2
Lead, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:26	RMD	E2
Magnesium, Total	1.1		mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:26	RMD	E2
Manganese, Total	0.11		mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:26	RMD	E2
Mercury, Total	ND	ND	mg/L	0.00050	0.00017	SW846 7470A	1	03/16/2023 17:02	WDA	E
Nickel, Total	0.060		mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:26	RMD	E2
Potassium, Total	1.6		mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:26	RMD	E2
Selenium, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:26	RMD	E2
Silver, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:26	RMD	E2
Sodium, Total	3.1		mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:26	RMD	E2
Thallium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:26	RMD	E2
Vanadium, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:26	RMD	E2
Zinc, Total	0.050		mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:26	RMD	E2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 17:59	TMP	C
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	0.22	SW846 8260C	1	03/23/2023 17:59	TMP	C
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 17:59	TMP	C
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 17:59	TMP	C
1,1-Dichloroethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 17:59	TMP	C
1,1-Dichloroethene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 17:59	TMP	C
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	0.60	SW846 8260C	1	03/23/2023 17:59	TMP	C
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.020	0.0047	SW846 8011	1	03/22/2023 19:37	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	7.0	1.5	SW846 8260C	1	03/23/2023 17:59	TMP	C
1,2-Dibromoethane	ND	ND	ug/L	0.020	0.0096	SW846 8011	1	03/22/2023 19:37	VLM	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 17:59	TMP	C
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	0.38	SW846 8260C	1	03/23/2023 17:59	TMP	C
1,2-Dichloroethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 17:59	TMP	C
1,2-Dichloropropane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 17:59	TMP	C
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 17:59	TMP	C
2-Butanone	ND	ND	ug/L	10.0	1.8	SW846 8260C	1	03/23/2023 17:59	TMP	C
2-Hexanone	ND	ND	ug/L	5.0	1.3	SW846 8260C	1	03/23/2023 17:59	TMP	C
4-Methyl-2-Pentanone(MIBK)	ND	ND	ug/L	5.0	1.5	SW846 8260C	1	03/23/2023 17:59	TMP	C
Acetone	ND	ND	ug/L	10.0	3.1	SW846 8260C	1	03/23/2023 17:59	TMP	C
Acrylonitrile	ND	ND	ug/L	5.0	1.2	SW846 8260C	1	03/23/2023 17:59	TMP	C



## Results

Client Sample ID	MW-15A	Collected	03/15/2023 12:50
Lab Sample ID	3292842003	Lab Receipt	03/15/2023 16:53

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 17:59	TMP	C
Bromochloromethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 17:59	TMP	C
Bromodichloromethane	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 17:59	TMP	C
Bromoform	ND	ND	ug/L	1.0	0.40	SW846 8260C	1	03/23/2023 17:59	TMP	C
Bromomethane	ND	ND,1	ug/L	1.0	0.39	SW846 8260C	1	03/23/2023 17:59	TMP	C
Carbon Disulfide	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 17:59	TMP	C
Carbon Tetrachloride	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 17:59	TMP	C
Chlorobenzene	ND	ND	ug/L	1.0	0.19	SW846 8260C	1	03/23/2023 17:59	TMP	C
Chlorodibromomethane	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 17:59	TMP	C
Chloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 17:59	TMP	C
Chloroform	ND	ND	ug/L	1.0	0.21	SW846 8260C	1	03/23/2023 17:59	TMP	C
Chloromethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 17:59	TMP	C
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 17:59	TMP	C
cis-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 17:59	TMP	C
Cyclohexane	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 17:59	TMP	C
Dibromomethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 17:59	TMP	C
Dichlorodifluoromethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 17:59	TMP	C
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 17:59	TMP	C
Iodomethane	ND	ND	ug/L	1.0	0.42	SW846 8260C	1	03/23/2023 17:59	TMP	C
Methyl t-Butyl Ether	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 17:59	TMP	C
Methylene Chloride	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 17:59	TMP	C
mp-Xylene	ND	ND	ug/L	2.0	0.52	SW846 8260C	1	03/23/2023 17:59	TMP	C
o-Xylene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 17:59	TMP	C
Styrene	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 17:59	TMP	C
Tetrachloroethene	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 17:59	TMP	C
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 17:59	TMP	C
Total Xylenes	ND	ND	ug/L	3.0	0.66	SW846 8260C	1	03/23/2023 17:59	TMP	C
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.26	SW846 8260C	1	03/23/2023 17:59	TMP	C
trans-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 17:59	TMP	C
trans-1,4-Dichloro-2-butene	ND	ND	ug/L	3.0	0.86	SW846 8260C	1	03/23/2023 17:59	TMP	C
Trichloroethene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 17:59	TMP	C
Trichlorofluoromethane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 17:59	TMP	C
Vinyl Acetate	ND	ND	ug/L	5.0	1.6	SW846 8260C	1	03/23/2023 17:59	TMP	C
Vinyl Chloride	ND	ND	ug/L	1.0	0.30	SW846 8260C	1	03/23/2023 17:59	TMP	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	95.7%	62 - 133	03/23/2023 17:59	
1-Chloro-2-Fluorobenzene	348-51-6	84.1%	70 - 130	03/22/2023 19:37	
4-Bromofluorobenzene	460-00-4	110%	79 - 114	03/23/2023 17:59	
Dibromofluoromethane	1868-53-7	93.3%	78 - 116	03/23/2023 17:59	
Toluene-d8	2037-26-5	101%	76 - 127	03/23/2023 17:59	

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	MW-15A	Collected	03/15/2023 12:50
Lab Sample ID	3292842003	Lab Receipt	03/15/2023 16:53

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	ND	ND,2	mg/L	5	5	SM2320B-2011	1	03/27/2023 22:36	NML	G
Ammonia-N	0.144		mg/L	0.100	0.03	ASTM D6919-17	10	03/21/2023 06:06	NML	H
Chemical Oxygen Demand (COD)	29		mg/L	15	5	EPA 410.4	1	03/17/2023 15:10	KMS	H
Chloride	ND	ND	mg/L	2.0	1.5	EPA 300.0	2	03/16/2023 18:41	J1W	G
Nitrate-N	ND	ND	mg/L	1.0	0.22	EPA 300.0	2	03/16/2023 18:41	J1W	G
Sulfate	17.1		mg/L	2.0	1.5	EPA 300.0	2	03/16/2023 18:41	J1W	G
Total Dissolved Solids	43		mg/L	25	25	SM2540C-15	1	03/17/2023 06:31	SMS	G



## Results

Client Sample ID	GWM-8	Collected	03/15/2023 14:50
Lab Sample ID	3292842004	Lab Receipt	03/15/2023 16:53

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:38	RMD	E2
Arsenic, Total	ND	ND	mg/L	0.0033	0.0011	SW846 6020A	1	03/20/2023 20:38	RMD	E2
Barium, Total	0.071		mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:38	RMD	E2
Beryllium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:38	RMD	E2
Cadmium, Total	0.0012		mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:38	RMD	E2
Calcium, Total	8.9		mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:38	RMD	E2
Chromium, Total	0.0030		mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:38	RMD	E2
Cobalt, Total	0.0030J	J	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:38	RMD	E2
Copper, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:38	RMD	E2
Hardness	24.9	3	mg/L	0.33	0.11	EPA 200.7	1	03/20/2023 20:53	MO	E1
Iron, Total	0.95		mg/L	0.056	0.019	SW846 6020A	1	03/20/2023 20:38	RMD	E2
Lead, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:38	RMD	E2
Magnesium, Total	0.90		mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:38	RMD	E2
Manganese, Total	0.045		mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:38	RMD	E2
Mercury, Total	ND	ND	mg/L	0.00050	0.00017	SW846 7470A	1	03/16/2023 17:03	WDA	E
Nickel, Total	0.0049J	J	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:38	RMD	E2
Potassium, Total	6.6		mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:38	RMD	E2
Selenium, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:38	RMD	E2
Silver, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:38	RMD	E2
Sodium, Total	49.7		mg/L	0.11	0.037	SW846 6020A	1	03/20/2023 20:38	RMD	E2
Thallium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/20/2023 20:38	RMD	E2
Vanadium, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/20/2023 20:38	RMD	E2
Zinc, Total	0.0072		mg/L	0.0056	0.0019	SW846 6020A	1	03/20/2023 20:38	RMD	E2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 18:22	TMP	C
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	0.22	SW846 8260C	1	03/23/2023 18:22	TMP	C
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 18:22	TMP	C
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 18:22	TMP	C
1,1-Dichloroethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 18:22	TMP	C
1,1-Dichloroethene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 18:22	TMP	C
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	0.60	SW846 8260C	1	03/23/2023 18:22	TMP	C
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.020	0.0048	SW846 8011	1	03/23/2023 17:45	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	7.0	1.5	SW846 8260C	1	03/23/2023 18:22	TMP	C
1,2-Dibromoethane	ND	ND	ug/L	0.020	0.0097	SW846 8011	1	03/23/2023 17:45	VLM	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 18:22	TMP	C
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	0.38	SW846 8260C	1	03/23/2023 18:22	TMP	C
1,2-Dichloroethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 18:22	TMP	C
1,2-Dichloropropane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 18:22	TMP	C
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 18:22	TMP	C
2-Butanone	ND	ND	ug/L	10.0	1.8	SW846 8260C	1	03/23/2023 18:22	TMP	C
2-Hexanone	ND	ND	ug/L	5.0	1.3	SW846 8260C	1	03/23/2023 18:22	TMP	C
4-Methyl-2-Pentanone(MIBK)	ND	ND	ug/L	5.0	1.5	SW846 8260C	1	03/23/2023 18:22	TMP	C
Acetone	ND	ND	ug/L	10.0	3.1	SW846 8260C	1	03/23/2023 18:22	TMP	C
Acrylonitrile	ND	ND	ug/L	5.0	1.2	SW846 8260C	1	03/23/2023 18:22	TMP	C



## Results

Client Sample ID	GWM-8	Collected	03/15/2023 14:50
Lab Sample ID	3292842004	Lab Receipt	03/15/2023 16:53

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 18:22	TMP	C
Bromochloromethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 18:22	TMP	C
Bromodichloromethane	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 18:22	TMP	C
Bromoform	ND	ND	ug/L	1.0	0.40	SW846 8260C	1	03/23/2023 18:22	TMP	C
Bromomethane	ND	ND,1	ug/L	1.0	0.39	SW846 8260C	1	03/23/2023 18:22	TMP	C
Carbon Disulfide	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 18:22	TMP	C
Carbon Tetrachloride	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 18:22	TMP	C
Chlorobenzene	ND	ND	ug/L	1.0	0.19	SW846 8260C	1	03/23/2023 18:22	TMP	C
Chlorodibromomethane	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 18:22	TMP	C
Chloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 18:22	TMP	C
Chloroform	ND	ND	ug/L	1.0	0.21	SW846 8260C	1	03/23/2023 18:22	TMP	C
Chloromethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 18:22	TMP	C
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 18:22	TMP	C
cis-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 18:22	TMP	C
Cyclohexane	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 18:22	TMP	C
Dibromomethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 18:22	TMP	C
Dichlorodifluoromethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 18:22	TMP	C
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 18:22	TMP	C
Iodomethane	ND	ND	ug/L	1.0	0.42	SW846 8260C	1	03/23/2023 18:22	TMP	C
Methyl t-Butyl Ether	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 18:22	TMP	C
Methylene Chloride	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 18:22	TMP	C
mp-Xylene	ND	ND	ug/L	2.0	0.52	SW846 8260C	1	03/23/2023 18:22	TMP	C
o-Xylene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 18:22	TMP	C
Styrene	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 18:22	TMP	C
Tetrachloroethene	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 18:22	TMP	C
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 18:22	TMP	C
Total Xylenes	ND	ND	ug/L	3.0	0.66	SW846 8260C	1	03/23/2023 18:22	TMP	C
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.26	SW846 8260C	1	03/23/2023 18:22	TMP	C
trans-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 18:22	TMP	C
trans-1,4-Dichloro-2-butene	ND	ND	ug/L	3.0	0.86	SW846 8260C	1	03/23/2023 18:22	TMP	C
Trichloroethene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 18:22	TMP	C
Trichlorofluoromethane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 18:22	TMP	C
Vinyl Acetate	ND	ND	ug/L	5.0	1.6	SW846 8260C	1	03/23/2023 18:22	TMP	C
Vinyl Chloride	ND	ND	ug/L	1.0	0.30	SW846 8260C	1	03/23/2023 18:22	TMP	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	94.3%	62 - 133	03/23/2023 18:22	
1-Chloro-2-Fluorobenzene	348-51-6	83.6%	70 - 130	03/23/2023 17:45	
4-Bromofluorobenzene	460-00-4	111%	79 - 114	03/23/2023 18:22	
Dibromofluoromethane	1868-53-7	93.9%	78 - 116	03/23/2023 18:22	
Toluene-d8	2037-26-5	99.2%	76 - 127	03/23/2023 18:22	

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	GWM-8	Collected	03/15/2023 14:50
Lab Sample ID	3292842004	Lab Receipt	03/15/2023 16:53

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	29	2	mg/L	5	5	SM2320B-2011	1	03/27/2023 22:51	NML	G
Ammonia-N	0.119		mg/L	0.100	0.03	ASTM D6919-17	10	03/21/2023 05:25	NML	H
Chemical Oxygen Demand (COD)	14J	J	mg/L	15	5	EPA 410.4	1	03/17/2023 15:10	KMS	H
Chloride	17.5		mg/L	2.0	1.5	EPA 300.0	2	03/16/2023 18:52	J1W	G
Nitrate-N	0.29J	J	mg/L	1.0	0.22	EPA 300.0	2	03/16/2023 18:52	J1W	G
Sulfate	86.5		mg/L	2.0	1.5	EPA 300.0	2	03/16/2023 18:52	J1W	G
Total Dissolved Solids	192		mg/L	25	25	SM2540C-15	1	03/17/2023 06:31	SMS	G



### Sample - Method Cross Reference Table

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3292842001	GWM-3	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
		SM2540C-15	N/A	
3292842002	GWM-10	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
		SM2540C-15	N/A	
3292842003	MW-15A	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
		SM2540C-15	N/A	
3292842004	GWM-8	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
		SM2540C-15	N/A	





**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Lab ID	Sample ID	Preparation Method	Prep Batch	Prep Date/Time	By	Analysis Method	Anly Batch
3292842001	GWM-3	EPA TRMD	962825	03/17/2023 10:29	JSE	EPA 200.7	963436
		SW846 3015A	962865	03/20/2023 13:13	JSE	SW846 6020A	963427
		SW846 7470A	962582	03/16/2023 11:40	WDA	SW846 7470A	962903
		SW846 8011	964331	03/22/2023 15:05	VLM	SW846 8011	964428
		N/A	N/A	N/A		SW846 8260C	965300
		N/A	N/A	N/A		ASTM D6919-17	963088
		N/A	N/A	N/A		EPA 300.0	962587
		N/A	N/A	N/A		EPA 410.4	962866
		N/A	N/A	N/A		SM2320B-2011	966333
		N/A	N/A	N/A		SM2540C-15	962576
3292842002	GWM-10	EPA TRMD	962825	03/17/2023 10:29	JSE	EPA 200.7	963436
		SW846 3015A	962865	03/20/2023 13:13	JSE	SW846 6020A	963427
		SW846 7470A	962582	03/16/2023 11:40	WDA	SW846 7470A	962903
		SW846 8011	964331	03/22/2023 15:05	VLM	SW846 8011	964428
		N/A	N/A	N/A		SW846 8260C	965300
		N/A	N/A	N/A		ASTM D6919-17	963088
		N/A	N/A	N/A		EPA 300.0	962587
		N/A	N/A	N/A		EPA 410.4	962866
		N/A	N/A	N/A		SM2320B-2011	966333
		N/A	N/A	N/A		SM2540C-15	962576
3292842003	MW-15A	EPA TRMD	962825	03/17/2023 10:29	JSE	EPA 200.7	963436
		SW846 3015A	962865	03/20/2023 13:13	JSE	SW846 6020A	963427
		SW846 7470A	962582	03/16/2023 11:40	WDA	SW846 7470A	962903
		SW846 8011	964331	03/22/2023 15:05	VLM	SW846 8011	964428
		N/A	N/A	N/A		SW846 8260C	965300
		N/A	N/A	N/A		ASTM D6919-17	963088
		N/A	N/A	N/A		EPA 300.0	962587
		N/A	N/A	N/A		EPA 410.4	962866
		N/A	N/A	N/A		SM2320B-2011	966333
		N/A	N/A	N/A		SM2540C-15	962576
3292842004	GWM-8	EPA TRMD	962825	03/17/2023 10:29	JSE	EPA 200.7	963436
		SW846 3015A	962865	03/20/2023 13:13	JSE	SW846 6020A	963427
		SW846 7470A	962582	03/16/2023 11:40	WDA	SW846 7470A	962903
		SW846 8011	965336	03/23/2023 15:35	VLM	SW846 8011	965378
		N/A	N/A	N/A		SW846 8260C	965300
		N/A	N/A	N/A		ASTM D6919-17	963088
		N/A	N/A	N/A		EPA 300.0	962587
		N/A	N/A	N/A		EPA 410.4	962866
		N/A	N/A	N/A		SM2320B-2011	966333
		N/A	N/A	N/A		SM2540C-15	962576



3292842

Logged By: SLS  
PM: GJM



# CHAIN OF CUSTODY / SAMPLE INFORMATION FORM

Maryland Environmental Service • 259 Najoles Rd. • Millersville, MD 21108 • (410) 729-8200 • FAX (410) 729-83

**Laboratory:** ALS

**Sampler:** Laura Russell / Brooke Zibell / Tom R

**Client Name:** Maryland Environmental Service, Attn: Cheryl Griffin

**Facility Name:** Eastern Sanitary Landfill

**Client Address:** 259 Najoles Rd, Millersville, MD 21108 410-729-8356

**Project# / Purpose:** 3926-2000

**Invoice To:** Same

**Turnaround Time:** Routine

Sample #	Sample ID	Grab or Composite	Container Description/ Preservation Status	Matrix	# of Containers	Date	Time	Analyses Required/Comments
3	GWM-3	G	40 mL G Na2S2O3	NPW	2	3-15-23	1045	VOCs (8011)
			40 mL G HCl	NPW	2			VOCs (8260)
			125 mL P HNO3	NPW	2			Metals - Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn (6020), Hg (7470), Hardness
			1 L P unpreserved	NPW	1			Alkalinity, TDS, Nitrate (EPA 300), Sulfate, Chloride
			250 mL P H2SO4	NPW	1			Ammonia, COD
4	GWM-10	G	Same as Sample # 3	NPW	8	3-15-23	1210	Same as Sample #3
5	<del>GWM-15A</del> MW-15A	G	Same as Sample # 3	NPW	8	3-15-23	1250	Same as Sample #3
6	GWM-8	G	Same as Sample # 3	NPW	8	3-15-23	1450	Same as Sample #3

Temp By: **DPB** | WO Temp (°C) **0** | Therm ID **570**

Receipt Info Completed By:

Cooler Custody Seal Intact  Y  N  NA

Sample Custody Seal Intact  Y  N  NA

Received on Ice  Y  N  NA

Cooler & Samples Intact  Y  N  NA

Correct Containers Provided  Y  N  NA

Sample Label/COC Agree  Y  N  NA

Adequate Sample Volumes  Y  N  NA

CR6 Samples Filtered  Y  N  NA

OP Samples Filtered  Y  N  NA

VOA Headspace Present  Y  N  NA

Voa Trip Blank  Y  N  NA

NI ≤ 4 Days?  Y  N  NA

Rad Screen (uCi)  Y  N  NA

Courier/Tracking #: \_\_\_\_\_

Transferred by: **Laura Russell** Date: **3-15-23** Time: **1515** S

Received by: **DPB** Date: **3-15-23** Time: **1653** S

Transferred by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Received by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

(LAB USE ONLY)

S/NO If No, explain

SDWA Compliance  Y  N  NA

PWSID  Y  N  NA

WV Containers 0-6°C  Y  N  NA



301 Fulling Mill Road | Middletown, PA 17057 | Phone: 717-944-5541 | Fax: 717-944-1430 | [www.alsglobal.com](http://www.alsglobal.com)

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618  
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

Analytical Results Report For Maryland Environmental Services - Landfills

Report ID [233845 on 3/29/2023](#)

## Certificate of Analysis

Project Name:	<b>Eastern Sanitary Landfill</b>	Workorder:	<b>3293158</b>
Purchase Order:	<b>MA 3680</b>	Workorder ID:	<b>Eastern Sanitary Landfill</b>

Enclosed are the analytical results for samples received by the laboratory on Thursday, March 16, 2023.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact George Methlie (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements.

The test results meet requirements of the current NELAP standards or state requirements, where applicable.

For a specific list of accredited analytes, refer to the certifications section of the ALS website at [www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads](http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads).

This laboratory report may not be reproduced, except in full, without the written approval of ALS Global.  
ALS Middletown: 301 Fulling Mill Road, Middletown, PA 17057 : 717-944-5541.

Recipient(s): Maryland Services-ENVOPS - Maryland Environmental Services - Landfills Cheryl Griffin - Maryland Environmental Services Liz Ostermann - Maryland Environmental Services Maryland Services-LF Data - Maryland Environmental Services
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**George Methlie**  
Project Coordinator

(ALS Digital Signature)

*This page is included as part of the Analytical Report and must be retained as a permanent record thereof.*



## Sample Summary

<u>Lab ID</u>	<u>Sample ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>	<u>Collector</u>	<u>Collection Company</u>
3293158001	Trip Blank	Water	03/16/2023 00:00	03/16/2023 17:40	CBC	Collected By Client
3293158002	Field Blank	Water	03/16/2023 11:00	03/16/2023 17:40	CBC	Collected By Client
3293158003	GWM-15D	Water	03/16/2023 10:35	03/16/2023 17:40	CBC	Collected By Client
3293158004	GWM-14	Water	03/16/2023 11:45	03/16/2023 17:40	CBC	Collected By Client
3293158005	GWM-19D	Water	03/16/2023 13:50	03/16/2023 17:40	CBC	Collected By Client
3293158006	GWM-5A	Water	03/16/2023 15:15	03/16/2023 17:40	CBC	Collected By Client



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## Reference

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### Notes

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- Except as qualified, Clean Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 136.
- Except as qualified, Safe Drinking Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 141.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are performed in the laboratory and are therefore analyzed out of hold time.
- Method references listed on this report beginning with the prefix "S" followed by a method number (such as S2310B-97) refer to methods from "Standard Methods for the Examination of Water and Wastewater".
- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.
- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

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### Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND) above the MDL
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Practical Quantitation Limit for this Project
ND	Not Detected - indicates that the analyte was Not Detected
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits
#	Please reference the result in the Results Section for analyte-level flags.

---



**Project Notations**

**Sample Notations**

**Lab ID**      **Sample ID**

**Result Notations**

**Notation Ref.**

1	This compound was recovered above the 20 percent 8260C criteria in the continuing calibration verification associated with this sample.
2	The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.
3	This sample result was calculated and reported using Method SM2340B-2011.
4	The QC type LLCCV for method SW846 6020A was outside the control limits for the analyte Se. The % RSD was reported as 22.0 and the control limits were 0 to 20.
5	The QC sample type MS for method SW846 8260C was outside the control limits for the analyte Chloroethane. The % Recovery was reported as 154 and the control limits were 51 to 142.
6	The QC sample type MS for method SW846 8260C was outside the control limits for the analyte Trichlorofluoromethane. The % Recovery was reported as 144 and the control limits were 38 to 123.
7	The QC sample type MSD for method SW846 8260C was outside the control limits for the analyte Trichlorofluoromethane. The % Recovery was reported as 132 and the control limits were 38 to 123.
8	The QC sample type MS for method SW846 8260C was outside the control limits for the analyte Vinyl Chloride. The % Recovery was reported as 149 and the control limits were 27 to 138.



**Detected Results Summary**

Client Sample ID	Field Blank	Collected	03/16/2023 11:00
Lab Sample ID	3293158002	Lab Receipt	03/16/2023 17:40

<u>Compound</u>	<u>Result</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Flag</u>
<b>METALS</b>						
Calcium, Total	0.063J	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	0.079J	mg/L	0.11	0.037	SW846 6020A	#
<b>WET CHEMISTRY</b>						
Chemical Oxygen Demand (COD)	10J	mg/L	15	5	EPA 410.4	#



### Detected Results Summary

Client Sample ID	GWM-15D	Collected	03/16/2023 10:35
Lab Sample ID	3293158003	Lab Receipt	03/16/2023 17:40

Compound	Result	Units	RDL	MDL	Method	Flag
<b>METALS</b>						
Barium, Total	0.081	mg/L	0.0056	0.0019	SW846 6020A	#
Calcium, Total	20.3	mg/L	0.11	0.037	SW846 6020A	#
Chromium, Total	0.0017J	mg/L	0.0022	0.00074	SW846 6020A	#
Cobalt, Total	0.025	mg/L	0.0056	0.0019	SW846 6020A	#
Copper, Total	0.0023J	mg/L	0.0056	0.0019	SW846 6020A	#
Hardness	127	mg/L	0.33	0.11	EPA 200.7	#
Iron, Total	0.050J	mg/L	0.056	0.019	SW846 6020A	#
Magnesium, Total	20.4	mg/L	0.11	0.037	SW846 6020A	#
Manganese, Total	0.98	mg/L	0.0056	0.0019	SW846 6020A	#
Nickel, Total	0.0097	mg/L	0.0056	0.0019	SW846 6020A	#
Potassium, Total	2.8	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	35.1	mg/L	0.11	0.037	SW846 6020A	#
Zinc, Total	0.0092	mg/L	0.0056	0.0019	SW846 6020A	#
<b>WET CHEMISTRY</b>						
Alkalinity, Total	42	mg/L	5	5	SM2320B-2011	#
Ammonia-N	0.085J	mg/L	0.100	0.03	ASTM D6919-17	#
Chemical Oxygen Demand (COD)	14J	mg/L	15	5	EPA 410.4	#
Chloride	79.6	mg/L	2.0	1.5	EPA 300.0	#
Sulfate	61.7	mg/L	2.0	1.5	EPA 300.0	#
Total Dissolved Solids	288	mg/L	25	25	SM2540C-15	#





**Detected Results Summary**

Client Sample ID GWM-14 Collected 03/16/2023 11:45  
 Lab Sample ID 3293158004 Lab Receipt 03/16/2023 17:40

<u>Compound</u>	<u>Result</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Flag</u>
<b>METALS</b>						
Barium, Total	0.052	mg/L	0.0056	0.0019	SW846 6020A	#
Calcium, Total	11.2	mg/L	0.11	0.037	SW846 6020A	#
Cobalt, Total	0.23	mg/L	0.0056	0.0019	SW846 6020A	#
Hardness	90.2	mg/L	0.33	0.11	EPA 200.7	#
Iron, Total	55.6	mg/L	0.056	0.019	SW846 6020A	#
Magnesium, Total	15.4	mg/L	0.11	0.037	SW846 6020A	#
Manganese, Total	2.9	mg/L	0.0056	0.0019	SW846 6020A	#
Nickel, Total	0.0092	mg/L	0.0056	0.0019	SW846 6020A	#
Potassium, Total	0.59	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	29.9	mg/L	0.11	0.037	SW846 6020A	#
Zinc, Total	0.012	mg/L	0.0056	0.0019	SW846 6020A	#
<b>WET CHEMISTRY</b>						
Alkalinity, Total	125	mg/L	5	5	SM2320B-2011	#
Ammonia-N	0.132	mg/L	0.100	0.03	ASTM D6919-17	#
Chemical Oxygen Demand (COD)	28	mg/L	15	5	EPA 410.4	#
Chloride	43.9	mg/L	2.0	1.5	EPA 300.0	#
Sulfate	19.7	mg/L	2.0	1.5	EPA 300.0	#
Total Dissolved Solids	300	mg/L	25	25	SM2540C-15	#



### Detected Results Summary

Client Sample ID	GWM-19D	Collected	03/16/2023 13:50
Lab Sample ID	3293158005	Lab Receipt	03/16/2023 17:40

Compound	Result	Units	RDL	MDL	Method	Flag
<b>METALS</b>						
Barium, Total	0.061	mg/L	0.0056	0.0019	SW846 6020A	#
Beryllium, Total	0.00038J	mg/L	0.0011	0.00037	SW846 6020A	#
Calcium, Total	8.5	mg/L	0.11	0.037	SW846 6020A	#
Chromium, Total	0.0021J	mg/L	0.0022	0.00074	SW846 6020A	#
Cobalt, Total	0.012	mg/L	0.0056	0.0019	SW846 6020A	#
Copper, Total	0.011	mg/L	0.0056	0.0019	SW846 6020A	#
Hardness	43.0	mg/L	0.33	0.11	EPA 200.7	#
Lead, Total	0.0024	mg/L	0.0022	0.00074	SW846 6020A	#
Magnesium, Total	4.8	mg/L	0.11	0.037	SW846 6020A	#
Manganese, Total	0.058	mg/L	0.0056	0.0019	SW846 6020A	#
Mercury, Total	0.0023	mg/L	0.00050	0.00017	SW846 7470A	#
Nickel, Total	0.026	mg/L	0.0056	0.0019	SW846 6020A	#
Potassium, Total	2.1	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	14.4	mg/L	0.11	0.037	SW846 6020A	#
Zinc, Total	0.032	mg/L	0.0056	0.0019	SW846 6020A	#
<b>VOLATILE ORGANICS</b>						
Methyl t-Butyl Ether	0.36J	ug/L	1.0	0.33	SW846 8260C	#
<b>WET CHEMISTRY</b>						
Alkalinity, Total	11	mg/L	5	5	SM2320B-2011	#
Chemical Oxygen Demand (COD)	7J	mg/L	15	5	EPA 410.4	#
Chloride	35.2	mg/L	2.0	1.5	EPA 300.0	#
Nitrate-N	1.3	mg/L	1.0	0.22	EPA 300.0	#
Sulfate	10.1	mg/L	2.0	1.5	EPA 300.0	#
Total Dissolved Solids	142	mg/L	25	25	SM2540C-15	#



**Detected Results Summary**

Client Sample ID GWM-5A Collected 03/16/2023 15:15  
 Lab Sample ID 3293158006 Lab Receipt 03/16/2023 17:40

<u>Compound</u>	<u>Result</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Flag</u>
<b>METALS</b>						
Barium, Total	0.099	mg/L	0.0056	0.0019	SW846 6020A	#
Calcium, Total	23.9	mg/L	0.11	0.037	SW846 6020A	#
Chromium, Total	0.0045	mg/L	0.0022	0.00074	SW846 6020A	#
Cobalt, Total	0.073	mg/L	0.0056	0.0019	SW846 6020A	#
Hardness	95.2	mg/L	0.33	0.11	EPA 200.7	#
Iron, Total	2.0	mg/L	0.056	0.019	SW846 6020A	#
Magnesium, Total	8.5	mg/L	0.11	0.037	SW846 6020A	#
Manganese, Total	1.0	mg/L	0.0056	0.0019	SW846 6020A	#
Mercury, Total	0.00045J	mg/L	0.00050	0.00017	SW846 7470A	#
Nickel, Total	0.013	mg/L	0.0056	0.0019	SW846 6020A	#
Potassium, Total	3.3	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	27.1	mg/L	0.11	0.037	SW846 6020A	#
Zinc, Total	0.0085	mg/L	0.0056	0.0019	SW846 6020A	#
<b>WET CHEMISTRY</b>						
Alkalinity, Total	57	mg/L	5	5	SM2320B-2011	#
Chemical Oxygen Demand (COD)	12J	mg/L	15	5	EPA 410.4	#
Chloride	59.1	mg/L	2.0	1.5	EPA 300.0	#
Sulfate	22.4	mg/L	2.0	1.5	EPA 300.0	#
Total Dissolved Solids	218	mg/L	25	25	SM2540C-15	#



## Results

Client Sample ID	Trip Blank	Collected	03/16/2023 00:00
Lab Sample ID	3293158001	Lab Receipt	03/16/2023 17:40

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 13:48	TMP	C
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	0.22	SW846 8260C	1	03/23/2023 13:48	TMP	C
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 13:48	TMP	C
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 13:48	TMP	C
1,1-Dichloroethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 13:48	TMP	C
1,1-Dichloroethene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 13:48	TMP	C
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	0.60	SW846 8260C	1	03/23/2023 13:48	TMP	C
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.020	0.0048	SW846 8011	1	03/27/2023 20:17	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	7.0	1.5	SW846 8260C	1	03/23/2023 13:48	TMP	C
1,2-Dibromoethane	ND	ND	ug/L	0.020	0.0098	SW846 8011	1	03/27/2023 20:17	VLM	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 13:48	TMP	C
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	0.38	SW846 8260C	1	03/23/2023 13:48	TMP	C
1,2-Dichloroethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 13:48	TMP	C
1,2-Dichloropropane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 13:48	TMP	C
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 13:48	TMP	C
2-Butanone	ND	ND	ug/L	10.0	1.8	SW846 8260C	1	03/23/2023 13:48	TMP	C
2-Hexanone	ND	ND	ug/L	5.0	1.3	SW846 8260C	1	03/23/2023 13:48	TMP	C
4-Methyl-2-Pentanone(MIBK)	ND	ND	ug/L	5.0	1.5	SW846 8260C	1	03/23/2023 13:48	TMP	C
Acetone	ND	ND	ug/L	10.0	3.1	SW846 8260C	1	03/23/2023 13:48	TMP	C
Acrylonitrile	ND	ND	ug/L	5.0	1.2	SW846 8260C	1	03/23/2023 13:48	TMP	C
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 13:48	TMP	C
Bromochloromethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 13:48	TMP	C
Bromodichloromethane	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 13:48	TMP	C
Bromoform	ND	ND	ug/L	1.0	0.40	SW846 8260C	1	03/23/2023 13:48	TMP	C
Bromomethane	ND	ND,1	ug/L	1.0	0.39	SW846 8260C	1	03/23/2023 13:48	TMP	C
Carbon Disulfide	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 13:48	TMP	C
Carbon Tetrachloride	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 13:48	TMP	C
Chlorobenzene	ND	ND	ug/L	1.0	0.19	SW846 8260C	1	03/23/2023 13:48	TMP	C
Chlorodibromomethane	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 13:48	TMP	C
Chloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 13:48	TMP	C
Chloroform	ND	ND	ug/L	1.0	0.21	SW846 8260C	1	03/23/2023 13:48	TMP	C
Chloromethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 13:48	TMP	C
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 13:48	TMP	C
cis-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 13:48	TMP	C
Cyclohexane	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 13:48	TMP	C
Dibromomethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 13:48	TMP	C
Dichlorodifluoromethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 13:48	TMP	C
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 13:48	TMP	C
Iodomethane	ND	ND	ug/L	1.0	0.42	SW846 8260C	1	03/23/2023 13:48	TMP	C
Methyl t-Butyl Ether	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 13:48	TMP	C
Methylene Chloride	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 13:48	TMP	C
mp-Xylene	ND	ND	ug/L	2.0	0.52	SW846 8260C	1	03/23/2023 13:48	TMP	C
o-Xylene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 13:48	TMP	C
Styrene	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 13:48	TMP	C
Tetrachloroethene	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 13:48	TMP	C
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 13:48	TMP	C
Total Xylenes	ND	ND	ug/L	3.0	0.66	SW846 8260C	1	03/23/2023 13:48	TMP	C



## Results

Client Sample ID	Trip Blank	Collected	03/16/2023 00:00
Lab Sample ID	3293158001	Lab Receipt	03/16/2023 17:40

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.26	SW846 8260C	1	03/23/2023 13:48	TMP	C
trans-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 13:48	TMP	C
trans-1,4-Dichloro-2-butene	ND	ND	ug/L	3.0	0.86	SW846 8260C	1	03/23/2023 13:48	TMP	C
Trichloroethene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 13:48	TMP	C
Trichlorofluoromethane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 13:48	TMP	C
Vinyl Acetate	ND	ND	ug/L	5.0	1.6	SW846 8260C	1	03/23/2023 13:48	TMP	C
Vinyl Chloride	ND	ND	ug/L	1.0	0.30	SW846 8260C	1	03/23/2023 13:48	TMP	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	95%	62 - 133	03/23/2023 13:48	
1-Chloro-2-Fluorobenzene	348-51-6	94.2%	70 - 130	03/27/2023 20:17	
4-Bromofluorobenzene	460-00-4	110%	79 - 114	03/23/2023 13:48	
Dibromofluoromethane	1868-53-7	94.5%	78 - 116	03/23/2023 13:48	
Toluene-d8	2037-26-5	99.8%	76 - 127	03/23/2023 13:48	



## Results

Client Sample ID	Field Blank	Collected	03/16/2023 11:00
Lab Sample ID	3293158002	Lab Receipt	03/16/2023 17:40

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 12:42	MO	E2
Arsenic, Total	ND	ND	mg/L	0.0033	0.0011	SW846 6020A	1	03/23/2023 12:42	MO	E2
Barium, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:42	MO	E2
Beryllium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/23/2023 12:42	MO	E2
Cadmium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/23/2023 12:42	MO	E2
Calcium, Total	0.063J	J	mg/L	0.11	0.037	SW846 6020A	1	03/23/2023 12:42	MO	E2
Chromium, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 12:42	MO	E2
Cobalt, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:42	MO	E2
Copper, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:42	MO	E2
Hardness	ND	ND,3	mg/L	0.33	0.11	EPA 200.7	1	03/23/2023 21:20	MO	E1
Iron, Total	ND	ND	mg/L	0.056	0.019	SW846 6020A	1	03/23/2023 12:42	MO	E2
Lead, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 12:42	MO	E2
Magnesium, Total	ND	ND	mg/L	0.11	0.037	SW846 6020A	1	03/23/2023 12:42	MO	E2
Manganese, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:42	MO	E2
Mercury, Total	ND	ND	mg/L	0.00050	0.00017	SW846 7470A	1	03/20/2023 13:37	WDA	E
Nickel, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:42	MO	E2
Potassium, Total	ND	ND	mg/L	0.11	0.037	SW846 6020A	1	03/23/2023 12:42	MO	E2
Selenium, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:42	MO	E2
Silver, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 12:42	MO	E2
Sodium, Total	0.079J	J	mg/L	0.11	0.037	SW846 6020A	1	03/23/2023 12:42	MO	E2
Thallium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/23/2023 12:42	MO	E2
Vanadium, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 12:42	MO	E2
Zinc, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:42	MO	E2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 14:11	TMP	C
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	0.22	SW846 8260C	1	03/23/2023 14:11	TMP	C
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 14:11	TMP	C
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 14:11	TMP	C
1,1-Dichloroethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 14:11	TMP	C
1,1-Dichloroethene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 14:11	TMP	C
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	0.60	SW846 8260C	1	03/23/2023 14:11	TMP	C
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.020	0.0048	SW846 8011	1	03/27/2023 20:33	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	7.0	1.5	SW846 8260C	1	03/23/2023 14:11	TMP	C
1,2-Dibromoethane	ND	ND	ug/L	0.020	0.0098	SW846 8011	1	03/27/2023 20:33	VLM	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 14:11	TMP	C
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	0.38	SW846 8260C	1	03/23/2023 14:11	TMP	C
1,2-Dichloroethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 14:11	TMP	C
1,2-Dichloropropane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 14:11	TMP	C
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 14:11	TMP	C
2-Butanone	ND	ND	ug/L	10.0	1.8	SW846 8260C	1	03/23/2023 14:11	TMP	C
2-Hexanone	ND	ND	ug/L	5.0	1.3	SW846 8260C	1	03/23/2023 14:11	TMP	C
4-Methyl-2-Pentanone(MIBK)	ND	ND	ug/L	5.0	1.5	SW846 8260C	1	03/23/2023 14:11	TMP	C
Acetone	ND	ND	ug/L	10.0	3.1	SW846 8260C	1	03/23/2023 14:11	TMP	C
Acrylonitrile	ND	ND	ug/L	5.0	1.2	SW846 8260C	1	03/23/2023 14:11	TMP	C



## Results

Client Sample ID	Field Blank	Collected	03/16/2023 11:00
Lab Sample ID	3293158002	Lab Receipt	03/16/2023 17:40

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 14:11	TMP	C
Bromochloromethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 14:11	TMP	C
Bromodichloromethane	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 14:11	TMP	C
Bromoform	ND	ND	ug/L	1.0	0.40	SW846 8260C	1	03/23/2023 14:11	TMP	C
Bromomethane	ND	ND,1	ug/L	1.0	0.39	SW846 8260C	1	03/23/2023 14:11	TMP	C
Carbon Disulfide	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 14:11	TMP	C
Carbon Tetrachloride	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 14:11	TMP	C
Chlorobenzene	ND	ND	ug/L	1.0	0.19	SW846 8260C	1	03/23/2023 14:11	TMP	C
Chlorodibromomethane	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 14:11	TMP	C
Chloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 14:11	TMP	C
Chloroform	ND	ND	ug/L	1.0	0.21	SW846 8260C	1	03/23/2023 14:11	TMP	C
Chloromethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 14:11	TMP	C
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 14:11	TMP	C
cis-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 14:11	TMP	C
Cyclohexane	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 14:11	TMP	C
Dibromomethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 14:11	TMP	C
Dichlorodifluoromethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 14:11	TMP	C
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 14:11	TMP	C
Iodomethane	ND	ND	ug/L	1.0	0.42	SW846 8260C	1	03/23/2023 14:11	TMP	C
Methyl t-Butyl Ether	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 14:11	TMP	C
Methylene Chloride	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 14:11	TMP	C
mp-Xylene	ND	ND	ug/L	2.0	0.52	SW846 8260C	1	03/23/2023 14:11	TMP	C
o-Xylene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 14:11	TMP	C
Styrene	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 14:11	TMP	C
Tetrachloroethene	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 14:11	TMP	C
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 14:11	TMP	C
Total Xylenes	ND	ND	ug/L	3.0	0.66	SW846 8260C	1	03/23/2023 14:11	TMP	C
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.26	SW846 8260C	1	03/23/2023 14:11	TMP	C
trans-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 14:11	TMP	C
trans-1,4-Dichloro-2-butene	ND	ND	ug/L	3.0	0.86	SW846 8260C	1	03/23/2023 14:11	TMP	C
Trichloroethene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 14:11	TMP	C
Trichlorofluoromethane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 14:11	TMP	C
Vinyl Acetate	ND	ND	ug/L	5.0	1.6	SW846 8260C	1	03/23/2023 14:11	TMP	C
Vinyl Chloride	ND	ND	ug/L	1.0	0.30	SW846 8260C	1	03/23/2023 14:11	TMP	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	97.2%	62 - 133	03/23/2023 14:11	
1-Chloro-2-Fluorobenzene	348-51-6	102%	70 - 130	03/27/2023 20:33	
4-Bromofluorobenzene	460-00-4	108%	79 - 114	03/23/2023 14:11	
Dibromofluoromethane	1868-53-7	95.4%	78 - 116	03/23/2023 14:11	
Toluene-d8	2037-26-5	100%	76 - 127	03/23/2023 14:11	

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	Field Blank	Collected	03/16/2023 11:00
Lab Sample ID	3293158002	Lab Receipt	03/16/2023 17:40

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	ND	ND,2	mg/L	5	5	SM2320B-2011	1	03/28/2023 15:58	NML	F
Ammonia-N	ND	ND	mg/L	0.100	0.003	ASTM D6919-17	1	03/22/2023 04:40	NML	G
Chemical Oxygen Demand (COD)	10J	J	mg/L	15	5	EPA 410.4	1	03/22/2023 14:15	KMS	G
Chloride	ND	ND	mg/L	2.0	1.5	EPA 300.0	2	03/17/2023 23:42	J1W	F
Nitrate-N	ND	ND	mg/L	1.0	0.22	EPA 300.0	2	03/17/2023 23:42	J1W	F
Sulfate	ND	ND	mg/L	2.0	1.5	EPA 300.0	2	03/17/2023 23:42	J1W	F
Total Dissolved Solids	ND	ND	mg/L	25	25	SM2540C-15	1	03/22/2023 15:25	GJB	F





## Results

Client Sample ID	GWM-15D	Collected	03/16/2023 10:35
Lab Sample ID	3293158003	Lab Receipt	03/16/2023 17:40

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 12:54	MO	E2
Arsenic, Total	ND	ND	mg/L	0.0033	0.0011	SW846 6020A	1	03/23/2023 12:54	MO	E2
Barium, Total	0.081		mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:54	MO	E2
Beryllium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/23/2023 12:54	MO	E2
Cadmium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/23/2023 12:54	MO	E2
Calcium, Total	20.3		mg/L	0.11	0.037	SW846 6020A	1	03/23/2023 12:54	MO	E2
Chromium, Total	0.0017J	J	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 12:54	MO	E2
Cobalt, Total	0.025		mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:54	MO	E2
Copper, Total	0.0023J	J	mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:54	MO	E2
Hardness	127	3	mg/L	0.33	0.11	EPA 200.7	1	03/23/2023 21:24	MO	E1
Iron, Total	0.050J	J	mg/L	0.056	0.019	SW846 6020A	1	03/23/2023 12:54	MO	E2
Lead, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 12:54	MO	E2
Magnesium, Total	20.4		mg/L	0.11	0.037	SW846 6020A	1	03/23/2023 12:54	MO	E2
Manganese, Total	0.98		mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:54	MO	E2
Mercury, Total	ND	ND	mg/L	0.00050	0.00017	SW846 7470A	1	03/20/2023 13:38	WDA	E
Nickel, Total	0.0097		mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:54	MO	E2
Potassium, Total	2.8		mg/L	0.11	0.037	SW846 6020A	1	03/23/2023 12:54	MO	E2
Selenium, Total	ND	ND,4	mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:54	MO	E2
Silver, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 12:54	MO	E2
Sodium, Total	35.1		mg/L	0.11	0.037	SW846 6020A	1	03/23/2023 12:54	MO	E2
Thallium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/23/2023 12:54	MO	E2
Vanadium, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 12:54	MO	E2
Zinc, Total	0.0092		mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:54	MO	E2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 18:45	TMP	C
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	0.22	SW846 8260C	1	03/23/2023 18:45	TMP	C
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 18:45	TMP	C
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 18:45	TMP	C
1,1-Dichloroethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 18:45	TMP	C
1,1-Dichloroethene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 18:45	TMP	C
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	0.60	SW846 8260C	1	03/23/2023 18:45	TMP	C
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.020	0.0048	SW846 8011	1	03/27/2023 20:48	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	7.0	1.5	SW846 8260C	1	03/23/2023 18:45	TMP	C
1,2-Dibromoethane	ND	ND	ug/L	0.020	0.0098	SW846 8011	1	03/27/2023 20:48	VLM	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 18:45	TMP	C
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	0.38	SW846 8260C	1	03/23/2023 18:45	TMP	C
1,2-Dichloroethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 18:45	TMP	C
1,2-Dichloropropane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 18:45	TMP	C
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 18:45	TMP	C
2-Butanone	ND	ND	ug/L	10.0	1.8	SW846 8260C	1	03/23/2023 18:45	TMP	C
2-Hexanone	ND	ND	ug/L	5.0	1.3	SW846 8260C	1	03/23/2023 18:45	TMP	C
4-Methyl-2-Pentanone(MIBK)	ND	ND	ug/L	5.0	1.5	SW846 8260C	1	03/23/2023 18:45	TMP	C
Acetone	ND	ND	ug/L	10.0	3.1	SW846 8260C	1	03/23/2023 18:45	TMP	C
Acrylonitrile	ND	ND	ug/L	5.0	1.2	SW846 8260C	1	03/23/2023 18:45	TMP	C



## Results

Client Sample ID	GWM-15D	Collected	03/16/2023 10:35
Lab Sample ID	3293158003	Lab Receipt	03/16/2023 17:40

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 18:45	TMP	C
Bromochloromethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 18:45	TMP	C
Bromodichloromethane	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 18:45	TMP	C
Bromoform	ND	ND	ug/L	1.0	0.40	SW846 8260C	1	03/23/2023 18:45	TMP	C
Bromomethane	ND	ND,1	ug/L	1.0	0.39	SW846 8260C	1	03/23/2023 18:45	TMP	C
Carbon Disulfide	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 18:45	TMP	C
Carbon Tetrachloride	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 18:45	TMP	C
Chlorobenzene	ND	ND	ug/L	1.0	0.19	SW846 8260C	1	03/23/2023 18:45	TMP	C
Chlorodibromomethane	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 18:45	TMP	C
Chloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 18:45	TMP	C
Chloroform	ND	ND	ug/L	1.0	0.21	SW846 8260C	1	03/23/2023 18:45	TMP	C
Chloromethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 18:45	TMP	C
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 18:45	TMP	C
cis-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 18:45	TMP	C
Cyclohexane	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 18:45	TMP	C
Dibromomethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 18:45	TMP	C
Dichlorodifluoromethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 18:45	TMP	C
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 18:45	TMP	C
Iodomethane	ND	ND	ug/L	1.0	0.42	SW846 8260C	1	03/23/2023 18:45	TMP	C
Methyl t-Butyl Ether	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 18:45	TMP	C
Methylene Chloride	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 18:45	TMP	C
mp-Xylene	ND	ND	ug/L	2.0	0.52	SW846 8260C	1	03/23/2023 18:45	TMP	C
o-Xylene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 18:45	TMP	C
Styrene	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 18:45	TMP	C
Tetrachloroethene	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 18:45	TMP	C
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 18:45	TMP	C
Total Xylenes	ND	ND	ug/L	3.0	0.66	SW846 8260C	1	03/23/2023 18:45	TMP	C
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.26	SW846 8260C	1	03/23/2023 18:45	TMP	C
trans-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 18:45	TMP	C
trans-1,4-Dichloro-2-butene	ND	ND	ug/L	3.0	0.86	SW846 8260C	1	03/23/2023 18:45	TMP	C
Trichloroethene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 18:45	TMP	C
Trichlorofluoromethane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 18:45	TMP	C
Vinyl Acetate	ND	ND	ug/L	5.0	1.6	SW846 8260C	1	03/23/2023 18:45	TMP	C
Vinyl Chloride	ND	ND	ug/L	1.0	0.30	SW846 8260C	1	03/23/2023 18:45	TMP	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	96.1%	62 - 133	03/23/2023 18:45	
1-Chloro-2-Fluorobenzene	348-51-6	86.3%	70 - 130	03/27/2023 20:48	
4-Bromofluorobenzene	460-00-4	107%	79 - 114	03/23/2023 18:45	
Dibromofluoromethane	1868-53-7	94.6%	78 - 116	03/23/2023 18:45	
Toluene-d8	2037-26-5	101%	76 - 127	03/23/2023 18:45	

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	GWM-15D	Collected	03/16/2023 10:35
Lab Sample ID	3293158003	Lab Receipt	03/16/2023 17:40

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	42	2	mg/L	5	5	SM2320B-2011	1	03/28/2023 16:12	NML	F
Ammonia-N	0.085J	J	mg/L	0.100	0.03	ASTM D6919-17	10	03/22/2023 05:21	NML	G
Chemical Oxygen Demand (COD)	14J	J	mg/L	15	5	EPA 410.4	1	03/22/2023 14:15	KMS	G
Chloride	79.6		mg/L	2.0	1.5	EPA 300.0	2	03/17/2023 23:52	J1W	F
Nitrate-N	ND	ND	mg/L	1.0	0.22	EPA 300.0	2	03/17/2023 23:52	J1W	F
Sulfate	61.7		mg/L	2.0	1.5	EPA 300.0	2	03/17/2023 23:52	J1W	F
Total Dissolved Solids	288		mg/L	25	25	SM2540C-15	1	03/22/2023 15:25	GJB	F



## Results

Client Sample ID	GWM-14	Collected	03/16/2023 11:45
Lab Sample ID	3293158004	Lab Receipt	03/16/2023 17:40

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 12:56	MO	E2
Arsenic, Total	ND	ND	mg/L	0.0033	0.0011	SW846 6020A	1	03/23/2023 12:56	MO	E2
Barium, Total	0.052		mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:56	MO	E2
Beryllium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/23/2023 12:56	MO	E2
Cadmium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/23/2023 12:56	MO	E2
Calcium, Total	11.2		mg/L	0.11	0.037	SW846 6020A	1	03/23/2023 12:56	MO	E2
Chromium, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 12:56	MO	E2
Cobalt, Total	0.23		mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:56	MO	E2
Copper, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:56	MO	E2
Hardness	90.2	3	mg/L	0.33	0.11	EPA 200.7	1	03/24/2023 08:58	SRT	E1
Iron, Total	55.6		mg/L	0.056	0.019	SW846 6020A	1	03/23/2023 12:56	MO	E2
Lead, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 12:56	MO	E2
Magnesium, Total	15.4		mg/L	0.11	0.037	SW846 6020A	1	03/23/2023 12:56	MO	E2
Manganese, Total	2.9		mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:56	MO	E2
Mercury, Total	ND	ND	mg/L	0.00050	0.00017	SW846 7470A	1	03/20/2023 13:42	WDA	E
Nickel, Total	0.0092		mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:56	MO	E2
Potassium, Total	0.59		mg/L	0.11	0.037	SW846 6020A	1	03/23/2023 12:56	MO	E2
Selenium, Total	ND	ND,4	mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:56	MO	E2
Silver, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 12:56	MO	E2
Sodium, Total	29.9		mg/L	0.11	0.037	SW846 6020A	1	03/23/2023 12:56	MO	E2
Thallium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/23/2023 12:56	MO	E2
Vanadium, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 12:56	MO	E2
Zinc, Total	0.012		mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:56	MO	E2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 19:08	TMP	C
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	0.22	SW846 8260C	1	03/23/2023 19:08	TMP	C
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 19:08	TMP	C
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 19:08	TMP	C
1,1-Dichloroethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 19:08	TMP	C
1,1-Dichloroethene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 19:08	TMP	C
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	0.60	SW846 8260C	1	03/23/2023 19:08	TMP	C
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.020	0.0047	SW846 8011	1	03/27/2023 21:03	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	7.0	1.5	SW846 8260C	1	03/23/2023 19:08	TMP	C
1,2-Dibromoethane	ND	ND	ug/L	0.020	0.0097	SW846 8011	1	03/27/2023 21:03	VLM	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 19:08	TMP	C
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	0.38	SW846 8260C	1	03/23/2023 19:08	TMP	C
1,2-Dichloroethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 19:08	TMP	C
1,2-Dichloropropane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 19:08	TMP	C
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 19:08	TMP	C
2-Butanone	ND	ND	ug/L	10.0	1.8	SW846 8260C	1	03/23/2023 19:08	TMP	C
2-Hexanone	ND	ND	ug/L	5.0	1.3	SW846 8260C	1	03/23/2023 19:08	TMP	C
4-Methyl-2-Pentanone(MIBK)	ND	ND	ug/L	5.0	1.5	SW846 8260C	1	03/23/2023 19:08	TMP	C
Acetone	ND	ND	ug/L	10.0	3.1	SW846 8260C	1	03/23/2023 19:08	TMP	C
Acrylonitrile	ND	ND	ug/L	5.0	1.2	SW846 8260C	1	03/23/2023 19:08	TMP	C



## Results

Client Sample ID	GWM-14	Collected	03/16/2023 11:45
Lab Sample ID	3293158004	Lab Receipt	03/16/2023 17:40

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 19:08	TMP	C
Bromochloromethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 19:08	TMP	C
Bromodichloromethane	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 19:08	TMP	C
Bromoform	ND	ND	ug/L	1.0	0.40	SW846 8260C	1	03/23/2023 19:08	TMP	C
Bromomethane	ND	ND,1	ug/L	1.0	0.39	SW846 8260C	1	03/23/2023 19:08	TMP	C
Carbon Disulfide	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 19:08	TMP	C
Carbon Tetrachloride	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 19:08	TMP	C
Chlorobenzene	ND	ND	ug/L	1.0	0.19	SW846 8260C	1	03/23/2023 19:08	TMP	C
Chlorodibromomethane	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 19:08	TMP	C
Chloroethane	ND	ND,5	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 19:08	TMP	C
Chloroform	ND	ND	ug/L	1.0	0.21	SW846 8260C	1	03/23/2023 19:08	TMP	C
Chloromethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 19:08	TMP	C
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 19:08	TMP	C
cis-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 19:08	TMP	C
Cyclohexane	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 19:08	TMP	C
Dibromomethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 19:08	TMP	C
Dichlorodifluoromethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 19:08	TMP	C
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 19:08	TMP	C
Iodomethane	ND	ND	ug/L	1.0	0.42	SW846 8260C	1	03/23/2023 19:08	TMP	C
Methyl t-Butyl Ether	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 19:08	TMP	C
Methylene Chloride	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 19:08	TMP	C
mp-Xylene	ND	ND	ug/L	2.0	0.52	SW846 8260C	1	03/23/2023 19:08	TMP	C
o-Xylene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 19:08	TMP	C
Styrene	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 19:08	TMP	C
Tetrachloroethene	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 19:08	TMP	C
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 19:08	TMP	C
Total Xylenes	ND	ND	ug/L	3.0	0.66	SW846 8260C	1	03/23/2023 19:08	TMP	C
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.26	SW846 8260C	1	03/23/2023 19:08	TMP	C
trans-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 19:08	TMP	C
trans-1,4-Dichloro-2-butene	ND	ND	ug/L	3.0	0.86	SW846 8260C	1	03/23/2023 19:08	TMP	C
Trichloroethene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 19:08	TMP	C
Trichlorofluoromethane	ND	ND,6,7	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 19:08	TMP	C
Vinyl Acetate	ND	ND	ug/L	5.0	1.6	SW846 8260C	1	03/23/2023 19:08	TMP	C
Vinyl Chloride	ND	ND,8	ug/L	1.0	0.30	SW846 8260C	1	03/23/2023 19:08	TMP	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	96.2%	62 - 133	03/23/2023 19:08	
1-Chloro-2-Fluorobenzene	348-51-6	79.2%	70 - 130	03/27/2023 21:03	
4-Bromofluorobenzene	460-00-4	108%	79 - 114	03/23/2023 19:08	
Dibromofluoromethane	1868-53-7	94.2%	78 - 116	03/23/2023 19:08	
Toluene-d8	2037-26-5	101%	76 - 127	03/23/2023 19:08	

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	GWM-14	Collected	03/16/2023 11:45
Lab Sample ID	3293158004	Lab Receipt	03/16/2023 17:40

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	125	2	mg/L	5	5	SM2320B-2011	1	03/28/2023 16:25	NML	F
Ammonia-N	0.132		mg/L	0.100	0.03	ASTM D6919-17	10	03/22/2023 05:35	NML	G
Chemical Oxygen Demand (COD)	28		mg/L	15	5	EPA 410.4	1	03/22/2023 14:15	KMS	G
Chloride	43.9		mg/L	2.0	1.5	EPA 300.0	2	03/18/2023 00:03	J1W	F
Nitrate-N	ND	ND	mg/L	1.0	0.22	EPA 300.0	2	03/18/2023 00:03	J1W	F
Sulfate	19.7		mg/L	2.0	1.5	EPA 300.0	2	03/18/2023 00:03	J1W	F
Total Dissolved Solids	300		mg/L	25	25	SM2540C-15	1	03/22/2023 15:25	GJB	F



## Results

Client Sample ID	GWM-19D	Collected	03/16/2023 13:50
Lab Sample ID	3293158005	Lab Receipt	03/16/2023 17:40

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 12:58	MO	E2
Arsenic, Total	ND	ND	mg/L	0.0033	0.0011	SW846 6020A	1	03/23/2023 12:58	MO	E2
Barium, Total	0.061		mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:58	MO	E2
Beryllium, Total	0.00038J	J	mg/L	0.0011	0.00037	SW846 6020A	1	03/23/2023 12:58	MO	E2
Cadmium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/23/2023 12:58	MO	E2
Calcium, Total	8.5		mg/L	0.11	0.037	SW846 6020A	1	03/23/2023 12:58	MO	E2
Chromium, Total	0.0021J	J	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 12:58	MO	E2
Cobalt, Total	0.012		mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:58	MO	E2
Copper, Total	0.011		mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:58	MO	E2
Hardness	43.0	3	mg/L	0.33	0.11	EPA 200.7	1	03/24/2023 09:01	SRT	E1
Iron, Total	ND	ND	mg/L	0.056	0.019	SW846 6020A	1	03/23/2023 12:58	MO	E2
Lead, Total	0.0024		mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 12:58	MO	E2
Magnesium, Total	4.8		mg/L	0.11	0.037	SW846 6020A	1	03/23/2023 12:58	MO	E2
Manganese, Total	0.058		mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:58	MO	E2
Mercury, Total	0.0023		mg/L	0.00050	0.00017	SW846 7470A	1	03/20/2023 13:43	WDA	E
Nickel, Total	0.026		mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:58	MO	E2
Potassium, Total	2.1		mg/L	0.11	0.037	SW846 6020A	1	03/23/2023 12:58	MO	E2
Selenium, Total	ND	ND,4	mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:58	MO	E2
Silver, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 12:58	MO	E2
Sodium, Total	14.4		mg/L	0.11	0.037	SW846 6020A	1	03/23/2023 12:58	MO	E2
Thallium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/23/2023 12:58	MO	E2
Vanadium, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 12:58	MO	E2
Zinc, Total	0.032		mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 12:58	MO	E2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 19:31	TMP	C
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	0.22	SW846 8260C	1	03/23/2023 19:31	TMP	C
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 19:31	TMP	C
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 19:31	TMP	C
1,1-Dichloroethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 19:31	TMP	C
1,1-Dichloroethene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 19:31	TMP	C
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	0.60	SW846 8260C	1	03/23/2023 19:31	TMP	C
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.020	0.0047	SW846 8011	1	03/27/2023 21:19	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	7.0	1.5	SW846 8260C	1	03/23/2023 19:31	TMP	C
1,2-Dibromoethane	ND	ND	ug/L	0.020	0.0097	SW846 8011	1	03/27/2023 21:19	VLM	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 19:31	TMP	C
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	0.38	SW846 8260C	1	03/23/2023 19:31	TMP	C
1,2-Dichloroethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 19:31	TMP	C
1,2-Dichloropropane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 19:31	TMP	C
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 19:31	TMP	C
2-Butanone	ND	ND	ug/L	10.0	1.8	SW846 8260C	1	03/23/2023 19:31	TMP	C
2-Hexanone	ND	ND	ug/L	5.0	1.3	SW846 8260C	1	03/23/2023 19:31	TMP	C
4-Methyl-2-Pentanone(MIBK)	ND	ND	ug/L	5.0	1.5	SW846 8260C	1	03/23/2023 19:31	TMP	C
Acetone	ND	ND	ug/L	10.0	3.1	SW846 8260C	1	03/23/2023 19:31	TMP	C
Acrylonitrile	ND	ND	ug/L	5.0	1.2	SW846 8260C	1	03/23/2023 19:31	TMP	C



## Results

Client Sample ID	GWM-19D	Collected	03/16/2023 13:50
Lab Sample ID	3293158005	Lab Receipt	03/16/2023 17:40

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 19:31	TMP	C
Bromochloromethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 19:31	TMP	C
Bromodichloromethane	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 19:31	TMP	C
Bromoform	ND	ND	ug/L	1.0	0.40	SW846 8260C	1	03/23/2023 19:31	TMP	C
Bromomethane	ND	ND,1	ug/L	1.0	0.39	SW846 8260C	1	03/23/2023 19:31	TMP	C
Carbon Disulfide	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 19:31	TMP	C
Carbon Tetrachloride	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 19:31	TMP	C
Chlorobenzene	ND	ND	ug/L	1.0	0.19	SW846 8260C	1	03/23/2023 19:31	TMP	C
Chlorodibromomethane	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 19:31	TMP	C
Chloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 19:31	TMP	C
Chloroform	ND	ND	ug/L	1.0	0.21	SW846 8260C	1	03/23/2023 19:31	TMP	C
Chloromethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 19:31	TMP	C
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 19:31	TMP	C
cis-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 19:31	TMP	C
Cyclohexane	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 19:31	TMP	C
Dibromomethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 19:31	TMP	C
Dichlorodifluoromethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 19:31	TMP	C
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 19:31	TMP	C
Iodomethane	ND	ND	ug/L	1.0	0.42	SW846 8260C	1	03/23/2023 19:31	TMP	C
Methyl t-Butyl Ether	0.36J	J	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 19:31	TMP	C
Methylene Chloride	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 19:31	TMP	C
mp-Xylene	ND	ND	ug/L	2.0	0.52	SW846 8260C	1	03/23/2023 19:31	TMP	C
o-Xylene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 19:31	TMP	C
Styrene	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 19:31	TMP	C
Tetrachloroethene	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 19:31	TMP	C
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 19:31	TMP	C
Total Xylenes	ND	ND	ug/L	3.0	0.66	SW846 8260C	1	03/23/2023 19:31	TMP	C
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.26	SW846 8260C	1	03/23/2023 19:31	TMP	C
trans-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 19:31	TMP	C
trans-1,4-Dichloro-2-butene	ND	ND	ug/L	3.0	0.86	SW846 8260C	1	03/23/2023 19:31	TMP	C
Trichloroethene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 19:31	TMP	C
Trichlorofluoromethane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 19:31	TMP	C
Vinyl Acetate	ND	ND	ug/L	5.0	1.6	SW846 8260C	1	03/23/2023 19:31	TMP	C
Vinyl Chloride	ND	ND	ug/L	1.0	0.30	SW846 8260C	1	03/23/2023 19:31	TMP	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	97.4%	62 - 133	03/23/2023 19:31	
1-Chloro-2-Fluorobenzene	348-51-6	84.2%	70 - 130	03/27/2023 21:19	
4-Bromofluorobenzene	460-00-4	108%	79 - 114	03/23/2023 19:31	
Dibromofluoromethane	1868-53-7	94.4%	78 - 116	03/23/2023 19:31	
Toluene-d8	2037-26-5	101%	76 - 127	03/23/2023 19:31	

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	GWM-19D	Collected	03/16/2023 13:50
Lab Sample ID	3293158005	Lab Receipt	03/16/2023 17:40

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	11	2	mg/L	5	5	SM2320B-2011	1	03/28/2023 16:40	NML	F
Ammonia-N	ND	ND	mg/L	0.100	0.03	ASTM D6919-17	10	03/22/2023 04:54	NML	G
Chemical Oxygen Demand (COD)	7J	J	mg/L	15	5	EPA 410.4	1	03/22/2023 14:15	KMS	G
Chloride	35.2		mg/L	2.0	1.5	EPA 300.0	2	03/18/2023 00:13	J1W	F
Nitrate-N	1.3		mg/L	1.0	0.22	EPA 300.0	2	03/18/2023 00:13	J1W	F
Sulfate	10.1		mg/L	2.0	1.5	EPA 300.0	2	03/18/2023 00:13	J1W	F
Total Dissolved Solids	142		mg/L	25	25	SM2540C-15	1	03/22/2023 15:25	GJB	F



## Results

Client Sample ID	GWM-5A	Collected	03/16/2023 15:15
Lab Sample ID	3293158006	Lab Receipt	03/16/2023 17:40

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 13:00	MO	E2
Arsenic, Total	ND	ND	mg/L	0.0033	0.0011	SW846 6020A	1	03/23/2023 13:00	MO	E2
Barium, Total	0.099		mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 13:00	MO	E2
Beryllium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/23/2023 13:00	MO	E2
Cadmium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/23/2023 13:00	MO	E2
Calcium, Total	23.9		mg/L	0.11	0.037	SW846 6020A	1	03/23/2023 13:00	MO	E2
Chromium, Total	0.0045		mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 13:00	MO	E2
Cobalt, Total	0.073		mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 13:00	MO	E2
Copper, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 13:00	MO	E2
Hardness	95.2	3	mg/L	0.33	0.11	EPA 200.7	1	03/24/2023 09:04	SRT	E1
Iron, Total	2.0		mg/L	0.056	0.019	SW846 6020A	1	03/23/2023 13:00	MO	E2
Lead, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 13:00	MO	E2
Magnesium, Total	8.5		mg/L	0.11	0.037	SW846 6020A	1	03/23/2023 13:00	MO	E2
Manganese, Total	1.0		mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 13:00	MO	E2
Mercury, Total	0.00045J	J	mg/L	0.00050	0.00017	SW846 7470A	1	03/20/2023 13:47	WDA	E
Nickel, Total	0.013		mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 13:00	MO	E2
Potassium, Total	3.3		mg/L	0.11	0.037	SW846 6020A	1	03/23/2023 13:00	MO	E2
Selenium, Total	ND	ND,4	mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 13:00	MO	E2
Silver, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 13:00	MO	E2
Sodium, Total	27.1		mg/L	0.11	0.037	SW846 6020A	1	03/23/2023 13:00	MO	E2
Thallium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/23/2023 13:00	MO	E2
Vanadium, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/23/2023 13:00	MO	E2
Zinc, Total	0.0085		mg/L	0.0056	0.0019	SW846 6020A	1	03/23/2023 13:00	MO	E2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 19:54	TMP	C
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	0.22	SW846 8260C	1	03/23/2023 19:54	TMP	C
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 19:54	TMP	C
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 19:54	TMP	C
1,1-Dichloroethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 19:54	TMP	C
1,1-Dichloroethene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 19:54	TMP	C
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	0.60	SW846 8260C	1	03/23/2023 19:54	TMP	C
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.019	0.0046	SW846 8011	1	03/27/2023 21:34	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	7.0	1.5	SW846 8260C	1	03/23/2023 19:54	TMP	C
1,2-Dibromoethane	ND	ND	ug/L	0.019	0.0095	SW846 8011	1	03/27/2023 21:34	VLM	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/23/2023 19:54	TMP	C
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	0.38	SW846 8260C	1	03/23/2023 19:54	TMP	C
1,2-Dichloroethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 19:54	TMP	C
1,2-Dichloropropane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 19:54	TMP	C
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 19:54	TMP	C
2-Butanone	ND	ND	ug/L	10.0	1.8	SW846 8260C	1	03/23/2023 19:54	TMP	C
2-Hexanone	ND	ND	ug/L	5.0	1.3	SW846 8260C	1	03/23/2023 19:54	TMP	C
4-Methyl-2-Pentanone(MIBK)	ND	ND	ug/L	5.0	1.5	SW846 8260C	1	03/23/2023 19:54	TMP	C
Acetone	ND	ND	ug/L	10.0	3.1	SW846 8260C	1	03/23/2023 19:54	TMP	C
Acrylonitrile	ND	ND	ug/L	5.0	1.2	SW846 8260C	1	03/23/2023 19:54	TMP	C



## Results

Client Sample ID	GWM-5A	Collected	03/16/2023 15:15
Lab Sample ID	3293158006	Lab Receipt	03/16/2023 17:40

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 19:54	TMP	C
Bromochloromethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 19:54	TMP	C
Bromodichloromethane	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/23/2023 19:54	TMP	C
Bromoform	ND	ND	ug/L	1.0	0.40	SW846 8260C	1	03/23/2023 19:54	TMP	C
Bromomethane	ND	ND,1	ug/L	1.0	0.39	SW846 8260C	1	03/23/2023 19:54	TMP	C
Carbon Disulfide	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 19:54	TMP	C
Carbon Tetrachloride	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 19:54	TMP	C
Chlorobenzene	ND	ND	ug/L	1.0	0.19	SW846 8260C	1	03/23/2023 19:54	TMP	C
Chlorodibromomethane	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 19:54	TMP	C
Chloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 19:54	TMP	C
Chloroform	ND	ND	ug/L	1.0	0.21	SW846 8260C	1	03/23/2023 19:54	TMP	C
Chloromethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 19:54	TMP	C
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/23/2023 19:54	TMP	C
cis-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 19:54	TMP	C
Cyclohexane	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 19:54	TMP	C
Dibromomethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/23/2023 19:54	TMP	C
Dichlorodifluoromethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 19:54	TMP	C
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/23/2023 19:54	TMP	C
Iodomethane	ND	ND	ug/L	1.0	0.42	SW846 8260C	1	03/23/2023 19:54	TMP	C
Methyl t-Butyl Ether	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 19:54	TMP	C
Methylene Chloride	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/23/2023 19:54	TMP	C
mp-Xylene	ND	ND	ug/L	2.0	0.52	SW846 8260C	1	03/23/2023 19:54	TMP	C
o-Xylene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 19:54	TMP	C
Styrene	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 19:54	TMP	C
Tetrachloroethene	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/23/2023 19:54	TMP	C
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/23/2023 19:54	TMP	C
Total Xylenes	ND	ND	ug/L	3.0	0.66	SW846 8260C	1	03/23/2023 19:54	TMP	C
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.26	SW846 8260C	1	03/23/2023 19:54	TMP	C
trans-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/23/2023 19:54	TMP	C
trans-1,4-Dichloro-2-butene	ND	ND	ug/L	3.0	0.86	SW846 8260C	1	03/23/2023 19:54	TMP	C
Trichloroethene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/23/2023 19:54	TMP	C
Trichlorofluoromethane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/23/2023 19:54	TMP	C
Vinyl Acetate	ND	ND	ug/L	5.0	1.6	SW846 8260C	1	03/23/2023 19:54	TMP	C
Vinyl Chloride	ND	ND	ug/L	1.0	0.30	SW846 8260C	1	03/23/2023 19:54	TMP	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	97.3%	62 - 133	03/23/2023 19:54	
1-Chloro-2-Fluorobenzene	348-51-6	74.9%	70 - 130	03/27/2023 21:34	
4-Bromofluorobenzene	460-00-4	109%	79 - 114	03/23/2023 19:54	
Dibromofluoromethane	1868-53-7	94.7%	78 - 116	03/23/2023 19:54	
Toluene-d8	2037-26-5	101%	76 - 127	03/23/2023 19:54	

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	GWM-5A	Collected	03/16/2023 15:15
Lab Sample ID	3293158006	Lab Receipt	03/16/2023 17:40

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	57	2	mg/L	5	5	SM2320B-2011	1	03/28/2023 15:50	NML	F
Ammonia-N	ND	ND	mg/L	0.100	0.03	ASTM D6919-17	10	03/22/2023 05:08	NML	G
Chemical Oxygen Demand (COD)	12J	J	mg/L	15	5	EPA 410.4	1	03/22/2023 14:15	KMS	G
Chloride	59.1		mg/L	2.0	1.5	EPA 300.0	2	03/18/2023 00:24	J1W	F
Nitrate-N	ND	ND	mg/L	1.0	0.22	EPA 300.0	2	03/18/2023 00:24	J1W	F
Sulfate	22.4		mg/L	2.0	1.5	EPA 300.0	2	03/18/2023 00:24	J1W	F
Total Dissolved Solids	218		mg/L	25	25	SM2540C-15	1	03/22/2023 15:25	GJB	F



### Sample - Method Cross Reference Table

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3293158001	Trip Blank	SW846 8011	SW846 8011	
		SW846 8260C	N/A	
3293158002	Field Blank	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
		SM2540C-15	N/A	
3293158003	GWM-15D	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
		SM2540C-15	N/A	
3293158004	GWM-14	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
		SM2540C-15	N/A	
3293158005	GWM-19D	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
		SM2540C-15	N/A	
3293158006	GWM-5A	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
		SM2540C-15	N/A	



**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Lab ID	Sample ID	Preparation Method	Prep Batch	Prep Date/Time	By	Analysis Method	Anly Batch
3293158001	Trip Blank	SW846 8011	966321	03/27/2023 15:30	VLM	SW846 8011	966414
		N/A	N/A	N/A		SW846 8260C	965300
3293158002	Field Blank	EPA TRMD	963052	03/19/2023 21:21	ANN	EPA 200.7	965394
		SW846 3015A	963932	03/22/2023 02:26	ANN	SW846 6020A	964434
		SW846 7470A	963068	03/20/2023 08:25	WDA	SW846 7470A	963164
		SW846 8011	966321	03/27/2023 15:30	VLM	SW846 8011	966414
		N/A	N/A	N/A		SW846 8260C	965300
		N/A	N/A	N/A		ASTM D6919-17	963759
		N/A	N/A	N/A		EPA 300.0	962807
		N/A	N/A	N/A		EPA 410.4	964235
		N/A	N/A	N/A		SM2320B-2011	966333
		N/A	N/A	N/A	SM2540C-15	963757	
3293158003	GWM-15D	EPA TRMD	963052	03/19/2023 21:21	ANN	EPA 200.7	965394
		SW846 3015A	963932	03/22/2023 02:26	ANN	SW846 6020A	964434
		SW846 7470A	963068	03/20/2023 08:25	WDA	SW846 7470A	963164
		SW846 8011	966321	03/27/2023 15:30	VLM	SW846 8011	966414
		N/A	N/A	N/A		SW846 8260C	965300
		N/A	N/A	N/A		ASTM D6919-17	963759
		N/A	N/A	N/A		EPA 300.0	962807
		N/A	N/A	N/A		EPA 410.4	964235
		N/A	N/A	N/A		SM2320B-2011	966333
		N/A	N/A	N/A	SM2540C-15	963757	
3293158004	GWM-14	EPA TRMD	963437	03/20/2023 20:42	ANN	EPA 200.7	965777
		SW846 3015A	963932	03/22/2023 02:26	ANN	SW846 6020A	964434
		SW846 7470A	963068	03/20/2023 08:25	WDA	SW846 7470A	963164
		SW846 8011	966321	03/27/2023 15:30	VLM	SW846 8011	966414
		N/A	N/A	N/A		SW846 8260C	965300
		N/A	N/A	N/A		ASTM D6919-17	963759
		N/A	N/A	N/A		EPA 300.0	962807
		N/A	N/A	N/A		EPA 410.4	964235
		N/A	N/A	N/A		SM2320B-2011	966333
		N/A	N/A	N/A	SM2540C-15	963757	
3293158005	GWM-19D	EPA TRMD	963437	03/20/2023 20:42	ANN	EPA 200.7	965777
		SW846 3015A	963932	03/22/2023 02:26	ANN	SW846 6020A	964434
		SW846 7470A	963068	03/20/2023 08:25	WDA	SW846 7470A	963164
		SW846 8011	966321	03/27/2023 15:30	VLM	SW846 8011	966414
		N/A	N/A	N/A		SW846 8260C	965300
		N/A	N/A	N/A		ASTM D6919-17	963759
		N/A	N/A	N/A		EPA 300.0	962807
		N/A	N/A	N/A		EPA 410.4	964235
		N/A	N/A	N/A		SM2320B-2011	966333
		N/A	N/A	N/A	SM2540C-15	963757	
3293158006	GWM-5A	EPA TRMD	963437	03/20/2023 20:42	ANN	EPA 200.7	965777
		SW846 3015A	963932	03/22/2023 02:26	ANN	SW846 6020A	964434
		SW846 7470A	963068	03/20/2023 08:25	WDA	SW846 7470A	963164
		SW846 8011	966321	03/27/2023 15:30	VLM	SW846 8011	966414
		N/A	N/A	N/A		SW846 8260C	965300
		N/A	N/A	N/A		ASTM D6919-17	963759
		N/A	N/A	N/A		EPA 300.0	962807
		N/A	N/A	N/A		EPA 410.4	964235
		N/A	N/A	N/A		SM2320B-2011	966333
		N/A	N/A	N/A	SM2540C-15	963757	



3293158

Logged By: MJE  
PM: GJM



# CHAIN OF CUSTODY / SAMPLE INFORMATION FORM

Maryland Environmental Service • 259 Najoles Rd. • Millersville, MD 21108 • (410) 729-8200 • FAX (410) 729-8340

**Laboratory:** ALS  
**Sampler:** Laura Russell / Brooke Zibell / Tom Reedy  
**Client Name:** Maryland Environmental Service, Attn: Cheryl Griffin  
**Facility Name:** Eastern Sanitary Landfill  
**Client Address:** 259 Najoles Rd, Millersville, MD 21108 410-729-8356  
**Project# / Purpose:** 3926-2000

**Turnaround Time:** Routine

Sample #	Sample ID	Grab or Composite	Container Description/Preservation Status	Matrix	# of Containers	Date	Time	Analyses Required/Comments
1	Trip Blank	N/A	40 mL G Na2S2O3	W	2	3-16-23	--	VOCs (8011)
			40 mL G HCl	W	2		--	VOCs (8260)
2	Field Blank	G	40 mL G Na2S2O3	W	2	3-16-23	1100	VOCs (8011)
			40 mL G HCl	W	2			VOCs (8260)
			125 mL P HNO3	W	1			Metals - Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn (6020), Hg (7470), Hardness
			1 L P unpreserved	W	1			Alkalinity, TDS, Nitrate (EPA 300), Sulfate, Chloride
			250 mL P H2SO4	W	1			Ammonia, COD

Therm ID: SEA  
Temp By: MWP | WO Temp (°C): 1

- Receipt Info Completed By:
- Cooler Custody Seal Intact: Y  N
  - Sample Custody Seal Intact: Y  N
  - Received on Ice: Y  N
  - Cooler & Samples Intact: Y  N
  - Correct Containers Provided: Y  N
  - Sample Label/COC Agree: Y  N
  - Adequate Sample Volumes: Y  N
  - CR6 Samples Filtered: Y  N
  - OP Samples Filtered: Y  N
  - VOA Headspace Present: Y  N
  - Voa Trip Blank: Y  N
  - NJS 4 Days?: Y  N
  - Rad Screen (uCi): Y  N
  - Courier/Tracking#: \_\_\_\_\_

Transferred by: Tom Reedy Received by: Laura Russell  
 Date: 3-16-23 Time: 1:55  
 Sufficient ice? - Yes/No: \_\_\_\_\_ Cooler Receipt Information (L) \_\_\_\_\_  
 Temp.: \_\_\_\_\_  
 Sample containers properly pres'd? - Yes/No: \_\_\_\_\_  
 Date: \_\_\_\_\_

3/29/2023

# CHAIN OF CUSTODY / SAMPLE INFORMATION FORM

329358

Maryland Environmental Service • 259 Najoles Rd. • Millersville, MD 21108 • (410) 729-8200 • FAX (410) 729-8340

**Laboratory:** ALS  
**Client Name:** Maryland Environmental Service, Attn: Cheryl Griffin  
**Client Address:** 259 Najoles Rd, Millersville, MD 21108 410-729-8356  
**Facility Name:** Eastern Sanitary Landfill  
**Project# / Purpose:** 3926-2000  
**Sampler:** Laura Russell / Brooke Zibell / Tom Reedy

Sample #	Sample ID	Grab or Composite	Container Description/ Preservation Status	Matrix	# of Containers	Date	Time	Analyses Required/Comments
3	GWM-15D	G	40 mL G Na2S2O3	NPW	2	3-16-23	1035	VOCs (8011)
			40 mL G HCl	NPW	2			VOCs (8260)
			125 mL P HNO3	NPW	2			Metals - Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn (6020), Hg (7470), Hardness
			1 L P unpreserved	NPW	1			Alkalinity, TDS, Nitrate (EPA 300), Sulfate, Chloride
			250 mL P H2SO4	NPW	1			Ammonia, COD
4	GWM-14	G	Same as Sample # 3	NPW	8	3-16-23	1145	Same as Sample # 3
5	GWM-19D	G	Same as Sample # 3	NPW	8	3-16-23	1350	Same as Sample # 3
6	GWM-5A	G	Same as Sample # 3	NPW	8	3-16-23	1515	Same as Sample # 3

**Turnaround Time:** Routine

Transferred by:	Received by:	Date:	Time:	Initials:	Date:
<i>Laura Russell</i>	<i>[Signature]</i>	3/16/23	1535		
Transferred by:	Received by:	Date:	Time:	Initials:	Date:
<i>[Signature]</i>	<i>[Signature]</i>	3-16-23	1740		
Transferred by:	Received by:	Date:	Time:	Initials:	Date:





301 Fulling Mill Road | Middletown, PA 17057 | Phone: 717-944-5541 | Fax: 717-944-1430 | [www.alsglobal.com](http://www.alsglobal.com)

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618  
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

Analytical Results Report For Maryland Environmental Services - Landfills

Report ID [234494 on 3/31/2023](#)

## Certificate of Analysis

Project Name:	<b>Eastern Sanitary Landfill</b>	Workorder:	<b>3293351</b>
Purchase Order:	<b>MA 3680</b>	Workorder ID:	<b>Eastern Sanitary Landfill</b>

Enclosed are the analytical results for samples received by the laboratory on Friday, March 17, 2023.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact George Methlie (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements.

The test results meet requirements of the current NELAP standards or state requirements, where applicable.

For a specific list of accredited analytes, refer to the certifications section of the ALS website at [www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads](http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads).

This laboratory report may not be reproduced, except in full, without the written approval of ALS Global.  
ALS Middletown: 301 Fulling Mill Road, Middletown, PA 17057 : 717-944-5541.

Recipient(s): Maryland Services-ENVOPS - Maryland Environmental Services - Landfills Cheryl Griffin - Maryland Environmental Services Liz Ostermann - Maryland Environmental Services Maryland Services-LF Data - Maryland Environmental Services
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**George Methlie**  
Project Coordinator

(ALS Digital Signature)

*This page is included as part of the Analytical Report and must be retained as a permanent record thereof.*



## Sample Summary

<u>Lab ID</u>	<u>Sample ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>	<u>Collector</u>	<u>Collection Company</u>
3293351001	Trip Blank	Water	03/17/2023 00:00	03/17/2023 16:35	CBC	Collected By Client
3293351002	Field Blank	Water	03/17/2023 09:30	03/17/2023 16:35	CBC	Collected By Client
3293351003	GWM-12	Water	03/17/2023 10:10	03/17/2023 16:35	CBC	Collected By Client
3293351004	L-1	Water	03/17/2023 10:30	03/17/2023 16:35	CBC	Collected By Client
3293351005	L-2	Water	03/17/2023 11:00	03/17/2023 16:35	CBC	Collected By Client
3293351006	SMW-32	Water	03/17/2023 12:25	03/17/2023 16:35	CBC	Collected By Client
3293351007	SMW-13	Water	03/17/2023 12:59	03/17/2023 16:35	CBC	Collected By Client
3293351008	GWM-6	Water	03/17/2023 13:50	03/17/2023 16:35	CBC	Collected By Client
3293351009	SMW-13	Ground Water	03/17/2023 12:59	03/17/2023 16:35	CBC	Collected By Client
3293351010	GWM-6	Ground Water	03/17/2023 13:50	03/17/2023 16:35	CBC	Collected By Client



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## Reference

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### Notes

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- Except as qualified, Clean Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 136.
- Except as qualified, Safe Drinking Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 141.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are performed in the laboratory and are therefore analyzed out of hold time.
- Method references listed on this report beginning with the prefix "S" followed by a method number (such as S2310B-97) refer to methods from "Standard Methods for the Examination of Water and Wastewater".
- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.
- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

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### Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND) above the MDL
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Practical Quantitation Limit for this Project
ND	Not Detected - indicates that the analyte was Not Detected
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits
#	Please reference the result in the Results Section for analyte-level flags.

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### Project Notations

### Sample Notations

Lab ID	Sample ID		
3293351004	L-1	S1	Methods for the analysis of volatile organics require that the sample be preserved to a pH less than 2 using HCl. This sample had a pH greater than 2 when received by the lab.
3293351005	L-2	S2	Methods for the analysis of volatile organics require that the sample be preserved to a pH less than 2 using HCl. This sample had a pH greater than 2 when received by the lab.

### Result Notations

Notation Ref.	
1	The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO <sub>3</sub> /L.
2	This sample result was calculated and reported using Method SM2340B-2011.
3	The QC type LLCCV for method SW846 6020A was outside the control limits for the analyte Se. The % RSD was reported as 28.1 and the control limits were 0 to 20.



**Detected Results Summary**

Client Sample ID	Field Blank	Collected	03/17/2023 09:30
Lab Sample ID	3293351002	Lab Receipt	03/17/2023 16:35

<u>Compound</u>	<u>Result</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Flag</u>
<b>METALS</b>						
Barium, Total	0.033	mg/L	0.0056	0.0019	SW846 6020A	#
Calcium, Total	16.2	mg/L	0.11	0.037	SW846 6020A	#
Hardness	59.1	mg/L	0.33	0.11	EPA 200.7	#
Magnesium, Total	3.9	mg/L	0.11	0.037	SW846 6020A	#
Potassium, Total	1.3	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	9.4	mg/L	0.11	0.037	SW846 6020A	#
Zinc, Total	0.081	mg/L	0.0056	0.0019	SW846 6020A	#
<b>WET CHEMISTRY</b>						
Ammonia-N	0.011J	mg/L	0.100	0.003	ASTM D6919-17	#
Chemical Oxygen Demand (COD)	12J	mg/L	15	5	EPA 410.4	#



**Detected Results Summary**

Client Sample ID GWM-12 Collected 03/17/2023 10:10  
 Lab Sample ID 3293351003 Lab Receipt 03/17/2023 16:35

<u>Compound</u>	<u>Result</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Flag</u>
<b>METALS</b>						
Barium, Total	0.094	mg/L	0.0056	0.0019	SW846 6020A	#
Calcium, Total	9.5	mg/L	0.11	0.037	SW846 6020A	#
Chromium, Total	0.0010J	mg/L	0.0022	0.00074	SW846 6020A	#
Cobalt, Total	0.0078	mg/L	0.0056	0.0019	SW846 6020A	#
Copper, Total	0.0096	mg/L	0.0056	0.0019	SW846 6020A	#
Hardness	44.9	mg/L	0.33	0.11	EPA 200.7	#
Magnesium, Total	4.8	mg/L	0.11	0.037	SW846 6020A	#
Manganese, Total	0.027	mg/L	0.0056	0.0019	SW846 6020A	#
Mercury, Total	0.0026	mg/L	0.00050	0.00017	SW846 7470A	#
Nickel, Total	0.025	mg/L	0.0056	0.0019	SW846 6020A	#
Potassium, Total	2.0	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	23.9	mg/L	0.11	0.037	SW846 6020A	#
Zinc, Total	0.031	mg/L	0.0056	0.0019	SW846 6020A	#
<b>VOLATILE ORGANICS</b>						
Chloroform	0.22J	ug/L	1.0	0.21	SW846 8260C	#
Methyl t-Butyl Ether	2.3	ug/L	1.0	0.33	SW846 8260C	#
<b>WET CHEMISTRY</b>						
Alkalinity, Total	10	mg/L	5	5	SM2320B-2011	#
Ammonia-N	0.095J	mg/L	0.100	0.03	ASTM D6919-17	#
Chemical Oxygen Demand (COD)	13J	mg/L	15	5	EPA 410.4	#
Chloride	55.6	mg/L	2.0	1.5	EPA 300.0	#
Nitrate-N	2.1	mg/L	1.0	0.22	EPA 300.0	#
Total Dissolved Solids	162	mg/L	25	25	SM2540C-15	#



**Detected Results Summary**

Client Sample ID L-1 Collected 03/17/2023 10:30  
 Lab Sample ID 3293351004 Lab Receipt 03/17/2023 16:35

Compound	Result	Units	RDL	MDL	Method	Flag
<b>METALS</b>						
Arsenic, Total	0.0068	mg/L	0.0059	0.0020	SW846 6020A	#
Barium, Total	0.41	mg/L	0.010	0.0034	SW846 6020A	#
Calcium, Total	129	mg/L	0.20	0.067	SW846 6020A	#
Chromium, Total	0.026	mg/L	0.0040	0.0013	SW846 6020A	#
Cobalt, Total	0.015	mg/L	0.010	0.0034	SW846 6020A	#
Copper, Total	0.0043J	mg/L	0.010	0.0034	SW846 6020A	#
Hardness	718	mg/L	0.66	0.22	EPA 200.7	#
Iron, Total	6.2	mg/L	0.10	0.034	SW846 6020A	#
Magnesium, Total	126	mg/L	0.20	0.067	SW846 6020A	#
Manganese, Total	0.47	mg/L	0.010	0.0034	SW846 6020A	#
Nickel, Total	0.043	mg/L	0.010	0.0034	SW846 6020A	#
Potassium, Total	232	mg/L	0.99	0.33	SW846 6020A	#
Sodium, Total	898	mg/L	0.99	0.33	SW846 6020A	#
Vanadium, Total	0.0055	mg/L	0.0040	0.0013	SW846 6020A	#
Zinc, Total	0.014	mg/L	0.010	0.0034	SW846 6020A	#
<b>VOLATILE ORGANICS</b>						
1,4-Dichlorobenzene	7.4	ug/L	5.0	1.4	SW846 8260C	#
Acetone	48.6J	ug/L	50.0	15.5	SW846 8260C	#
Benzene	3.6J	ug/L	5.0	1.2	SW846 8260C	#
Chlorobenzene	10.4	ug/L	5.0	0.95	SW846 8260C	#
Ethylbenzene	2.0J	ug/L	5.0	1.7	SW846 8260C	#
Methyl t-Butyl Ether	5.3	ug/L	5.0	1.7	SW846 8260C	#
mp-Xylene	4.3J	ug/L	10.0	2.6	SW846 8260C	#
o-Xylene	2.4J	ug/L	5.0	1.7	SW846 8260C	#
Toluene	2.3J	ug/L	5.0	1.2	SW846 8260C	#
Total Xylenes	6.6J	ug/L	15.0	3.3	SW846 8260C	#
<b>WET CHEMISTRY</b>						
Alkalinity, Total	2300	mg/L	50	50	SM2320B-2011	#
Ammonia-N	391	mg/L	10.0	3	ASTM D6919-17	#
Chemical Oxygen Demand (COD)	622	mg/L	30	10	EPA 410.4	#
Chloride	923	mg/L	10.0	7.5	EPA 300.0	#
Total Dissolved Solids	3400	mg/L	25	25	SM2540C-15	#



### Detected Results Summary

Client Sample ID	L-2	Collected	03/17/2023 11:00
Lab Sample ID	3293351005	Lab Receipt	03/17/2023 16:35

Compound	Result	Units	RDL	MDL	Method	Flag
<b>METALS</b>						
Antimony, Total	0.0021J	mg/L	0.0040	0.0013	SW846 6020A	#
Arsenic, Total	0.027	mg/L	0.0059	0.0020	SW846 6020A	#
Barium, Total	0.32	mg/L	0.010	0.0034	SW846 6020A	#
Calcium, Total	158	mg/L	0.20	0.067	SW846 6020A	#
Chromium, Total	0.088	mg/L	0.0040	0.0013	SW846 6020A	#
Cobalt, Total	0.029	mg/L	0.010	0.0034	SW846 6020A	#
Copper, Total	0.0081J	mg/L	0.010	0.0034	SW846 6020A	#
Hardness	1100	mg/L	0.66	0.22	EPA 200.7	#
Iron, Total	8.5	mg/L	0.10	0.034	SW846 6020A	#
Magnesium, Total	206	mg/L	0.20	0.067	SW846 6020A	#
Manganese, Total	1.5	mg/L	0.010	0.0034	SW846 6020A	#
Nickel, Total	0.26	mg/L	0.010	0.0034	SW846 6020A	#
Potassium, Total	484	mg/L	0.99	0.33	SW846 6020A	#
Sodium, Total	1550	mg/L	0.99	0.33	SW846 6020A	#
Vanadium, Total	0.043	mg/L	0.0040	0.0013	SW846 6020A	#
Zinc, Total	0.0041J	mg/L	0.010	0.0034	SW846 6020A	#
<b>VOLATILE ORGANICS</b>						
1,2-Dichloroethane	2.3J	ug/L	5.0	1.6	SW846 8260C	#
1,4-Dichlorobenzene	1.9J	ug/L	5.0	1.4	SW846 8260C	#
Acetone	38.1J	ug/L	50.0	15.5	SW846 8260C	#
Benzene	12.1	ug/L	5.0	1.2	SW846 8260C	#
Ethylbenzene	20.0	ug/L	5.0	1.7	SW846 8260C	#
Methyl t-Butyl Ether	6.9	ug/L	5.0	1.7	SW846 8260C	#
mp-Xylene	31.1	ug/L	10.0	2.6	SW846 8260C	#
o-Xylene	13.4	ug/L	5.0	1.7	SW846 8260C	#
Toluene	12.9	ug/L	5.0	1.2	SW846 8260C	#
Total Xylenes	44.6	ug/L	15.0	3.3	SW846 8260C	#
<b>WET CHEMISTRY</b>						
Alkalinity, Total	4800	mg/L	125	100	SM2320B-2011	#
Ammonia-N	831	mg/L	10.0	3	ASTM D6919-17	#
Chemical Oxygen Demand (COD)	1080	mg/L	30	10	EPA 410.4	#
Chloride	2270	mg/L	50.0	37.5	EPA 300.0	#
Total Dissolved Solids	6280	mg/L	25	25	SM2540C-15	#





### Detected Results Summary

Client Sample ID	SMW-32	Collected	03/17/2023 12:25
Lab Sample ID	3293351006	Lab Receipt	03/17/2023 16:35

Compound	Result	Units	RDL	MDL	Method	Flag
<b>METALS</b>						
Barium, Total	0.12	mg/L	0.0056	0.0019	SW846 6020A	#
Beryllium, Total	0.0011	mg/L	0.0011	0.00037	SW846 6020A	#
Calcium, Total	14.0	mg/L	0.11	0.037	SW846 6020A	#
Chromium, Total	0.0011J	mg/L	0.0022	0.00074	SW846 6020A	#
Cobalt, Total	0.018	mg/L	0.0056	0.0019	SW846 6020A	#
Copper, Total	0.035	mg/L	0.0056	0.0019	SW846 6020A	#
Hardness	71.1	mg/L	0.33	0.11	EPA 200.7	#
Iron, Total	0.039J	mg/L	0.056	0.019	SW846 6020A	#
Magnesium, Total	7.9	mg/L	0.11	0.037	SW846 6020A	#
Manganese, Total	0.068	mg/L	0.0056	0.0019	SW846 6020A	#
Mercury, Total	0.0034	mg/L	0.00050	0.00017	SW846 7470A	#
Nickel, Total	0.070	mg/L	0.0056	0.0019	SW846 6020A	#
Potassium, Total	2.5	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	41.7	mg/L	0.11	0.037	SW846 6020A	#
Zinc, Total	0.14	mg/L	0.0056	0.0019	SW846 6020A	#
<b>VOLATILE ORGANICS</b>						
Chloroform	0.31J	ug/L	1.0	0.21	SW846 8260C	#
<b>WET CHEMISTRY</b>						
Alkalinity, Total	10	mg/L	5	5	SM2320B-2011	#
Ammonia-N	0.089J	mg/L	0.100	0.03	ASTM D6919-17	#
Chemical Oxygen Demand (COD)	8J	mg/L	15	5	EPA 410.4	#
Chloride	101	mg/L	2.0	1.5	EPA 300.0	#
Nitrate-N	2.7	mg/L	1.0	0.22	EPA 300.0	#
Sulfate	1.9J	mg/L	2.0	1.5	EPA 300.0	#
Total Dissolved Solids	270	mg/L	25	25	SM2540C-15	#



### Detected Results Summary

Client Sample ID	SMW-13	Collected	03/17/2023 12:59
Lab Sample ID	3293351007	Lab Receipt	03/17/2023 16:35

Compound	Result	Units	RDL	MDL	Method	Flag
<b>METALS</b>						
Barium, Total	0.13	mg/L	0.0056	0.0019	SW846 6020A	#
Beryllium, Total	0.00091J	mg/L	0.0011	0.00037	SW846 6020A	#
Calcium, Total	14.7	mg/L	0.11	0.037	SW846 6020A	#
Chromium, Total	0.00084J	mg/L	0.0022	0.00074	SW846 6020A	#
Cobalt, Total	0.012	mg/L	0.0056	0.0019	SW846 6020A	#
Copper, Total	0.060	mg/L	0.0056	0.0019	SW846 6020A	#
Hardness	72.5	mg/L	0.33	0.11	EPA 200.7	#
Iron, Total	0.026J	mg/L	0.056	0.019	SW846 6020A	#
Lead, Total	0.020	mg/L	0.0022	0.00074	SW846 6020A	#
Magnesium, Total	7.8	mg/L	0.11	0.037	SW846 6020A	#
Manganese, Total	0.046	mg/L	0.0056	0.0019	SW846 6020A	#
Mercury, Total	0.0018	mg/L	0.00050	0.00017	SW846 7470A	#
Nickel, Total	0.051	mg/L	0.0056	0.0019	SW846 6020A	#
Potassium, Total	2.3	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	43.2	mg/L	0.11	0.037	SW846 6020A	#
Zinc, Total	0.14	mg/L	0.0056	0.0019	SW846 6020A	#
<b>VOLATILE ORGANICS</b>						
Chloroform	0.30J	ug/L	1.0	0.21	SW846 8260C	#
<b>WET CHEMISTRY</b>						
Alkalinity, Total	5	mg/L	5	5	SM2320B-2011	#
Ammonia-N	0.085J	mg/L	0.100	0.03	ASTM D6919-17	#
Chloride	101	mg/L	2.0	1.5	EPA 300.0	#
Nitrate-N	3.0	mg/L	1.0	0.22	EPA 300.0	#
Total Dissolved Solids	262	mg/L	25	25	SM2540C-15	#



**Detected Results Summary**

Client Sample ID GWM-6 Collected 03/17/2023 13:50  
 Lab Sample ID 3293351008 Lab Receipt 03/17/2023 16:35

<u>Compound</u>	<u>Result</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Flag</u>
<b>METALS</b>						
Arsenic, Total	0.0017J	mg/L	0.0033	0.0011	SW846 6020A	#
Barium, Total	0.12	mg/L	0.0056	0.0019	SW846 6020A	#
Calcium, Total	15.6	mg/L	0.11	0.037	SW846 6020A	#
Chromium, Total	0.00080J	mg/L	0.0022	0.00074	SW846 6020A	#
Cobalt, Total	0.017	mg/L	0.0056	0.0019	SW846 6020A	#
Hardness	79.7	mg/L	0.33	0.11	EPA 200.7	#
Iron, Total	82.1	mg/L	0.056	0.019	SW846 6020A	#
Magnesium, Total	10.2	mg/L	0.11	0.037	SW846 6020A	#
Manganese, Total	0.48	mg/L	0.0056	0.0019	SW846 6020A	#
Nickel, Total	0.0059	mg/L	0.0056	0.0019	SW846 6020A	#
Potassium, Total	1.9	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	40.6	mg/L	0.11	0.037	SW846 6020A	#
<b>VOLATILE ORGANICS</b>						
Benzene	11.1	ug/L	1.0	0.23	SW846 8260C	#
Cyclohexane	1.5	ug/L	1.0	0.29	SW846 8260C	#
Ethylbenzene	11.9	ug/L	1.0	0.34	SW846 8260C	#
Methyl t-Butyl Ether	4.8	ug/L	1.0	0.33	SW846 8260C	#
Toluene	0.28J	ug/L	1.0	0.23	SW846 8260C	#
<b>WET CHEMISTRY</b>						
Alkalinity, Total	39	mg/L	5	5	SM2320B-2011	#
Ammonia-N	0.125	mg/L	0.100	0.03	ASTM D6919-17	#
Chemical Oxygen Demand (COD)	33	mg/L	15	5	EPA 410.4	#
Chloride	87.4	mg/L	2.0	1.5	EPA 300.0	#
Sulfate	5.2	mg/L	2.0	1.5	EPA 300.0	#
Total Dissolved Solids	282	mg/L	25	25	SM2540C-15	#



### Detected Results Summary

Client Sample ID	GWM-6	Collected	03/17/2023 13:50
Lab Sample ID	3293351010	Lab Receipt	03/17/2023 16:35

Compound	Result	Units	RDL	MDL	Method	Flag
<b>GASOLINE RANGE ORGANICS</b>						
Gasoline Range Organics	103	ug/L	100	17.0	SW846 8015D	#
<b>PETROLEUM HC's</b>						
Diesel Range Organics C10-C28	2.1	mg/L	0.16	0.029	SW846 8015D	#
<b>VOLATILE ORGANICS</b>						
Benzene	10.2	ug/L	1.0	0.23	SW846 8260B	#
Ethylbenzene	11.5	ug/L	1.0	0.34	SW846 8260B	#
Naphthalene	4.3	ug/L	2.0	0.34	SW846 8260B	#
Toluene	0.26	ug/L	1.0	0.23	SW846 8260B	#



## Results

Client Sample ID	Trip Blank	Collected	03/17/2023 00:00
Lab Sample ID	3293351001	Lab Receipt	03/17/2023 16:35

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/28/2023 00:46	PDK	C
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	0.22	SW846 8260C	1	03/28/2023 00:46	PDK	C
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/28/2023 00:46	PDK	C
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 00:46	PDK	C
1,1-Dichloroethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/28/2023 00:46	PDK	C
1,1-Dichloroethene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 00:46	PDK	C
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	0.60	SW846 8260C	1	03/28/2023 00:46	PDK	C
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.020	0.0048	SW846 8011	1	03/27/2023 22:05	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	7.0	1.5	SW846 8260C	1	03/28/2023 00:46	PDK	C
1,2-Dibromoethane	ND	ND	ug/L	0.020	0.0097	SW846 8011	1	03/27/2023 22:05	VLM	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/28/2023 00:46	PDK	C
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	0.38	SW846 8260C	1	03/28/2023 00:46	PDK	C
1,2-Dichloroethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 00:46	PDK	C
1,2-Dichloropropane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 00:46	PDK	C
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/28/2023 00:46	PDK	C
2-Butanone	ND	ND	ug/L	10.0	1.8	SW846 8260C	1	03/28/2023 00:46	PDK	C
2-Hexanone	ND	ND	ug/L	5.0	1.3	SW846 8260C	1	03/28/2023 00:46	PDK	C
4-Methyl-2-Pentanone(MIBK)	ND	ND	ug/L	5.0	1.5	SW846 8260C	1	03/28/2023 00:46	PDK	C
Acetone	ND	ND	ug/L	10.0	3.1	SW846 8260C	1	03/28/2023 00:46	PDK	C
Acrylonitrile	ND	ND	ug/L	5.0	1.2	SW846 8260C	1	03/28/2023 00:46	PDK	C
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 00:46	PDK	C
Bromochloromethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 00:46	PDK	C
Bromodichloromethane	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/28/2023 00:46	PDK	C
Bromoform	ND	ND	ug/L	1.0	0.40	SW846 8260C	1	03/28/2023 00:46	PDK	C
Bromomethane	ND	ND	ug/L	1.0	0.39	SW846 8260C	1	03/28/2023 00:46	PDK	C
Carbon Disulfide	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 00:46	PDK	C
Carbon Tetrachloride	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 00:46	PDK	C
Chlorobenzene	ND	ND	ug/L	1.0	0.19	SW846 8260C	1	03/28/2023 00:46	PDK	C
Chlorodibromomethane	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/28/2023 00:46	PDK	C
Chloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 00:46	PDK	C
Chloroform	ND	ND	ug/L	1.0	0.21	SW846 8260C	1	03/28/2023 00:46	PDK	C
Chloromethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 00:46	PDK	C
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 00:46	PDK	C
cis-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 00:46	PDK	C
Cyclohexane	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 00:46	PDK	C
Dibromomethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 00:46	PDK	C
Dichlorodifluoromethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 00:46	PDK	C
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/28/2023 00:46	PDK	C
Iodomethane	ND	ND	ug/L	1.0	0.42	SW846 8260C	1	03/28/2023 00:46	PDK	C
Methyl t-Butyl Ether	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 00:46	PDK	C
Methylene Chloride	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/28/2023 00:46	PDK	C
mp-Xylene	ND	ND	ug/L	2.0	0.52	SW846 8260C	1	03/28/2023 00:46	PDK	C
o-Xylene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 00:46	PDK	C
Styrene	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 00:46	PDK	C
Tetrachloroethene	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/28/2023 00:46	PDK	C
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 00:46	PDK	C
Total Xylenes	ND	ND	ug/L	3.0	0.66	SW846 8260C	1	03/28/2023 00:46	PDK	C



## Results

Client Sample ID	Trip Blank	Collected	03/17/2023 00:00
Lab Sample ID	3293351001	Lab Receipt	03/17/2023 16:35

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.26	SW846 8260C	1	03/28/2023 00:46	PDK	C
trans-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 00:46	PDK	C
trans-1,4-Dichloro-2-butene	ND	ND	ug/L	3.0	0.86	SW846 8260C	1	03/28/2023 00:46	PDK	C
Trichloroethene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 00:46	PDK	C
Trichlorofluoromethane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 00:46	PDK	C
Vinyl Acetate	ND	ND	ug/L	5.0	1.6	SW846 8260C	1	03/28/2023 00:46	PDK	C
Vinyl Chloride	ND	ND	ug/L	1.0	0.30	SW846 8260C	1	03/28/2023 00:46	PDK	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	99.3%	62 - 133	03/28/2023 00:46	
1-Chloro-2-Fluorobenzene	348-51-6	78.8%	70 - 130	03/27/2023 22:05	
4-Bromofluorobenzene	460-00-4	109%	79 - 114	03/28/2023 00:46	
Dibromofluoromethane	1868-53-7	96.4%	78 - 116	03/28/2023 00:46	
Toluene-d8	2037-26-5	102%	76 - 127	03/28/2023 00:46	



## Results

Client Sample ID	Field Blank	Collected	03/17/2023 09:30
Lab Sample ID	3293351002	Lab Receipt	03/17/2023 16:35

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 15:17	MO	G2
Arsenic, Total	ND	ND	mg/L	0.0033	0.0011	SW846 6020A	1	03/30/2023 15:17	MO	G2
Barium, Total	0.033		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 15:17	MO	G2
Beryllium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/30/2023 15:17	MO	G2
Cadmium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/30/2023 15:17	MO	G2
Calcium, Total	16.2		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 15:17	MO	G2
Chromium, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 15:17	MO	G2
Cobalt, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 15:17	MO	G2
Copper, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 15:17	MO	G2
Hardness	59.1	2	mg/L	0.33	0.11	EPA 200.7	1	03/24/2023 12:31	SRT	G1
Iron, Total	ND	ND	mg/L	0.056	0.019	SW846 6020A	1	03/30/2023 15:17	MO	G2
Lead, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 15:17	MO	G2
Magnesium, Total	3.9		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 15:17	MO	G2
Manganese, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 15:17	MO	G2
Mercury, Total	ND	ND	mg/L	0.00050	0.00017	SW846 7470A	1	03/20/2023 13:48	WDA	G
Nickel, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 15:17	MO	G2
Potassium, Total	1.3		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 15:17	MO	G2
Selenium, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 15:17	MO	G2
Silver, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 15:17	MO	G2
Sodium, Total	9.4		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 15:17	MO	G2
Thallium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/30/2023 15:17	MO	G2
Vanadium, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 15:17	MO	G2
Zinc, Total	0.081		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 15:17	MO	G2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/28/2023 01:55	PKD	C
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	0.22	SW846 8260C	1	03/28/2023 01:55	PKD	C
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/28/2023 01:55	PKD	C
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 01:55	PKD	C
1,1-Dichloroethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/28/2023 01:55	PKD	C
1,1-Dichloroethene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 01:55	PKD	C
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	0.60	SW846 8260C	1	03/28/2023 01:55	PKD	C
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.020	0.0048	SW846 8011	1	03/27/2023 23:22	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	7.0	1.5	SW846 8260C	1	03/28/2023 01:55	PKD	C
1,2-Dibromoethane	ND	ND	ug/L	0.020	0.0097	SW846 8011	1	03/27/2023 23:22	VLM	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/28/2023 01:55	PKD	C
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	0.38	SW846 8260C	1	03/28/2023 01:55	PKD	C
1,2-Dichloroethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 01:55	PKD	C
1,2-Dichloropropane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 01:55	PKD	C
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/28/2023 01:55	PKD	C
2-Butanone	ND	ND	ug/L	10.0	1.8	SW846 8260C	1	03/28/2023 01:55	PKD	C
2-Hexanone	ND	ND	ug/L	5.0	1.3	SW846 8260C	1	03/28/2023 01:55	PKD	C
4-Methyl-2-Pentanone(MIBK)	ND	ND	ug/L	5.0	1.5	SW846 8260C	1	03/28/2023 01:55	PKD	C
Acetone	ND	ND	ug/L	10.0	3.1	SW846 8260C	1	03/28/2023 01:55	PKD	C
Acrylonitrile	ND	ND	ug/L	5.0	1.2	SW846 8260C	1	03/28/2023 01:55	PKD	C



## Results

Client Sample ID	Field Blank	Collected	03/17/2023 09:30
Lab Sample ID	3293351002	Lab Receipt	03/17/2023 16:35

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 01:55	PDK	C
Bromochloromethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 01:55	PDK	C
Bromodichloromethane	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/28/2023 01:55	PDK	C
Bromoform	ND	ND	ug/L	1.0	0.40	SW846 8260C	1	03/28/2023 01:55	PDK	C
Bromomethane	ND	ND	ug/L	1.0	0.39	SW846 8260C	1	03/28/2023 01:55	PDK	C
Carbon Disulfide	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 01:55	PDK	C
Carbon Tetrachloride	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 01:55	PDK	C
Chlorobenzene	ND	ND	ug/L	1.0	0.19	SW846 8260C	1	03/28/2023 01:55	PDK	C
Chlorodibromomethane	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/28/2023 01:55	PDK	C
Chloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 01:55	PDK	C
Chloroform	ND	ND	ug/L	1.0	0.21	SW846 8260C	1	03/28/2023 01:55	PDK	C
Chloromethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 01:55	PDK	C
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 01:55	PDK	C
cis-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 01:55	PDK	C
Cyclohexane	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 01:55	PDK	C
Dibromomethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 01:55	PDK	C
Dichlorodifluoromethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 01:55	PDK	C
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/28/2023 01:55	PDK	C
Iodomethane	ND	ND	ug/L	1.0	0.42	SW846 8260C	1	03/28/2023 01:55	PDK	C
Methyl t-Butyl Ether	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 01:55	PDK	C
Methylene Chloride	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/28/2023 01:55	PDK	C
mp-Xylene	ND	ND	ug/L	2.0	0.52	SW846 8260C	1	03/28/2023 01:55	PDK	C
o-Xylene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 01:55	PDK	C
Styrene	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 01:55	PDK	C
Tetrachloroethene	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/28/2023 01:55	PDK	C
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 01:55	PDK	C
Total Xylenes	ND	ND	ug/L	3.0	0.66	SW846 8260C	1	03/28/2023 01:55	PDK	C
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.26	SW846 8260C	1	03/28/2023 01:55	PDK	C
trans-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 01:55	PDK	C
trans-1,4-Dichloro-2-butene	ND	ND	ug/L	3.0	0.86	SW846 8260C	1	03/28/2023 01:55	PDK	C
Trichloroethene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 01:55	PDK	C
Trichlorofluoromethane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 01:55	PDK	C
Vinyl Acetate	ND	ND	ug/L	5.0	1.6	SW846 8260C	1	03/28/2023 01:55	PDK	C
Vinyl Chloride	ND	ND	ug/L	1.0	0.30	SW846 8260C	1	03/28/2023 01:55	PDK	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	98%	62 - 133	03/28/2023 01:55	
1-Chloro-2-Fluorobenzene	348-51-6	91.9%	70 - 130	03/27/2023 23:22	
4-Bromofluorobenzene	460-00-4	111%	79 - 114	03/28/2023 01:55	
Dibromofluoromethane	1868-53-7	96.5%	78 - 116	03/28/2023 01:55	
Toluene-d8	2037-26-5	102%	76 - 127	03/28/2023 01:55	

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	Field Blank	Collected	03/17/2023 09:30
Lab Sample ID	3293351002	Lab Receipt	03/17/2023 16:35

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	ND	ND,1	mg/L	5	5	SM2320B-2011	1	03/29/2023 18:20	NML	E
Ammonia-N	0.011J	J	mg/L	0.100	0.003	ASTM D6919-17	1	03/22/2023 16:04	NML	F
Chemical Oxygen Demand (COD)	12J	J	mg/L	15	5	EPA 410.4	1	03/22/2023 14:15	KMS	F
Chloride	ND	ND	mg/L	2.0	1.5	EPA 300.0	2	03/18/2023 10:12	AXW	E
Nitrate-N	ND	ND	mg/L	1.0	0.22	EPA 300.0	2	03/18/2023 10:12	AXW	E
Sulfate	ND	ND	mg/L	2.0	1.5	EPA 300.0	2	03/18/2023 10:12	AXW	E
Total Dissolved Solids	ND	ND	mg/L	25	25	SM2540C-15	1	03/23/2023 16:04	GJB	E



## Results

Client Sample ID	GWM-12	Collected	03/17/2023 10:10
Lab Sample ID	3293351003	Lab Receipt	03/17/2023 16:35

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:54	MO	G2
Arsenic, Total	ND	ND	mg/L	0.0033	0.0011	SW846 6020A	1	03/30/2023 14:54	MO	G2
Barium, Total	0.094		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:54	MO	G2
Beryllium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/30/2023 14:54	MO	G2
Cadmium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/30/2023 14:54	MO	G2
Calcium, Total	9.5		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 14:54	MO	G2
Chromium, Total	0.0010J	J	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:54	MO	G2
Cobalt, Total	0.0078		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:54	MO	G2
Copper, Total	0.0096		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:54	MO	G2
Hardness	44.9	2	mg/L	0.33	0.11	EPA 200.7	1	03/24/2023 12:34	SRT	G1
Iron, Total	ND	ND	mg/L	0.056	0.019	SW846 6020A	1	03/30/2023 14:54	MO	G2
Lead, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:54	MO	G2
Magnesium, Total	4.8		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 14:54	MO	G2
Manganese, Total	0.027		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:54	MO	G2
Mercury, Total	0.0026		mg/L	0.00050	0.00017	SW846 7470A	1	03/20/2023 13:49	WDA	G
Nickel, Total	0.025		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:54	MO	G2
Potassium, Total	2.0		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 14:54	MO	G2
Selenium, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:54	MO	G2
Silver, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:54	MO	G2
Sodium, Total	23.9		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 14:54	MO	G2
Thallium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/30/2023 14:54	MO	G2
Vanadium, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:54	MO	G2
Zinc, Total	0.031		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:54	MO	G2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/28/2023 02:18	PKD	C
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	0.22	SW846 8260C	1	03/28/2023 02:18	PKD	C
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/28/2023 02:18	PKD	C
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 02:18	PKD	C
1,1-Dichloroethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/28/2023 02:18	PKD	C
1,1-Dichloroethene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 02:18	PKD	C
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	0.60	SW846 8260C	1	03/28/2023 02:18	PKD	C
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.020	0.0048	SW846 8011	1	03/27/2023 23:38	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	7.0	1.5	SW846 8260C	1	03/28/2023 02:18	PKD	C
1,2-Dibromoethane	ND	ND	ug/L	0.020	0.0098	SW846 8011	1	03/27/2023 23:38	VLM	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/28/2023 02:18	PKD	C
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	0.38	SW846 8260C	1	03/28/2023 02:18	PKD	C
1,2-Dichloroethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 02:18	PKD	C
1,2-Dichloropropane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 02:18	PKD	C
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/28/2023 02:18	PKD	C
2-Butanone	ND	ND	ug/L	10.0	1.8	SW846 8260C	1	03/28/2023 02:18	PKD	C
2-Hexanone	ND	ND	ug/L	5.0	1.3	SW846 8260C	1	03/28/2023 02:18	PKD	C
4-Methyl-2-Pentanone(MIBK)	ND	ND	ug/L	5.0	1.5	SW846 8260C	1	03/28/2023 02:18	PKD	C
Acetone	ND	ND	ug/L	10.0	3.1	SW846 8260C	1	03/28/2023 02:18	PKD	C
Acrylonitrile	ND	ND	ug/L	5.0	1.2	SW846 8260C	1	03/28/2023 02:18	PKD	C



## Results

Client Sample ID	GWM-12	Collected	03/17/2023 10:10
Lab Sample ID	3293351003	Lab Receipt	03/17/2023 16:35

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 02:18	PDK	C
Bromochloromethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 02:18	PDK	C
Bromodichloromethane	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/28/2023 02:18	PDK	C
Bromoform	ND	ND	ug/L	1.0	0.40	SW846 8260C	1	03/28/2023 02:18	PDK	C
Bromomethane	ND	ND	ug/L	1.0	0.39	SW846 8260C	1	03/28/2023 02:18	PDK	C
Carbon Disulfide	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 02:18	PDK	C
Carbon Tetrachloride	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 02:18	PDK	C
Chlorobenzene	ND	ND	ug/L	1.0	0.19	SW846 8260C	1	03/28/2023 02:18	PDK	C
Chlorodibromomethane	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/28/2023 02:18	PDK	C
Chloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 02:18	PDK	C
Chloroform	0.22J	J	ug/L	1.0	0.21	SW846 8260C	1	03/28/2023 02:18	PDK	C
Chloromethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 02:18	PDK	C
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 02:18	PDK	C
cis-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 02:18	PDK	C
Cyclohexane	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 02:18	PDK	C
Dibromomethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 02:18	PDK	C
Dichlorodifluoromethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 02:18	PDK	C
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/28/2023 02:18	PDK	C
Iodomethane	ND	ND	ug/L	1.0	0.42	SW846 8260C	1	03/28/2023 02:18	PDK	C
Methyl t-Butyl Ether	2.3		ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 02:18	PDK	C
Methylene Chloride	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/28/2023 02:18	PDK	C
mp-Xylene	ND	ND	ug/L	2.0	0.52	SW846 8260C	1	03/28/2023 02:18	PDK	C
o-Xylene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 02:18	PDK	C
Styrene	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 02:18	PDK	C
Tetrachloroethene	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/28/2023 02:18	PDK	C
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 02:18	PDK	C
Total Xylenes	ND	ND	ug/L	3.0	0.66	SW846 8260C	1	03/28/2023 02:18	PDK	C
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.26	SW846 8260C	1	03/28/2023 02:18	PDK	C
trans-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 02:18	PDK	C
trans-1,4-Dichloro-2-butene	ND	ND	ug/L	3.0	0.86	SW846 8260C	1	03/28/2023 02:18	PDK	C
Trichloroethene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 02:18	PDK	C
Trichlorofluoromethane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 02:18	PDK	C
Vinyl Acetate	ND	ND	ug/L	5.0	1.6	SW846 8260C	1	03/28/2023 02:18	PDK	C
Vinyl Chloride	ND	ND	ug/L	1.0	0.30	SW846 8260C	1	03/28/2023 02:18	PDK	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	97.1%	62 - 133	03/28/2023 02:18	
1-Chloro-2-Fluorobenzene	348-51-6	81.8%	70 - 130	03/27/2023 23:38	
4-Bromofluorobenzene	460-00-4	108%	79 - 114	03/28/2023 02:18	
Dibromofluoromethane	1868-53-7	94.5%	78 - 116	03/28/2023 02:18	
Toluene-d8	2037-26-5	100%	76 - 127	03/28/2023 02:18	

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	GWM-12	Collected	03/17/2023 10:10
Lab Sample ID	3293351003	Lab Receipt	03/17/2023 16:35

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	10	1	mg/L	5	5	SM2320B-2011	1	03/29/2023 18:33	NML	E
Ammonia-N	0.095J	J	mg/L	0.100	0.03	ASTM D6919-17	10	03/22/2023 15:51	NML	F
Chemical Oxygen Demand (COD)	13J	J	mg/L	15	5	EPA 410.4	1	03/22/2023 14:15	KMS	F
Chloride	55.6		mg/L	2.0	1.5	EPA 300.0	2	03/18/2023 10:23	AXW	E
Nitrate-N	2.1		mg/L	1.0	0.22	EPA 300.0	2	03/18/2023 10:23	AXW	E
Sulfate	ND	ND	mg/L	2.0	1.5	EPA 300.0	2	03/18/2023 10:23	AXW	E
Total Dissolved Solids	162		mg/L	25	25	SM2540C-15	1	03/23/2023 16:04	GJB	E



## Results

Client Sample ID	L-1	Collected	03/17/2023 10:30
Lab Sample ID	3293351004	Lab Receipt	03/17/2023 16:35

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND,S1	mg/L	0.0040	0.0013	SW846 6020A	1	03/30/2023 16:36	MO	G2
Arsenic, Total	0.0068	S1	mg/L	0.0059	0.0020	SW846 6020A	1	03/30/2023 16:36	MO	G2
Barium, Total	0.41	S1	mg/L	0.010	0.0034	SW846 6020A	1	03/30/2023 16:36	MO	G2
Beryllium, Total	ND	ND,S1	mg/L	0.0020	0.00067	SW846 6020A	1	03/30/2023 16:36	MO	G2
Cadmium, Total	ND	ND,S1	mg/L	0.0020	0.00067	SW846 6020A	1	03/30/2023 16:36	MO	G2
Calcium, Total	129	S1	mg/L	0.20	0.067	SW846 6020A	1	03/30/2023 16:36	MO	G2
Chromium, Total	0.026	S1	mg/L	0.0040	0.0013	SW846 6020A	1	03/30/2023 16:36	MO	G2
Cobalt, Total	0.015	S1	mg/L	0.010	0.0034	SW846 6020A	1	03/30/2023 16:36	MO	G2
Copper, Total	0.0043J	J,S1	mg/L	0.010	0.0034	SW846 6020A	1	03/30/2023 16:36	MO	G2
Hardness	718	2,S1	mg/L	0.66	0.22	EPA 200.7	1	03/24/2023 16:03	SRT	G3
Iron, Total	6.2	S1	mg/L	0.10	0.034	SW846 6020A	1	03/30/2023 16:36	MO	G2
Lead, Total	ND	ND,S1	mg/L	0.0040	0.0013	SW846 6020A	1	03/30/2023 16:36	MO	G2
Magnesium, Total	126	S1	mg/L	0.20	0.067	SW846 6020A	1	03/30/2023 16:36	MO	G2
Manganese, Total	0.47	S1	mg/L	0.010	0.0034	SW846 6020A	1	03/30/2023 16:36	MO	G2
Mercury, Total	ND	ND,S1	mg/L	0.00050	0.00017	SW846 7470A	1	03/20/2023 13:50	WDA	G
Nickel, Total	0.043	S1	mg/L	0.010	0.0034	SW846 6020A	1	03/30/2023 16:36	MO	G2
Potassium, Total	232	S1	mg/L	0.99	0.33	SW846 6020A	5	03/30/2023 15:19	MO	G2
Selenium, Total	ND	ND,3,S1	mg/L	0.010	0.0034	SW846 6020A	1	03/30/2023 16:36	MO	G2
Silver, Total	ND	ND,S1	mg/L	0.0040	0.0013	SW846 6020A	1	03/30/2023 16:36	MO	G2
Sodium, Total	898	S1	mg/L	0.99	0.33	SW846 6020A	5	03/30/2023 15:19	MO	G2
Thallium, Total	ND	ND,S1	mg/L	0.0020	0.00067	SW846 6020A	1	03/30/2023 16:36	MO	G2
Vanadium, Total	0.0055	S1	mg/L	0.0040	0.0013	SW846 6020A	1	03/30/2023 16:36	MO	G2
Zinc, Total	0.014	S1	mg/L	0.010	0.0034	SW846 6020A	1	03/30/2023 16:36	MO	G2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND,S1	ug/L	5.0	1.8	SW846 8260C	5	03/28/2023 04:12	PDK	C
1,1,1-Trichloroethane	ND	ND,S1	ug/L	5.0	1.1	SW846 8260C	5	03/28/2023 04:12	PDK	C
1,1,2,2-Tetrachloroethane	ND	ND,S1	ug/L	5.0	1.7	SW846 8260C	5	03/28/2023 04:12	PDK	C
1,1,2-Trichloroethane	ND	ND,S1	ug/L	5.0	1.7	SW846 8260C	5	03/28/2023 04:12	PDK	C
1,1-Dichloroethane	ND	ND,S1	ug/L	5.0	1.4	SW846 8260C	5	03/28/2023 04:12	PDK	C
1,1-Dichloroethene	ND	ND,S1	ug/L	5.0	1.5	SW846 8260C	5	03/28/2023 04:12	PDK	C
1,2,3-Trichloropropane	ND	ND,S1	ug/L	10.0	3.0	SW846 8260C	5	03/28/2023 04:12	PDK	C
1,2-Dibromo-3-chloropropane	ND	ND,S1	ug/L	0.020	0.0047	SW846 8011	1	03/27/2023 23:54	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND,S1	ug/L	35.0	7.5	SW846 8260C	5	03/28/2023 04:12	PDK	C
1,2-Dibromoethane	ND	ND,S1	ug/L	0.020	0.0097	SW846 8011	1	03/27/2023 23:54	VLM	A
1,2-Dibromoethane	ND	ND,S1	ug/L	5.0	1.4	SW846 8260C	5	03/28/2023 04:12	PDK	C
1,2-Dichlorobenzene	ND	ND,S1	ug/L	5.0	1.9	SW846 8260C	5	03/28/2023 04:12	PDK	C
1,2-Dichloroethane	ND	ND,S1	ug/L	5.0	1.6	SW846 8260C	5	03/28/2023 04:12	PDK	C
1,2-Dichloropropane	ND	ND,S1	ug/L	5.0	1.2	SW846 8260C	5	03/28/2023 04:12	PDK	C
1,4-Dichlorobenzene	7.4	S1	ug/L	5.0	1.4	SW846 8260C	5	03/28/2023 04:12	PDK	C
2-Butanone	ND	ND,S1	ug/L	50.0	9.0	SW846 8260C	5	03/28/2023 04:12	PDK	C
2-Hexanone	ND	ND,S1	ug/L	25.0	6.5	SW846 8260C	5	03/28/2023 04:12	PDK	C
4-Methyl-2-Pentanone(MIBK)	ND	ND,S1	ug/L	25.0	7.5	SW846 8260C	5	03/28/2023 04:12	PDK	C
Acetone	48.6J	J,S1	ug/L	50.0	15.5	SW846 8260C	5	03/28/2023 04:12	PDK	C
Acrylonitrile	ND	ND,S1	ug/L	25.0	6.0	SW846 8260C	5	03/28/2023 04:12	PDK	C



## Results

Client Sample ID	L-1	Collected	03/17/2023 10:30
Lab Sample ID	3293351004	Lab Receipt	03/17/2023 16:35

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	3.6J	J,S1	ug/L	5.0	1.2	SW846 8260C	5	03/28/2023 04:12	PDK	C
Bromochloromethane	ND	ND,S1	ug/L	5.0	1.6	SW846 8260C	5	03/28/2023 04:12	PDK	C
Bromodichloromethane	ND	ND,S1	ug/L	5.0	1.4	SW846 8260C	5	03/28/2023 04:12	PDK	C
Bromoform	ND	ND,S1	ug/L	5.0	2.0	SW846 8260C	5	03/28/2023 04:12	PDK	C
Bromomethane	ND	ND,S1	ug/L	5.0	2.0	SW846 8260C	5	03/28/2023 04:12	PDK	C
Carbon Disulfide	ND	ND,S1	ug/L	5.0	1.2	SW846 8260C	5	03/28/2023 04:12	PDK	C
Carbon Tetrachloride	ND	ND,S1	ug/L	5.0	1.6	SW846 8260C	5	03/28/2023 04:12	PDK	C
Chlorobenzene	10.4	S1	ug/L	5.0	0.95	SW846 8260C	5	03/28/2023 04:12	PDK	C
Chlorodibromomethane	ND	ND,S1	ug/L	5.0	2.3	SW846 8260C	5	03/28/2023 04:12	PDK	C
Chloroethane	ND	ND,S1	ug/L	5.0	1.7	SW846 8260C	5	03/28/2023 04:12	PDK	C
Chloroform	ND	ND,S1	ug/L	5.0	1.1	SW846 8260C	5	03/28/2023 04:12	PDK	C
Chloromethane	ND	ND,S1	ug/L	5.0	1.6	SW846 8260C	5	03/28/2023 04:12	PDK	C
cis-1,2-Dichloroethene	ND	ND,S1	ug/L	5.0	1.6	SW846 8260C	5	03/28/2023 04:12	PDK	C
cis-1,3-Dichloropropene	ND	ND,S1	ug/L	5.0	1.6	SW846 8260C	5	03/28/2023 04:12	PDK	C
Cyclohexane	ND	ND,S1	ug/L	5.0	1.5	SW846 8260C	5	03/28/2023 04:12	PDK	C
Dibromomethane	ND	ND,S1	ug/L	5.0	1.6	SW846 8260C	5	03/28/2023 04:12	PDK	C
Dichlorodifluoromethane	ND	ND,S1	ug/L	5.0	1.7	SW846 8260C	5	03/28/2023 04:12	PDK	C
Ethylbenzene	2.0J	J,S1	ug/L	5.0	1.7	SW846 8260C	5	03/28/2023 04:12	PDK	C
Iodomethane	ND	ND,S1	ug/L	5.0	2.1	SW846 8260C	5	03/28/2023 04:12	PDK	C
Methyl t-Butyl Ether	5.3	S1	ug/L	5.0	1.7	SW846 8260C	5	03/28/2023 04:12	PDK	C
Methylene Chloride	ND	ND,S1	ug/L	5.0	2.3	SW846 8260C	5	03/28/2023 04:12	PDK	C
mp-Xylene	4.3J	J,S1	ug/L	10.0	2.6	SW846 8260C	5	03/28/2023 04:12	PDK	C
o-Xylene	2.4J	J,S1	ug/L	5.0	1.7	SW846 8260C	5	03/28/2023 04:12	PDK	C
Styrene	ND	ND,S1	ug/L	5.0	1.2	SW846 8260C	5	03/28/2023 04:12	PDK	C
Tetrachloroethene	ND	ND,S1	ug/L	5.0	1.8	SW846 8260C	5	03/28/2023 04:12	PDK	C
Toluene	2.3J	J,S1	ug/L	5.0	1.2	SW846 8260C	5	03/28/2023 04:12	PDK	C
Total Xylenes	6.6J	J,S1	ug/L	15.0	3.3	SW846 8260C	5	03/28/2023 04:12	PDK	C
trans-1,2-Dichloroethene	ND	ND,S1	ug/L	5.0	1.3	SW846 8260C	5	03/28/2023 04:12	PDK	C
trans-1,3-Dichloropropene	ND	ND,S1	ug/L	5.0	1.5	SW846 8260C	5	03/28/2023 04:12	PDK	C
trans-1,4-Dichloro-2-butene	ND	ND,S1	ug/L	15.0	4.3	SW846 8260C	5	03/28/2023 04:12	PDK	C
Trichloroethene	ND	ND,S1	ug/L	5.0	1.7	SW846 8260C	5	03/28/2023 04:12	PDK	C
Trichlorofluoromethane	ND	ND,S1	ug/L	5.0	1.2	SW846 8260C	5	03/28/2023 04:12	PDK	C
Vinyl Acetate	ND	ND,S1	ug/L	25.0	8.0	SW846 8260C	5	03/28/2023 04:12	PDK	C
Vinyl Chloride	ND	ND,S1	ug/L	5.0	1.5	SW846 8260C	5	03/28/2023 04:12	PDK	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	96.5%	62 - 133	03/28/2023 04:12	
1-Chloro-2-Fluorobenzene	348-51-6	89.6%	70 - 130	03/27/2023 23:54	
4-Bromofluorobenzene	460-00-4	110%	79 - 114	03/28/2023 04:12	
Dibromofluoromethane	1868-53-7	94.4%	78 - 116	03/28/2023 04:12	
Toluene-d8	2037-26-5	101%	76 - 127	03/28/2023 04:12	

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	L-1	Collected	03/17/2023 10:30
Lab Sample ID	3293351004	Lab Receipt	03/17/2023 16:35

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	2300	1,S1	mg/L	50	50	SM2320B-2011	10	03/30/2023 11:14	NML	E
Ammonia-N	391	S1	mg/L	10.0	3	ASTM D6919-17	1000	03/27/2023 09:26	NML	F
Chemical Oxygen Demand (COD)	622	S1	mg/L	30	10	EPA 410.4	2	03/24/2023 13:30	KMS	F
Chloride	923	S1	mg/L	10.0	7.5	EPA 300.0	10	03/18/2023 10:33	AXW	E
Nitrate-N	ND	ND,S1	mg/L	5.0	1.1	EPA 300.0	10	03/18/2023 10:33	AXW	E
Sulfate	ND	ND,S1	mg/L	10.0	7.7	EPA 300.0	10	03/18/2023 10:33	AXW	E
Total Dissolved Solids	3400	S1	mg/L	25	25	SM2540C-15	1	03/23/2023 16:04	GJB	E



## Results

Client Sample ID	L-2	Collected	03/17/2023 11:00
Lab Sample ID	3293351005	Lab Receipt	03/17/2023 16:35

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	0.0021J	J,S2	mg/L	0.0040	0.0013	SW846 6020A	1	03/30/2023 16:39	MO	G2
Arsenic, Total	0.027	S2	mg/L	0.0059	0.0020	SW846 6020A	1	03/30/2023 16:39	MO	G2
Barium, Total	0.32	S2	mg/L	0.010	0.0034	SW846 6020A	1	03/30/2023 16:39	MO	G2
Beryllium, Total	ND	ND,S2	mg/L	0.0020	0.00067	SW846 6020A	1	03/30/2023 16:39	MO	G2
Cadmium, Total	ND	ND,S2	mg/L	0.0020	0.00067	SW846 6020A	1	03/30/2023 16:39	MO	G2
Calcium, Total	158	S2	mg/L	0.20	0.067	SW846 6020A	1	03/30/2023 16:39	MO	G2
Chromium, Total	0.088	S2	mg/L	0.0040	0.0013	SW846 6020A	1	03/30/2023 16:39	MO	G2
Cobalt, Total	0.029	S2	mg/L	0.010	0.0034	SW846 6020A	1	03/30/2023 16:39	MO	G2
Copper, Total	0.0081J	J,S2	mg/L	0.010	0.0034	SW846 6020A	1	03/30/2023 16:39	MO	G2
Hardness	1100	2,S2	mg/L	0.66	0.22	EPA 200.7	1	03/24/2023 16:06	SRT	G3
Iron, Total	8.5	S2	mg/L	0.10	0.034	SW846 6020A	1	03/30/2023 16:39	MO	G2
Lead, Total	ND	ND,S2	mg/L	0.0040	0.0013	SW846 6020A	1	03/30/2023 16:39	MO	G2
Magnesium, Total	206	S2	mg/L	0.20	0.067	SW846 6020A	1	03/30/2023 16:39	MO	G2
Manganese, Total	1.5	S2	mg/L	0.010	0.0034	SW846 6020A	1	03/30/2023 16:39	MO	G2
Mercury, Total	ND	ND,S2	mg/L	0.00050	0.00017	SW846 7470A	1	03/20/2023 13:52	WDA	G
Nickel, Total	0.26	S2	mg/L	0.010	0.0034	SW846 6020A	1	03/30/2023 16:39	MO	G2
Potassium, Total	484	S2	mg/L	0.99	0.33	SW846 6020A	5	03/30/2023 15:21	MO	G2
Selenium, Total	ND	ND,3,S2	mg/L	0.010	0.0034	SW846 6020A	1	03/30/2023 16:39	MO	G2
Silver, Total	ND	ND,S2	mg/L	0.0040	0.0013	SW846 6020A	1	03/30/2023 16:39	MO	G2
Sodium, Total	1550	S2	mg/L	0.99	0.33	SW846 6020A	5	03/30/2023 15:21	MO	G2
Thallium, Total	ND	ND,S2	mg/L	0.0020	0.00067	SW846 6020A	1	03/30/2023 16:39	MO	G2
Vanadium, Total	0.043	S2	mg/L	0.0040	0.0013	SW846 6020A	1	03/30/2023 16:39	MO	G2
Zinc, Total	0.0041J	J,S2	mg/L	0.010	0.0034	SW846 6020A	1	03/30/2023 16:39	MO	G2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND,S2	ug/L	5.0	1.8	SW846 8260C	5	03/28/2023 04:35	PDK	C
1,1,1-Trichloroethane	ND	ND,S2	ug/L	5.0	1.1	SW846 8260C	5	03/28/2023 04:35	PDK	C
1,1,2,2-Tetrachloroethane	ND	ND,S2	ug/L	5.0	1.7	SW846 8260C	5	03/28/2023 04:35	PDK	C
1,1,2-Trichloroethane	ND	ND,S2	ug/L	5.0	1.7	SW846 8260C	5	03/28/2023 04:35	PDK	C
1,1-Dichloroethane	ND	ND,S2	ug/L	5.0	1.4	SW846 8260C	5	03/28/2023 04:35	PDK	C
1,1-Dichloroethene	ND	ND,S2	ug/L	5.0	1.5	SW846 8260C	5	03/28/2023 04:35	PDK	C
1,2,3-Trichloropropane	ND	ND,S2	ug/L	10.0	3.0	SW846 8260C	5	03/28/2023 04:35	PDK	C
1,2-Dibromo-3-chloropropane	ND	ND,S2	ug/L	0.020	0.0048	SW846 8011	1	03/28/2023 00:09	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND,S2	ug/L	35.0	7.5	SW846 8260C	5	03/28/2023 04:35	PDK	C
1,2-Dibromoethane	ND	ND,S2	ug/L	0.020	0.0097	SW846 8011	1	03/28/2023 00:09	VLM	A
1,2-Dibromoethane	ND	ND,S2	ug/L	5.0	1.4	SW846 8260C	5	03/28/2023 04:35	PDK	C
1,2-Dichlorobenzene	ND	ND,S2	ug/L	5.0	1.9	SW846 8260C	5	03/28/2023 04:35	PDK	C
1,2-Dichloroethane	2.3J	J,S2	ug/L	5.0	1.6	SW846 8260C	5	03/28/2023 04:35	PDK	C
1,2-Dichloropropane	ND	ND,S2	ug/L	5.0	1.2	SW846 8260C	5	03/28/2023 04:35	PDK	C
1,4-Dichlorobenzene	1.9J	J,S2	ug/L	5.0	1.4	SW846 8260C	5	03/28/2023 04:35	PDK	C
2-Butanone	ND	ND,S2	ug/L	50.0	9.0	SW846 8260C	5	03/28/2023 04:35	PDK	C
2-Hexanone	ND	ND,S2	ug/L	25.0	6.5	SW846 8260C	5	03/28/2023 04:35	PDK	C
4-Methyl-2-Pentanone(MIBK)	ND	ND,S2	ug/L	25.0	7.5	SW846 8260C	5	03/28/2023 04:35	PDK	C
Acetone	38.1J	J,S2	ug/L	50.0	15.5	SW846 8260C	5	03/28/2023 04:35	PDK	C
Acrylonitrile	ND	ND,S2	ug/L	25.0	6.0	SW846 8260C	5	03/28/2023 04:35	PDK	C





## Results

Client Sample ID	L-2	Collected	03/17/2023 11:00
Lab Sample ID	3293351005	Lab Receipt	03/17/2023 16:35

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	12.1	S2	ug/L	5.0	1.2	SW846 8260C	5	03/28/2023 04:35	PDK	C
Bromochloromethane	ND	ND,S2	ug/L	5.0	1.6	SW846 8260C	5	03/28/2023 04:35	PDK	C
Bromodichloromethane	ND	ND,S2	ug/L	5.0	1.4	SW846 8260C	5	03/28/2023 04:35	PDK	C
Bromoform	ND	ND,S2	ug/L	5.0	2.0	SW846 8260C	5	03/28/2023 04:35	PDK	C
Bromomethane	ND	ND,S2	ug/L	5.0	2.0	SW846 8260C	5	03/28/2023 04:35	PDK	C
Carbon Disulfide	ND	ND,S2	ug/L	5.0	1.2	SW846 8260C	5	03/28/2023 04:35	PDK	C
Carbon Tetrachloride	ND	ND,S2	ug/L	5.0	1.6	SW846 8260C	5	03/28/2023 04:35	PDK	C
Chlorobenzene	ND	ND,S2	ug/L	5.0	0.95	SW846 8260C	5	03/28/2023 04:35	PDK	C
Chlorodibromomethane	ND	ND,S2	ug/L	5.0	2.3	SW846 8260C	5	03/28/2023 04:35	PDK	C
Chloroethane	ND	ND,S2	ug/L	5.0	1.7	SW846 8260C	5	03/28/2023 04:35	PDK	C
Chloroform	ND	ND,S2	ug/L	5.0	1.1	SW846 8260C	5	03/28/2023 04:35	PDK	C
Chloromethane	ND	ND,S2	ug/L	5.0	1.6	SW846 8260C	5	03/28/2023 04:35	PDK	C
cis-1,2-Dichloroethene	ND	ND,S2	ug/L	5.0	1.6	SW846 8260C	5	03/28/2023 04:35	PDK	C
cis-1,3-Dichloropropene	ND	ND,S2	ug/L	5.0	1.6	SW846 8260C	5	03/28/2023 04:35	PDK	C
Cyclohexane	ND	ND,S2	ug/L	5.0	1.5	SW846 8260C	5	03/28/2023 04:35	PDK	C
Dibromomethane	ND	ND,S2	ug/L	5.0	1.6	SW846 8260C	5	03/28/2023 04:35	PDK	C
Dichlorodifluoromethane	ND	ND,S2	ug/L	5.0	1.7	SW846 8260C	5	03/28/2023 04:35	PDK	C
Ethylbenzene	20.0	S2	ug/L	5.0	1.7	SW846 8260C	5	03/28/2023 04:35	PDK	C
Iodomethane	ND	ND,S2	ug/L	5.0	2.1	SW846 8260C	5	03/28/2023 04:35	PDK	C
Methyl t-Butyl Ether	6.9	S2	ug/L	5.0	1.7	SW846 8260C	5	03/28/2023 04:35	PDK	C
Methylene Chloride	ND	ND,S2	ug/L	5.0	2.3	SW846 8260C	5	03/28/2023 04:35	PDK	C
mp-Xylene	31.1	S2	ug/L	10.0	2.6	SW846 8260C	5	03/28/2023 04:35	PDK	C
o-Xylene	13.4	S2	ug/L	5.0	1.7	SW846 8260C	5	03/28/2023 04:35	PDK	C
Styrene	ND	ND,S2	ug/L	5.0	1.2	SW846 8260C	5	03/28/2023 04:35	PDK	C
Tetrachloroethene	ND	ND,S2	ug/L	5.0	1.8	SW846 8260C	5	03/28/2023 04:35	PDK	C
Toluene	12.9	S2	ug/L	5.0	1.2	SW846 8260C	5	03/28/2023 04:35	PDK	C
Total Xylenes	44.6	S2	ug/L	15.0	3.3	SW846 8260C	5	03/28/2023 04:35	PDK	C
trans-1,2-Dichloroethene	ND	ND,S2	ug/L	5.0	1.3	SW846 8260C	5	03/28/2023 04:35	PDK	C
trans-1,3-Dichloropropene	ND	ND,S2	ug/L	5.0	1.5	SW846 8260C	5	03/28/2023 04:35	PDK	C
trans-1,4-Dichloro-2-butene	ND	ND,S2	ug/L	15.0	4.3	SW846 8260C	5	03/28/2023 04:35	PDK	C
Trichloroethene	ND	ND,S2	ug/L	5.0	1.7	SW846 8260C	5	03/28/2023 04:35	PDK	C
Trichlorofluoromethane	ND	ND,S2	ug/L	5.0	1.2	SW846 8260C	5	03/28/2023 04:35	PDK	C
Vinyl Acetate	ND	ND,S2	ug/L	25.0	8.0	SW846 8260C	5	03/28/2023 04:35	PDK	C
Vinyl Chloride	ND	ND,S2	ug/L	5.0	1.5	SW846 8260C	5	03/28/2023 04:35	PDK	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	96.5%	62 - 133	03/28/2023 04:35	
1-Chloro-2-Fluorobenzene	348-51-6	74.6%	70 - 130	03/28/2023 00:09	
4-Bromofluorobenzene	460-00-4	105%	79 - 114	03/28/2023 04:35	
Dibromofluoromethane	1868-53-7	96.5%	78 - 116	03/28/2023 04:35	
Toluene-d8	2037-26-5	101%	76 - 127	03/28/2023 04:35	

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	L-2	Collected	03/17/2023 11:00
Lab Sample ID	3293351005	Lab Receipt	03/17/2023 16:35

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	4800	1,S2	mg/L	125	100	SM2320B-2011	25	03/30/2023 11:49	NML	E
Ammonia-N	831	S2	mg/L	10.0	3	ASTM D6919-17	1000	03/27/2023 09:39	NML	F
Chemical Oxygen Demand (COD)	1080	S2	mg/L	30	10	EPA 410.4	2	03/24/2023 13:30	KMS	F
Chloride	2270	S2	mg/L	50.0	37.5	EPA 300.0	50	03/25/2023 15:01	AXW	E
Nitrate-N	ND	ND,S2	mg/L	10.0	2.2	EPA 300.0	20	03/18/2023 10:54	AXW	E
Sulfate	ND	ND,S2	mg/L	20.0	15.4	EPA 300.0	20	03/18/2023 10:54	AXW	E
Total Dissolved Solids	6280	S2	mg/L	25	25	SM2540C-15	1	03/23/2023 16:04	GJB	E



## Results

Client Sample ID	SMW-32	Collected	03/17/2023 12:25
Lab Sample ID	3293351006	Lab Receipt	03/17/2023 16:35

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:56	MO	G2
Arsenic, Total	ND	ND	mg/L	0.0033	0.0011	SW846 6020A	1	03/30/2023 14:56	MO	G2
Barium, Total	0.12		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:56	MO	G2
Beryllium, Total	0.0011		mg/L	0.0011	0.00037	SW846 6020A	1	03/30/2023 14:56	MO	G2
Cadmium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/30/2023 14:56	MO	G2
Calcium, Total	14.0		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 14:56	MO	G2
Chromium, Total	0.0011J	J	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:56	MO	G2
Cobalt, Total	0.018		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:56	MO	G2
Copper, Total	0.035		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:56	MO	G2
Hardness	71.1	2	mg/L	0.33	0.11	EPA 200.7	1	03/24/2023 12:38	SRT	G1
Iron, Total	0.039J	J	mg/L	0.056	0.019	SW846 6020A	1	03/30/2023 14:56	MO	G2
Lead, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:56	MO	G2
Magnesium, Total	7.9		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 14:56	MO	G2
Manganese, Total	0.068		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:56	MO	G2
Mercury, Total	0.0034		mg/L	0.00050	0.00017	SW846 7470A	1	03/20/2023 13:53	WDA	G
Nickel, Total	0.070		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:56	MO	G2
Potassium, Total	2.5		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 14:56	MO	G2
Selenium, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:56	MO	G2
Silver, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:56	MO	G2
Sodium, Total	41.7		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 14:56	MO	G2
Thallium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/30/2023 14:56	MO	G2
Vanadium, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:56	MO	G2
Zinc, Total	0.14		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:56	MO	G2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/28/2023 02:41	PKD	C
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	0.22	SW846 8260C	1	03/28/2023 02:41	PKD	C
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/28/2023 02:41	PKD	C
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 02:41	PKD	C
1,1-Dichloroethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/28/2023 02:41	PKD	C
1,1-Dichloroethene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 02:41	PKD	C
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	0.60	SW846 8260C	1	03/28/2023 02:41	PKD	C
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.020	0.0048	SW846 8011	1	03/28/2023 00:25	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	7.0	1.5	SW846 8260C	1	03/28/2023 02:41	PKD	C
1,2-Dibromoethane	ND	ND	ug/L	0.020	0.0097	SW846 8011	1	03/28/2023 00:25	VLM	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/28/2023 02:41	PKD	C
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	0.38	SW846 8260C	1	03/28/2023 02:41	PKD	C
1,2-Dichloroethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 02:41	PKD	C
1,2-Dichloropropane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 02:41	PKD	C
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/28/2023 02:41	PKD	C
2-Butanone	ND	ND	ug/L	10.0	1.8	SW846 8260C	1	03/28/2023 02:41	PKD	C
2-Hexanone	ND	ND	ug/L	5.0	1.3	SW846 8260C	1	03/28/2023 02:41	PKD	C
4-Methyl-2-Pentanone(MIBK)	ND	ND	ug/L	5.0	1.5	SW846 8260C	1	03/28/2023 02:41	PKD	C
Acetone	ND	ND	ug/L	10.0	3.1	SW846 8260C	1	03/28/2023 02:41	PKD	C
Acrylonitrile	ND	ND	ug/L	5.0	1.2	SW846 8260C	1	03/28/2023 02:41	PKD	C



## Results

Client Sample ID	SMW-32	Collected	03/17/2023 12:25
Lab Sample ID	3293351006	Lab Receipt	03/17/2023 16:35

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 02:41	PDK	C
Bromochloromethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 02:41	PDK	C
Bromodichloromethane	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/28/2023 02:41	PDK	C
Bromoform	ND	ND	ug/L	1.0	0.40	SW846 8260C	1	03/28/2023 02:41	PDK	C
Bromomethane	ND	ND	ug/L	1.0	0.39	SW846 8260C	1	03/28/2023 02:41	PDK	C
Carbon Disulfide	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 02:41	PDK	C
Carbon Tetrachloride	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 02:41	PDK	C
Chlorobenzene	ND	ND	ug/L	1.0	0.19	SW846 8260C	1	03/28/2023 02:41	PDK	C
Chlorodibromomethane	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/28/2023 02:41	PDK	C
Chloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 02:41	PDK	C
Chloroform	0.31J	J	ug/L	1.0	0.21	SW846 8260C	1	03/28/2023 02:41	PDK	C
Chloromethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 02:41	PDK	C
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 02:41	PDK	C
cis-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 02:41	PDK	C
Cyclohexane	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 02:41	PDK	C
Dibromomethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 02:41	PDK	C
Dichlorodifluoromethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 02:41	PDK	C
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/28/2023 02:41	PDK	C
Iodomethane	ND	ND	ug/L	1.0	0.42	SW846 8260C	1	03/28/2023 02:41	PDK	C
Methyl t-Butyl Ether	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 02:41	PDK	C
Methylene Chloride	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/28/2023 02:41	PDK	C
mp-Xylene	ND	ND	ug/L	2.0	0.52	SW846 8260C	1	03/28/2023 02:41	PDK	C
o-Xylene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 02:41	PDK	C
Styrene	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 02:41	PDK	C
Tetrachloroethene	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/28/2023 02:41	PDK	C
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 02:41	PDK	C
Total Xylenes	ND	ND	ug/L	3.0	0.66	SW846 8260C	1	03/28/2023 02:41	PDK	C
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.26	SW846 8260C	1	03/28/2023 02:41	PDK	C
trans-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 02:41	PDK	C
trans-1,4-Dichloro-2-butene	ND	ND	ug/L	3.0	0.86	SW846 8260C	1	03/28/2023 02:41	PDK	C
Trichloroethene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 02:41	PDK	C
Trichlorofluoromethane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 02:41	PDK	C
Vinyl Acetate	ND	ND	ug/L	5.0	1.6	SW846 8260C	1	03/28/2023 02:41	PDK	C
Vinyl Chloride	ND	ND	ug/L	1.0	0.30	SW846 8260C	1	03/28/2023 02:41	PDK	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	97.8%	62 - 133	03/28/2023 02:41	
1-Chloro-2-Fluorobenzene	348-51-6	83.9%	70 - 130	03/28/2023 00:25	
4-Bromofluorobenzene	460-00-4	111%	79 - 114	03/28/2023 02:41	
Dibromofluoromethane	1868-53-7	96.5%	78 - 116	03/28/2023 02:41	
Toluene-d8	2037-26-5	101%	76 - 127	03/28/2023 02:41	

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	SMW-32	Collected	03/17/2023 12:25
Lab Sample ID	3293351006	Lab Receipt	03/17/2023 16:35

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	10	1	mg/L	5	5	SM2320B-2011	1	03/29/2023 19:07	NML	E
Ammonia-N	0.089J	J	mg/L	0.100	0.03	ASTM D6919-17	10	03/22/2023 15:10	NML	F
Chemical Oxygen Demand (COD)	8J	J	mg/L	15	5	EPA 410.4	1	03/22/2023 14:15	KMS	F
Chloride	101		mg/L	2.0	1.5	EPA 300.0	2	03/18/2023 11:04	AXW	E
Nitrate-N	2.7		mg/L	1.0	0.22	EPA 300.0	2	03/18/2023 11:04	AXW	E
Sulfate	1.9J	J	mg/L	2.0	1.5	EPA 300.0	2	03/18/2023 11:04	AXW	E
Total Dissolved Solids	270		mg/L	25	25	SM2540C-15	1	03/23/2023 16:04	GJB	E



## Results

Client Sample ID	SMW-13	Collected	03/17/2023 12:59
Lab Sample ID	3293351007	Lab Receipt	03/17/2023 16:35

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:59	MO	G2
Arsenic, Total	ND	ND	mg/L	0.0033	0.0011	SW846 6020A	1	03/30/2023 14:59	MO	G2
Barium, Total	0.13		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:59	MO	G2
Beryllium, Total	0.00091J	J	mg/L	0.0011	0.00037	SW846 6020A	1	03/30/2023 14:59	MO	G2
Cadmium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/30/2023 14:59	MO	G2
Calcium, Total	14.7		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 14:59	MO	G2
Chromium, Total	0.00084J	J	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:59	MO	G2
Cobalt, Total	0.012		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:59	MO	G2
Copper, Total	0.060		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:59	MO	G2
Hardness	72.5	2	mg/L	0.33	0.11	EPA 200.7	1	03/24/2023 12:41	SRT	G1
Iron, Total	0.026J	J	mg/L	0.056	0.019	SW846 6020A	1	03/30/2023 14:59	MO	G2
Lead, Total	0.020		mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:59	MO	G2
Magnesium, Total	7.8		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 14:59	MO	G2
Manganese, Total	0.046		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:59	MO	G2
Mercury, Total	0.0018		mg/L	0.00050	0.00017	SW846 7470A	1	03/20/2023 13:54	WDA	G
Nickel, Total	0.051		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:59	MO	G2
Potassium, Total	2.3		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 14:59	MO	G2
Selenium, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:59	MO	G2
Silver, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:59	MO	G2
Sodium, Total	43.2		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 14:59	MO	G2
Thallium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/30/2023 14:59	MO	G2
Vanadium, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:59	MO	G2
Zinc, Total	0.14		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:59	MO	G2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/28/2023 03:03	PDK	C
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	0.22	SW846 8260C	1	03/28/2023 03:03	PDK	C
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/28/2023 03:03	PDK	C
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 03:03	PDK	C
1,1-Dichloroethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/28/2023 03:03	PDK	C
1,1-Dichloroethene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 03:03	PDK	C
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	0.60	SW846 8260C	1	03/28/2023 03:03	PDK	C
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.020	0.0048	SW846 8011	1	03/28/2023 00:40	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	7.0	1.5	SW846 8260C	1	03/28/2023 03:03	PDK	C
1,2-Dibromoethane	ND	ND	ug/L	0.020	0.0097	SW846 8011	1	03/28/2023 00:40	VLM	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/28/2023 03:03	PDK	C
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	0.38	SW846 8260C	1	03/28/2023 03:03	PDK	C
1,2-Dichloroethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 03:03	PDK	C
1,2-Dichloropropane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 03:03	PDK	C
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/28/2023 03:03	PDK	C
2-Butanone	ND	ND	ug/L	10.0	1.8	SW846 8260C	1	03/28/2023 03:03	PDK	C
2-Hexanone	ND	ND	ug/L	5.0	1.3	SW846 8260C	1	03/28/2023 03:03	PDK	C
4-Methyl-2-Pentanone(MIBK)	ND	ND	ug/L	5.0	1.5	SW846 8260C	1	03/28/2023 03:03	PDK	C
Acetone	ND	ND	ug/L	10.0	3.1	SW846 8260C	1	03/28/2023 03:03	PDK	C
Acrylonitrile	ND	ND	ug/L	5.0	1.2	SW846 8260C	1	03/28/2023 03:03	PDK	C



## Results

Client Sample ID	SMW-13	Collected	03/17/2023 12:59
Lab Sample ID	3293351007	Lab Receipt	03/17/2023 16:35

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 03:03	PDK	C
Bromochloromethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 03:03	PDK	C
Bromodichloromethane	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/28/2023 03:03	PDK	C
Bromoform	ND	ND	ug/L	1.0	0.40	SW846 8260C	1	03/28/2023 03:03	PDK	C
Bromomethane	ND	ND	ug/L	1.0	0.39	SW846 8260C	1	03/28/2023 03:03	PDK	C
Carbon Disulfide	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 03:03	PDK	C
Carbon Tetrachloride	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 03:03	PDK	C
Chlorobenzene	ND	ND	ug/L	1.0	0.19	SW846 8260C	1	03/28/2023 03:03	PDK	C
Chlorodibromomethane	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/28/2023 03:03	PDK	C
Chloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 03:03	PDK	C
Chloroform	0.30J	J	ug/L	1.0	0.21	SW846 8260C	1	03/28/2023 03:03	PDK	C
Chloromethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 03:03	PDK	C
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 03:03	PDK	C
cis-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 03:03	PDK	C
Cyclohexane	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 03:03	PDK	C
Dibromomethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 03:03	PDK	C
Dichlorodifluoromethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 03:03	PDK	C
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/28/2023 03:03	PDK	C
Iodomethane	ND	ND	ug/L	1.0	0.42	SW846 8260C	1	03/28/2023 03:03	PDK	C
Methyl t-Butyl Ether	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 03:03	PDK	C
Methylene Chloride	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/28/2023 03:03	PDK	C
mp-Xylene	ND	ND	ug/L	2.0	0.52	SW846 8260C	1	03/28/2023 03:03	PDK	C
o-Xylene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 03:03	PDK	C
Styrene	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 03:03	PDK	C
Tetrachloroethene	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/28/2023 03:03	PDK	C
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 03:03	PDK	C
Total Xylenes	ND	ND	ug/L	3.0	0.66	SW846 8260C	1	03/28/2023 03:03	PDK	C
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.26	SW846 8260C	1	03/28/2023 03:03	PDK	C
trans-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 03:03	PDK	C
trans-1,4-Dichloro-2-butene	ND	ND	ug/L	3.0	0.86	SW846 8260C	1	03/28/2023 03:03	PDK	C
Trichloroethene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 03:03	PDK	C
Trichlorofluoromethane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 03:03	PDK	C
Vinyl Acetate	ND	ND	ug/L	5.0	1.6	SW846 8260C	1	03/28/2023 03:03	PDK	C
Vinyl Chloride	ND	ND	ug/L	1.0	0.30	SW846 8260C	1	03/28/2023 03:03	PDK	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	98.1%	62 - 133	03/28/2023 03:03	
1-Chloro-2-Fluorobenzene	348-51-6	78.4%	70 - 130	03/28/2023 00:40	
4-Bromofluorobenzene	460-00-4	106%	79 - 114	03/28/2023 03:03	
Dibromofluoromethane	1868-53-7	93.8%	78 - 116	03/28/2023 03:03	
Toluene-d8	2037-26-5	102%	76 - 127	03/28/2023 03:03	

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	SMW-13	Collected	03/17/2023 12:59
Lab Sample ID	3293351007	Lab Receipt	03/17/2023 16:35

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	5	1	mg/L	5	5	SM2320B-2011	1	03/29/2023 19:18	NML	E
Ammonia-N	0.085J	J	mg/L	0.100	0.03	ASTM D6919-17	10	03/22/2023 14:56	NML	F
Chemical Oxygen Demand (COD)	ND	ND	mg/L	15	5	EPA 410.4	1	03/22/2023 14:15	KMS	F
Chloride	101		mg/L	2.0	1.5	EPA 300.0	2	03/18/2023 11:15	AXW	E
Nitrate-N	3.0		mg/L	1.0	0.22	EPA 300.0	2	03/18/2023 11:15	AXW	E
Sulfate	ND	ND	mg/L	2.0	1.5	EPA 300.0	2	03/18/2023 11:15	AXW	E
Total Dissolved Solids	262		mg/L	25	25	SM2540C-15	1	03/23/2023 16:04	GJB	E





## Results

Client Sample ID	GWM-6	Collected	03/17/2023 13:50
Lab Sample ID	3293351008	Lab Receipt	03/17/2023 16:35

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 15:23	MO	G2
Arsenic, Total	0.0017J	J	mg/L	0.0033	0.0011	SW846 6020A	1	03/30/2023 15:23	MO	G2
Barium, Total	0.12		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 15:23	MO	G2
Beryllium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/30/2023 15:23	MO	G2
Cadmium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/30/2023 15:23	MO	G2
Calcium, Total	15.6		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 15:23	MO	G2
Chromium, Total	0.00080J	J	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 15:23	MO	G2
Cobalt, Total	0.017		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 15:23	MO	G2
Copper, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 15:23	MO	G2
Hardness	79.7	2	mg/L	0.33	0.11	EPA 200.7	1	03/24/2023 12:44	SRT	G1
Iron, Total	82.1		mg/L	0.056	0.019	SW846 6020A	1	03/30/2023 15:23	MO	G2
Lead, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 15:23	MO	G2
Magnesium, Total	10.2		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 15:23	MO	G2
Manganese, Total	0.48		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 15:23	MO	G2
Mercury, Total	ND	ND	mg/L	0.00050	0.00017	SW846 7470A	1	03/20/2023 13:57	WDA	G
Nickel, Total	0.0059		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 15:23	MO	G2
Potassium, Total	1.9		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 15:23	MO	G2
Selenium, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 15:23	MO	G2
Silver, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 15:23	MO	G2
Sodium, Total	40.6		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 15:23	MO	G2
Thallium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/30/2023 15:23	MO	G2
Vanadium, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 15:23	MO	G2
Zinc, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 15:23	MO	G2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/28/2023 03:26	PKD	C
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	0.22	SW846 8260C	1	03/28/2023 03:26	PKD	C
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/28/2023 03:26	PKD	C
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 03:26	PKD	C
1,1-Dichloroethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/28/2023 03:26	PKD	C
1,1-Dichloroethene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 03:26	PKD	C
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	0.60	SW846 8260C	1	03/28/2023 03:26	PKD	C
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.020	0.0048	SW846 8011	1	03/28/2023 01:11	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	7.0	1.5	SW846 8260C	1	03/28/2023 03:26	PKD	C
1,2-Dibromoethane	ND	ND	ug/L	0.020	0.0098	SW846 8011	1	03/28/2023 01:11	VLM	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/28/2023 03:26	PKD	C
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	0.38	SW846 8260C	1	03/28/2023 03:26	PKD	C
1,2-Dichloroethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 03:26	PKD	C
1,2-Dichloropropane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 03:26	PKD	C
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/28/2023 03:26	PKD	C
2-Butanone	ND	ND	ug/L	10.0	1.8	SW846 8260C	1	03/28/2023 03:26	PKD	C
2-Hexanone	ND	ND	ug/L	5.0	1.3	SW846 8260C	1	03/28/2023 03:26	PKD	C
4-Methyl-2-Pentanone(MIBK)	ND	ND	ug/L	5.0	1.5	SW846 8260C	1	03/28/2023 03:26	PKD	C
Acetone	ND	ND	ug/L	10.0	3.1	SW846 8260C	1	03/28/2023 03:26	PKD	C
Acrylonitrile	ND	ND	ug/L	5.0	1.2	SW846 8260C	1	03/28/2023 03:26	PKD	C



## Results

Client Sample ID	GWM-6	Collected	03/17/2023 13:50
Lab Sample ID	3293351008	Lab Receipt	03/17/2023 16:35

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	11.1		ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 03:26	PDK	C
Bromochloromethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 03:26	PDK	C
Bromodichloromethane	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/28/2023 03:26	PDK	C
Bromoform	ND	ND	ug/L	1.0	0.40	SW846 8260C	1	03/28/2023 03:26	PDK	C
Bromomethane	ND	ND	ug/L	1.0	0.39	SW846 8260C	1	03/28/2023 03:26	PDK	C
Carbon Disulfide	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 03:26	PDK	C
Carbon Tetrachloride	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 03:26	PDK	C
Chlorobenzene	ND	ND	ug/L	1.0	0.19	SW846 8260C	1	03/28/2023 03:26	PDK	C
Chlorodibromomethane	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/28/2023 03:26	PDK	C
Chloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 03:26	PDK	C
Chloroform	ND	ND	ug/L	1.0	0.21	SW846 8260C	1	03/28/2023 03:26	PDK	C
Chloromethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 03:26	PDK	C
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 03:26	PDK	C
cis-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 03:26	PDK	C
Cyclohexane	1.5		ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 03:26	PDK	C
Dibromomethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 03:26	PDK	C
Dichlorodifluoromethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 03:26	PDK	C
Ethylbenzene	11.9		ug/L	1.0	0.34	SW846 8260C	1	03/28/2023 03:26	PDK	C
Iodomethane	ND	ND	ug/L	1.0	0.42	SW846 8260C	1	03/28/2023 03:26	PDK	C
Methyl t-Butyl Ether	4.8		ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 03:26	PDK	C
Methylene Chloride	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/28/2023 03:26	PDK	C
mp-Xylene	ND	ND	ug/L	2.0	0.52	SW846 8260C	1	03/28/2023 03:26	PDK	C
o-Xylene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 03:26	PDK	C
Styrene	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 03:26	PDK	C
Tetrachloroethene	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/28/2023 03:26	PDK	C
Toluene	0.28J	J	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 03:26	PDK	C
Total Xylenes	ND	ND	ug/L	3.0	0.66	SW846 8260C	1	03/28/2023 03:26	PDK	C
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.26	SW846 8260C	1	03/28/2023 03:26	PDK	C
trans-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 03:26	PDK	C
trans-1,4-Dichloro-2-butene	ND	ND	ug/L	3.0	0.86	SW846 8260C	1	03/28/2023 03:26	PDK	C
Trichloroethene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 03:26	PDK	C
Trichlorofluoromethane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 03:26	PDK	C
Vinyl Acetate	ND	ND	ug/L	5.0	1.6	SW846 8260C	1	03/28/2023 03:26	PDK	C
Vinyl Chloride	ND	ND	ug/L	1.0	0.30	SW846 8260C	1	03/28/2023 03:26	PDK	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	98.7%	62 - 133	03/28/2023 03:26	
1-Chloro-2-Fluorobenzene	348-51-6	71.6%	70 - 130	03/28/2023 01:11	
4-Bromofluorobenzene	460-00-4	105%	79 - 114	03/28/2023 03:26	
Dibromofluoromethane	1868-53-7	97.4%	78 - 116	03/28/2023 03:26	
Toluene-d8	2037-26-5	105%	76 - 127	03/28/2023 03:26	

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	GWM-6	Collected	03/17/2023 13:50
Lab Sample ID	3293351008	Lab Receipt	03/17/2023 16:35

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	39	1	mg/L	5	5	SM2320B-2011	1	03/29/2023 19:32	NML	E
Ammonia-N	0.125		mg/L	0.100	0.03	ASTM D6919-17	10	03/22/2023 13:20	NML	F
Chemical Oxygen Demand (COD)	33		mg/L	15	5	EPA 410.4	1	03/22/2023 14:15	KMS	F
Chloride	87.4		mg/L	2.0	1.5	EPA 300.0	2	03/18/2023 11:36	AXW	E
Nitrate-N	ND	ND	mg/L	1.0	0.22	EPA 300.0	2	03/18/2023 11:36	AXW	E
Sulfate	5.2		mg/L	2.0	1.5	EPA 300.0	2	03/18/2023 11:36	AXW	E
Total Dissolved Solids	282		mg/L	25	25	SM2540C-15	1	03/23/2023 16:04	GJB	E



## Results

Client Sample ID	SMW-13	Collected	03/17/2023 12:59
Lab Sample ID	3293351009	Lab Receipt	03/17/2023 16:35

### GASOLINE RANGE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Gasoline Range Organics	ND	ND	ug/L	100	17.0	SW846 8015D	1	03/20/2023 13:05	JTH	A

#### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
a,a,a-Trifluorotoluene	98-08-8	114%	90 - 129	03/20/2023 13:05	

### PETROLEUM HC's

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Diesel Range Organics C10-C28	ND	ND	mg/L	0.15	0.029	SW846 8015D	1	03/22/2023 23:02	DXL	E

#### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
o-Terphenyl	84-15-1	83.2%	26 - 139	03/22/2023 23:02	

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260B	1	03/27/2023 00:29	PDK	A
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260B	1	03/27/2023 00:29	PDK	A
Naphthalene	ND	ND	ug/L	2.0	0.34	SW846 8260B	1	03/27/2023 00:29	PDK	A
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260B	1	03/27/2023 00:29	PDK	A
Total Xylenes	ND	ND	ug/L	1.5	0.42	SW846 8260B	1	03/27/2023 00:29	PDK	A

#### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	92.2%	62 - 133	03/27/2023 00:29	
4-Bromofluorobenzene	460-00-4	109%	79 - 114	03/27/2023 00:29	
Dibromofluoromethane	1868-53-7	92.4%	78 - 116	03/27/2023 00:29	
Toluene-d8	2037-26-5	100%	76 - 127	03/27/2023 00:29	



## Results

Client Sample ID	GWM-6	Collected	03/17/2023 13:50
Lab Sample ID	3293351010	Lab Receipt	03/17/2023 16:35

### GASOLINE RANGE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Gasoline Range Organics	103		ug/L	100	17.0	SW846 8015D	1	03/20/2023 13:30	JTH	A

#### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
a,a,a-Trifluorotoluene	98-08-8	116%	90 - 129	03/20/2023 13:30	

### PETROLEUM HC's

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Diesel Range Organics C10-C28	2.1		mg/L	0.16	0.029	SW846 8015D	1	03/22/2023 23:36	DXL	E

#### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
o-Terphenyl	84-15-1	85.7%	26 - 139	03/22/2023 23:36	

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	10.2		ug/L	1.0	0.23	SW846 8260B	1	03/26/2023 23:43	PDK	A
Ethylbenzene	11.5		ug/L	1.0	0.34	SW846 8260B	1	03/26/2023 23:43	PDK	A
Naphthalene	4.3		ug/L	2.0	0.34	SW846 8260B	1	03/26/2023 23:43	PDK	A
Toluene	0.26J	J	ug/L	1.0	0.23	SW846 8260B	1	03/26/2023 23:43	PDK	A
Total Xylenes	ND	ND	ug/L	1.5	0.42	SW846 8260B	1	03/26/2023 23:43	PDK	A

#### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	92.7%	62 - 133	03/26/2023 23:43	
4-Bromofluorobenzene	460-00-4	104%	79 - 114	03/26/2023 23:43	
Dibromofluoromethane	1868-53-7	93.3%	78 - 116	03/26/2023 23:43	
Toluene-d8	2037-26-5	101%	76 - 127	03/26/2023 23:43	



### Sample - Method Cross Reference Table

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3293351001	Trip Blank	SW846 8011	SW846 8011	
		SW846 8260C	N/A	
3293351002	Field Blank	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
SM2540C-15	N/A			
3293351003	GWM-12	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
SM2540C-15	N/A			
3293351004	L-1	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
SM2540C-15	N/A			
3293351005	L-2	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
SM2320B-2011	N/A			
SM2540C-15	N/A			
3293351006	SMW-32	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
SM2540C-15	N/A			



**Project** Eastern Sanitary Landfill  
**Workorder** 3293351

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3293351007	SMW-13	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
		SM2540C-15	N/A	
3293351008	GWM-6	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
		SM2540C-15	N/A	
3293351009	SMW-13	SW846 8015D	SW846 3510C	
		SW846 8015D	N/A	
		SW846 8260B	N/A	
3293351010	GWM-6	SW846 8015D	SW846 3510C	
		SW846 8015D	N/A	
		SW846 8260B	N/A	



**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Lab ID	Sample ID	Preparation Method	Prep Batch	Prep Date/Time	By	Analysis Method	Anly Batch
3293351001	Trip Blank	SW846 8011	966321	03/27/2023 15:30	VLM	SW846 8011	966414
		N/A	N/A	N/A		SW846 8260C	966452
3293351002	Field Blank	EPA TRMD	963924	03/21/2023 23:24	ANN	EPA 200.7	965778
		SW846 3015A	964829	03/24/2023 03:16	ANN	SW846 6020A	967437
		SW846 7470A	963068	03/20/2023 08:25	WDA	SW846 7470A	963164
		SW846 8011	966340	03/27/2023 17:20	VLM	SW846 8011	966415
		N/A	N/A	N/A		SW846 8260C	966452
		N/A	N/A	N/A		ASTM D6919-17	963762
		N/A	N/A	N/A		EPA 300.0	962983
		N/A	N/A	N/A		EPA 410.4	964235
		N/A	N/A	N/A		SM2320B-2011	966511
		N/A	N/A	N/A	SM2540C-15	964363	
3293351003	GWM-12	EPA TRMD	963924	03/21/2023 23:24	ANN	EPA 200.7	965778
		SW846 3015A	964829	03/24/2023 03:16	ANN	SW846 6020A	967437
		SW846 7470A	963068	03/20/2023 08:25	WDA	SW846 7470A	963164
		SW846 8011	966340	03/27/2023 17:20	VLM	SW846 8011	966415
		N/A	N/A	N/A		SW846 8260C	966452
		N/A	N/A	N/A		ASTM D6919-17	963762
		N/A	N/A	N/A		EPA 300.0	962983
		N/A	N/A	N/A		EPA 410.4	964235
		N/A	N/A	N/A		SM2320B-2011	966511
		N/A	N/A	N/A	SM2540C-15	964363	
3293351004	L-1	EPA TRMD	964941	03/23/2023 09:24	JSE	EPA 200.7	965784
		SW846 3015A	964829	03/24/2023 03:16	ANN	SW846 6020A	967437
		SW846 7470A	963068	03/20/2023 08:25	WDA	SW846 7470A	963164
		SW846 8011	966340	03/27/2023 17:20	VLM	SW846 8011	966415
		N/A	N/A	N/A		SW846 8260C	966452
		N/A	N/A	N/A		ASTM D6919-17	965804
		N/A	N/A	N/A		EPA 300.0	962983
		N/A	N/A	N/A		EPA 410.4	965816
		N/A	N/A	N/A		SM2320B-2011	966511
		N/A	N/A	N/A	SM2540C-15	964363	
3293351005	L-2	EPA TRMD	964941	03/23/2023 09:24	JSE	EPA 200.7	965784
		SW846 3015A	964829	03/24/2023 03:16	ANN	SW846 6020A	967437
		SW846 7470A	963068	03/20/2023 08:25	WDA	SW846 7470A	963164
		SW846 8011	966340	03/27/2023 17:20	VLM	SW846 8011	966415
		N/A	N/A	N/A		SW846 8260C	966452
		N/A	N/A	N/A		ASTM D6919-17	965804
		N/A	N/A	N/A		EPA 300.0	966157
		N/A	N/A	N/A		EPA 300.0	962983
		N/A	N/A	N/A		EPA 410.4	965816
		N/A	N/A	N/A	SM2320B-2011	966511	
		N/A	N/A	N/A	SM2540C-15	964363	
3293351006	SMW-32	EPA TRMD	963924	03/21/2023 23:24	ANN	EPA 200.7	965778
		SW846 3015A	964829	03/24/2023 03:16	ANN	SW846 6020A	967437
		SW846 7470A	963068	03/20/2023 08:25	WDA	SW846 7470A	963164
		SW846 8011	966340	03/27/2023 17:20	VLM	SW846 8011	966415
		N/A	N/A	N/A		SW846 8260C	966452
		N/A	N/A	N/A		ASTM D6919-17	963762
		N/A	N/A	N/A		EPA 300.0	962983
		N/A	N/A	N/A		EPA 410.4	964235
		N/A	N/A	N/A		SM2320B-2011	966511
		N/A	N/A	N/A	SM2540C-15	964363	





**Project** Eastern Sanitary Landfill  
**Workorder** 3293351

Lab ID	Sample ID	Preparation Method	Prep Batch	Prep Date/Time	By	Analysis Method	Anly Batch
3293351007	SMW-13	EPA TRMD	963924	03/21/2023 23:24	ANN	EPA 200.7	965778
		SW846 3015A	964829	03/24/2023 03:16	ANN	SW846 6020A	967437
		SW846 7470A	963068	03/20/2023 08:25	WDA	SW846 7470A	963164
		SW846 8011	966340	03/27/2023 17:20	VLM	SW846 8011	966415
		N/A	N/A	N/A		SW846 8260C	966452
		N/A	N/A	N/A		ASTM D6919-17	963762
		N/A	N/A	N/A		EPA 300.0	962983
		N/A	N/A	N/A		EPA 410.4	964235
		N/A	N/A	N/A		SM2320B-2011	966511
3293351008	GWM-6	EPA TRMD	963924	03/21/2023 23:24	ANN	EPA 200.7	965778
		SW846 3015A	964829	03/24/2023 03:16	ANN	SW846 6020A	967437
		SW846 7470A	963068	03/20/2023 08:25	WDA	SW846 7470A	963164
		SW846 8011	966340	03/27/2023 17:20	VLM	SW846 8011	966415
		N/A	N/A	N/A		SW846 8260C	966452
		N/A	N/A	N/A		ASTM D6919-17	963761
		N/A	N/A	N/A		EPA 300.0	962983
		N/A	N/A	N/A		EPA 410.4	964235
		N/A	N/A	N/A		SM2320B-2011	966511
3293351009	SMW-13	SW846 3510C	963847	03/22/2023 08:35	SRL	SW846 8015D	964524
		N/A	N/A	N/A		SW846 8015D	963083
		N/A	N/A	N/A		SW846 8260B	966227
3293351010	GWM-6	SW846 3510C	963847	03/22/2023 08:35	SRL	SW846 8015D	964524
		N/A	N/A	N/A		SW846 8015D	963083
		N/A	N/A	N/A		SW846 8260B	966227

# CHAIN OF CUSTODY / SAMPLE INFORMATION FORM

Maryland Environmental Service • 259 Najoles Rd. • Millersville, MD 21108 • (410) 729-8200 • FAX (410) 729-8340

3293351

Logged By: SLS  
PM: GJM

**Laboratory:** ALS  
**Client Name:** Maryland Environmental Service, Attn: Cheryl Griffin  
**Client Address:** 259 Najoles Rd, Millersville, MD 21108 410-729-8356  
**Sampler:** Laura Russell / Brooke Zibell / Tom Reedy  
**Facility Name:** Eastern Sanitary Landfill  
**Project# / Purpose:** 3926-2000

Invoice To: Same				Turnaround Time: Routine				
Sample #	Sample ID	Grab or Composite	Container Description/ Preservation Status	Matrix	# of Containers	Date	Time	Analyses Required/Comments
1	Trip Blank	N/A	40 mL G Na2S2O3	W	2	3-17-23	--	VOCs (8011)
			40 mL G HCl	W	2		--	VOCs (8260)
2	Field Blank	G	40 mL G Na2S2O3	W	2	3-17-23	0930	VOCs (8011)
			40 mL G HCl	W	2			VOCs (8260)
			125 mL P HNO3	W	1			Metals - Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn (6020), Hg (7470), Hardness
			1 L P unpreserved	W	1			Alkalinity, TDS, Nitrate (EPA 300), Sulfate, Chloride
			250 mL P H2SO4	W	1			Ammonia, COD
								Temp By: <b>MR</b>   WO Temp (°C) <b>10</b>   Therm ID <b>510</b>
								Receipt Info Completed By: <b>DPB</b> Cooler Custody Seal Intact <b>Y N NA</b> Sample Custody Seal Intact <b>Y N NA</b> Received on Ice <b>Y N NA</b> Cooler & Samples Intact <b>Y N NA</b> Correct Containers Provided <b>Y N NA</b> Sample Label/COC Agree <b>Y N NA</b> Adequate Sample Volumes <b>Y N NA</b> CR6 Samples Filtered <b>Y N NA</b> OP Samples Filtered <b>Y N NA</b> VOA Headspace Present <b>Y N NA</b> Voa Trip Blank <b>Y N NA</b> NIS 4 Days? <b>Y</b> Rad Screen (uCi) <b>Y</b> Courier/Tracking #: <b>143540</b>
Transferred by:	<i>[Signature]</i>	Received by:	<i>[Signature]</i>	Date	Time	Date	Time	Cooler f
Transferred by:	<i>[Signature]</i>	Received by:	<i>[Signature]</i>	3-17-23	1555	3-17-23	1555	Sufficient ice? - Yes/No
Transferred by:	<i>[Signature]</i>	Received by:	<i>[Signature]</i>	3-17-23	1555	3-17-23	1555	Sample containers pr
							Initials:	Date:

3293351

# CHAIN OF CUSTODY / SAMPLE INFORMATION FORM

Maryland Environmental Service • 259 Najoles Rd. • Millersville, MD 21108 • (410) 729-8200 • FAX (410) 729-8340

**Sampler:** Laura Russell / Brooke Zibell / Tom Reedy

**Facility Name:** Eastern Sanitary Landfill

**Project# / Purpose:** 3926-2000

**Turnaround Time:** Routine

**Laboratory:** ALS

**Client Name:** Maryland Environmental Service, Attn: Cheryl Griffin

**Client Address:** 259 Najoles Rd, Millersville, MD 21108 410-729-8356

**Invoice To:** Same

Sample #	Sample ID	Grab or Composite	Container Description/ Preservation Status	Matrix	# of Containers	Date	Time	Analyses Required/Comments
3	GUM-12	G	40 mL G Na2S2O3	NPW	2	3-17-23	1010	VOCs (8011)
			40 mL G HCl	NPW	2			VOCs (8260)
			125 mL P HNO3	NPW	2			Metals - Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn (6020), Hg (7470), Hardness
			1 L P unpreserved	NPW	1			Alkalinity, TDS, Nitrate (EPA 300), Sulfate, Chloride
			250 mL P H2SO4	NPW	1			Ammonia, COD
4	<del>SMW-3a</del> L-1	G	Same as Sample #3	NPW	8	3-17-23	1030	Same as Sample #3
5	<del>SMW-3a</del> L-2	G	Same as Sample #3	NPW	8	3-17-23	1100	Same as Sample #3
6	SMW-3a	G	Same as Sample #3	NPW	8	3-17-23	1225	Same as Sample #3
7	SMW-13	G	Same as Sample #3	NPW	8	3-17-23	1259	Same as Sample #3
8	GUM-6	G	Same as Sample #3	NPW	8	3-17-23	1350	Same as Sample #3

**Received by:** [Signature]  
**Received by:** [Signature]  
**Received by:** [Signature]

**Date:** 3-17-23  
**Time:** 1455  
**Date:** 3-17-23  
**Time:** 1635

**Transferred by:** [Signature]  
**Transferred by:** [Signature]  
**Transferred by:** [Signature]

**Initials:** [Initials]  
**Date:** [Date]

**Cooler Receipt Information (LAB USE ONLY)**  
 Sufficient ice? - Yes/No \_\_\_\_\_ Temp. = \_\_\_\_\_  
 Sample containers properly pres'd? - Yes/No \_\_\_\_\_ If No, explain \_\_\_\_\_

# CHAIN OF CUSTODY / SAMPLE INFORMATION FORM

**3293351**

Maryland Environmental Service • 259 Najoles Rd • Millersville, MD 21108 • (410) 729-8200 • FAX (410) 729-8340

**Laboratory:** ALS

**Client Name:** Maryland Environmental Service, Attn: Cheryl Griffin

**Client Address:** 259 Najoles Rd, Millersville, MD 21108 410-729-8356

**Invoice To:** Same

**Sampler:** Laura Russell / Tom Reedy / Brooke Zibell

**Facility Name:** Eastern Sanitary Landfill

**Project# / Purpose:** 3926-2000

Turnaround Time: Routine									
Sample #	Sample ID	Grab or Composite	Container Description/ Preservation Status	Matrix	# of Containers	Date	Time	Analyses Required/Comments	
9	SMW-13	G	1 L G Amber H2SO4	NPW	1	3-17-23	1259	TPH DRO (8015)	
	↓	G	40 mL G HCl	NPW	2			TPH GRO (8015)	
	↓	G	40 mL G HCl	NPW	2			BTEX: Benzene, toluene ethylbenzene, xylenes, naphthalene (8260)	
10	Gwm-6	G	Same as Sample # 9	NPW	5	3-17-23	1350	Same as Sample # 9	

**Transferred by:** *Laura Russell*      Received by: *Cheryl Griffin*      Date: *3-17-23*      Time: *14:55*

**Transferred by:** *OR*      Received by: *Tom Reedy*      Date: *3-17-23*      Time: *16:35*

**Transferred by:** \_\_\_\_\_      Received by: \_\_\_\_\_      Date: \_\_\_\_\_      Time: \_\_\_\_\_

Cooler Receipt Information (LAB USE ONLY)  
 Sufficient ice? - Yes/No \_\_\_\_\_ Temp = \_\_\_\_\_  
 Sample containers properly pres'd? - Yes/No \_\_\_\_\_ If No, explain \_\_\_\_\_

Initials: \_\_\_\_\_ Date: \_\_\_\_\_



301 Fulling Mill Road | Middletown, PA 17057 | Phone: 717-944-5541 | Fax: 717-944-1430 | [www.alsglobal.com](http://www.alsglobal.com)

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618  
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

Analytical Results Report For Maryland Environmental Services - Landfills

Report ID [234390 on 3/30/2023](#)

## Certificate of Analysis

Project Name:	<b>Eastern Sanitary Landfill</b>	Workorder:	<b>3293583</b>
Purchase Order:	<b>MA 3680</b>	Workorder ID:	<b>Eastern Sanitary Landfill</b>

Enclosed are the analytical results for samples received by the laboratory on Monday, March 20, 2023.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact George Methlie (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements.

The test results meet requirements of the current NELAP standards or state requirements, where applicable.

For a specific list of accredited analytes, refer to the certifications section of the ALS website at [www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads](http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads).

This laboratory report may not be reproduced, except in full, without the written approval of ALS Global.  
ALS Middletown: 301 Fulling Mill Road, Middletown, PA 17057 : 717-944-5541.

Recipient(s): Maryland Services-ENVOPS - Maryland Environmental Services - Landfills Cheryl Griffin - Maryland Environmental Services Liz Ostermann - Maryland Environmental Services Maryland Services-LF Data - Maryland Environmental Services
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**George Methlie**  
Project Coordinator

(ALS Digital Signature)

*This page is included as part of the Analytical Report and must be retained as a permanent record thereof.*



## Sample Summary

<u>Lab ID</u>	<u>Sample ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>	<u>Collector</u>	<u>Collection Company</u>
3293583001	Trip Blank	Water	03/20/2023 00:00	03/20/2023 17:20	CBC	Collected By Client
3293583002	Field Blank	Water	03/20/2023 10:00	03/20/2023 17:20	CBC	Collected By Client
3293583003	SW-1	Water	03/20/2023 09:20	03/20/2023 17:20	CBC	Collected By Client
3293583004	FMW-35	Water	03/20/2023 10:25	03/20/2023 17:20	CBC	Collected By Client
3293583005	FMW-15	Water	03/20/2023 11:15	03/20/2023 17:20	CBC	Collected By Client
3293583006	SB-16	Water	03/20/2023 13:20	03/20/2023 17:20	CBC	Collected By Client
3293583007	FMW-41	Water	03/20/2023 14:50	03/20/2023 17:20	CBC	Collected By Client



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## Reference

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### Notes

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- Except as qualified, Clean Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 136.
- Except as qualified, Safe Drinking Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 141.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
- Method references listed on this report beginning with the prefix "S" followed by a method number (such as S2310B-97) refer to methods from "Standard Methods for the Examination of Water and Wastewater".
- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.
- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

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### Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND) above the MDL
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Practical Quantitation Limit for this Project
ND	Not Detected - indicates that the analyte was Not Detected
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits
#	Please reference the result in the Results Section for analyte-level flags.

---



**Project** Eastern Sanitary Landfill  
**Workorder** 3293583

**Project Notations**

**Sample Notations**

**Lab ID**      **Sample ID**

**Result Notations**

**Notation Ref.**

- 1      The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO<sub>3</sub>/L.
- 2      This sample result was calculated and reported using Method SM2340B-2011.





### Detected Results Summary

Client Sample ID	Field Blank	Collected	03/20/2023 10:00
Lab Sample ID	3293583002	Lab Receipt	03/20/2023 17:20

Compound	Result	Units	RDL	MDL	Method	Flag
<b>METALS</b>						
Sodium, Total	0.067J	mg/L	0.11	0.037	SW846 6020A	#
<b>WET CHEMISTRY</b>						
Ammonia-N	0.016	mg/L	0.010	0.003	ASTM D6919-17	#
Chemical Oxygen Demand (COD)	16	mg/L	15	5	EPA 410.4	#



### Detected Results Summary

Client Sample ID	SW-1	Collected	03/20/2023 09:20
Lab Sample ID	3293583003	Lab Receipt	03/20/2023 17:20

Compound	Result	Units	RDL	MDL	Method	Flag
<b>METALS</b>						
Arsenic, Total	0.0014J	mg/L	0.0033	0.0011	SW846 6020A	#
Barium, Total	0.15	mg/L	0.0056	0.0019	SW846 6020A	#
Calcium, Total	36.5	mg/L	0.11	0.037	SW846 6020A	#
Chromium, Total	0.0013J	mg/L	0.0022	0.00074	SW846 6020A	#
Cobalt, Total	0.28	mg/L	0.0056	0.0019	SW846 6020A	#
Hardness	168	mg/L			SW846 6020A	#
Iron, Total	75.5	mg/L	0.056	0.019	SW846 6020A	#
Magnesium, Total	18.6	mg/L	0.11	0.037	SW846 6020A	#
Manganese, Total	9.5	mg/L	0.0056	0.0019	SW846 6020A	#
Nickel, Total	0.0074	mg/L	0.0056	0.0019	SW846 6020A	#
Potassium, Total	4.2	mg/L	0.11	0.037	SW846 6020A	#
Sodium, Total	32.8	mg/L	0.11	0.037	SW846 6020A	#
Zinc, Total	0.0051J	mg/L	0.0056	0.0019	SW846 6020A	#
<b>VOLATILE ORGANICS</b>						
1,4-Dichlorobenzene	0.96J	ug/L	1.0	0.27	SW846 8260C	#
Benzene	0.26J	ug/L	1.0	0.23	SW846 8260C	#
<b>WET CHEMISTRY</b>						
Alkalinity, Total	157	mg/L	5	5	SM2320B-2011	#
Ammonia-N	1.31	mg/L	0.100	0.03	ASTM D6919-17	#
Chemical Oxygen Demand (COD)	43	mg/L	15	5	EPA 410.4	#
Chloride	65.5	mg/L	2.0	1.5	EPA 300.0	#
Sulfate	28.6	mg/L	2.0	1.5	EPA 300.0	#
Total Dissolved Solids	358	mg/L	25	25	SM2540C-15	#



**Detected Results Summary**

Client Sample ID	FMW-35	Collected	03/20/2023 10:25
Lab Sample ID	3293583004	Lab Receipt	03/20/2023 17:20

<u>Compound</u>	<u>Result</u>	<u>Units</u>	<u>RDL</u>	<u>MDL</u>	<u>Method</u>	<u>Flag</u>
<b>PETROLEUM HC's</b>						
Diesel Range Organics C10-C28	0.34	mg/L	0.16	0.029	SW846 8015D	#
<b>VOLATILE ORGANICS</b>						
Naphthalene	0.76J	ug/L	2.0	0.34	SW846 8260B	#



### Detected Results Summary

Client Sample ID	FMW-15	Collected	03/20/2023 11:15
Lab Sample ID	3293583005	Lab Receipt	03/20/2023 17:20

<b>Compound</b>	<b>Result</b>	<b>Units</b>	<b>RDL</b>	<b>MDL</b>	<b>Method</b>	<b>Flag</b>
<b>PETROLEUM HC's</b>						
Diesel Range Organics C10-C28	0.075J	mg/L	0.16	0.029	SW846 8015D	#



### Detected Results Summary

Client Sample ID	SB-16	Collected	03/20/2023 13:20
Lab Sample ID	3293583006	Lab Receipt	03/20/2023 17:20

<b>Compound</b>	<b>Result</b>	<b>Units</b>	<b>RDL</b>	<b>MDL</b>	<b>Method</b>	<b>Flag</b>
<b>PETROLEUM HC's</b>						
Diesel Range Organics C10-C28	0.076J	mg/L	0.15	0.029	SW846 8015D	#



### Detected Results Summary

Client Sample ID	FMW-41	Collected	03/20/2023 14:50
Lab Sample ID	3293583007	Lab Receipt	03/20/2023 17:20

<b>Compound</b>	<b>Result</b>	<b>Units</b>	<b>RDL</b>	<b>MDL</b>	<b>Method</b>	<b>Flag</b>
<b>PETROLEUM HC's</b>						
Diesel Range Organics C10-C28	0.077J	mg/L	0.16	0.029	SW846 8015D	#



**Results**

Client Sample ID Trip Blank Collected 03/20/2023 00:00  
 Lab Sample ID 3293583001 Lab Receipt 03/20/2023 17:20

**VOLATILE ORGANICS**

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/28/2023 01:09	PDK	C
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	0.22	SW846 8260C	1	03/28/2023 01:09	PDK	C
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/28/2023 01:09	PDK	C
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 01:09	PDK	C
1,1-Dichloroethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/28/2023 01:09	PDK	C
1,1-Dichloroethene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 01:09	PDK	C
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	0.60	SW846 8260C	1	03/28/2023 01:09	PDK	C
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.020	0.0048	SW846 8011	1	03/28/2023 01:42	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	7.0	1.5	SW846 8260C	1	03/28/2023 01:09	PDK	C
1,2-Dibromoethane	ND	ND	ug/L	0.020	0.0098	SW846 8011	1	03/28/2023 01:42	VLM	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/28/2023 01:09	PDK	C
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	0.38	SW846 8260C	1	03/28/2023 01:09	PDK	C
1,2-Dichloroethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 01:09	PDK	C
1,2-Dichloropropane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 01:09	PDK	C
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/28/2023 01:09	PDK	C
2-Butanone	ND	ND	ug/L	10.0	1.8	SW846 8260C	1	03/28/2023 01:09	PDK	C
2-Hexanone	ND	ND	ug/L	5.0	1.3	SW846 8260C	1	03/28/2023 01:09	PDK	C
4-Methyl-2-Pentanone(MIBK)	ND	ND	ug/L	5.0	1.5	SW846 8260C	1	03/28/2023 01:09	PDK	C
Acetone	ND	ND	ug/L	10.0	3.1	SW846 8260C	1	03/28/2023 01:09	PDK	C
Acrylonitrile	ND	ND	ug/L	5.0	1.2	SW846 8260C	1	03/28/2023 01:09	PDK	C
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 01:09	PDK	C
Bromochloromethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 01:09	PDK	C
Bromodichloromethane	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/28/2023 01:09	PDK	C
Bromoform	ND	ND	ug/L	1.0	0.40	SW846 8260C	1	03/28/2023 01:09	PDK	C
Bromomethane	ND	ND	ug/L	1.0	0.39	SW846 8260C	1	03/28/2023 01:09	PDK	C
Carbon Disulfide	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 01:09	PDK	C
Carbon Tetrachloride	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 01:09	PDK	C
Chlorobenzene	ND	ND	ug/L	1.0	0.19	SW846 8260C	1	03/28/2023 01:09	PDK	C
Chlorodibromomethane	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/28/2023 01:09	PDK	C
Chloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 01:09	PDK	C
Chloroform	ND	ND	ug/L	1.0	0.21	SW846 8260C	1	03/28/2023 01:09	PDK	C
Chloromethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 01:09	PDK	C
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 01:09	PDK	C
cis-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 01:09	PDK	C
Cyclohexane	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 01:09	PDK	C
Dibromomethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 01:09	PDK	C
Dichlorodifluoromethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 01:09	PDK	C
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/28/2023 01:09	PDK	C
Iodomethane	ND	ND	ug/L	1.0	0.42	SW846 8260C	1	03/28/2023 01:09	PDK	C
Methyl t-Butyl Ether	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 01:09	PDK	C
Methylene Chloride	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/28/2023 01:09	PDK	C
mp-Xylene	ND	ND	ug/L	2.0	0.52	SW846 8260C	1	03/28/2023 01:09	PDK	C
o-Xylene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 01:09	PDK	C
Styrene	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 01:09	PDK	C
Tetrachloroethene	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/28/2023 01:09	PDK	C
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 01:09	PDK	C
Total Xylenes	ND	ND	ug/L	3.0	0.66	SW846 8260C	1	03/28/2023 01:09	PDK	C



## Results

Client Sample ID	Trip Blank	Collected	03/20/2023 00:00
Lab Sample ID	3293583001	Lab Receipt	03/20/2023 17:20

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.26	SW846 8260C	1	03/28/2023 01:09	PDK	C
trans-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 01:09	PDK	C
trans-1,4-Dichloro-2-butene	ND	ND	ug/L	3.0	0.86	SW846 8260C	1	03/28/2023 01:09	PDK	C
Trichloroethene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 01:09	PDK	C
Trichlorofluoromethane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 01:09	PDK	C
Vinyl Acetate	ND	ND	ug/L	5.0	1.6	SW846 8260C	1	03/28/2023 01:09	PDK	C
Vinyl Chloride	ND	ND	ug/L	1.0	0.30	SW846 8260C	1	03/28/2023 01:09	PDK	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	100%	62 - 133	03/28/2023 01:09	
1-Chloro-2-Fluorobenzene	348-51-6	79.2%	70 - 130	03/28/2023 01:42	
4-Bromofluorobenzene	460-00-4	112%	79 - 114	03/28/2023 01:09	
Dibromofluoromethane	1868-53-7	96.8%	78 - 116	03/28/2023 01:09	
Toluene-d8	2037-26-5	102%	76 - 127	03/28/2023 01:09	





## Results

Client Sample ID	Field Blank	Collected	03/20/2023 10:00
Lab Sample ID	3293583002	Lab Receipt	03/20/2023 17:20

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:37	MO	E2
Arsenic, Total	ND	ND	mg/L	0.0033	0.0011	SW846 6020A	1	03/30/2023 14:37	MO	E2
Barium, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:37	MO	E2
Beryllium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/30/2023 14:37	MO	E2
Cadmium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/30/2023 14:37	MO	E2
Calcium, Total	ND	ND	mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 14:37	MO	E2
Chromium, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:37	MO	E2
Cobalt, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:37	MO	E2
Copper, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:37	MO	E2
Hardness	ND	ND,2	mg/L	0.33	0.11	EPA 200.7	1	03/24/2023 13:07	SRT	E1
Iron, Total	ND	ND	mg/L	0.056	0.019	SW846 6020A	1	03/30/2023 14:37	MO	E2
Lead, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:37	MO	E2
Magnesium, Total	ND	ND	mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 14:37	MO	E2
Manganese, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:37	MO	E2
Mercury, Total	ND	ND	mg/L	0.00050	0.00017	SW846 7470A	1	03/23/2023 11:41	WDA	E
Nickel, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:37	MO	E2
Potassium, Total	ND	ND	mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 14:37	MO	E2
Selenium, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:37	MO	E2
Silver, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:37	MO	E2
Sodium, Total	0.067J	J	mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 14:37	MO	E2
Thallium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/30/2023 14:37	MO	E2
Vanadium, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:37	MO	E2
Zinc, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:37	MO	E2

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/28/2023 01:32	PKD	C
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	0.22	SW846 8260C	1	03/28/2023 01:32	PKD	C
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/28/2023 01:32	PKD	C
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 01:32	PKD	C
1,1-Dichloroethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/28/2023 01:32	PKD	C
1,1-Dichloroethene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 01:32	PKD	C
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	0.60	SW846 8260C	1	03/28/2023 01:32	PKD	C
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.020	0.0048	SW846 8011	1	03/28/2023 01:58	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	7.0	1.5	SW846 8260C	1	03/28/2023 01:32	PKD	C
1,2-Dibromoethane	ND	ND	ug/L	0.020	0.0097	SW846 8011	1	03/28/2023 01:58	VLM	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/28/2023 01:32	PKD	C
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	0.38	SW846 8260C	1	03/28/2023 01:32	PKD	C
1,2-Dichloroethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 01:32	PKD	C
1,2-Dichloropropane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 01:32	PKD	C
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/28/2023 01:32	PKD	C
2-Butanone	ND	ND	ug/L	10.0	1.8	SW846 8260C	1	03/28/2023 01:32	PKD	C
2-Hexanone	ND	ND	ug/L	5.0	1.3	SW846 8260C	1	03/28/2023 01:32	PKD	C
4-Methyl-2-Pentanone(MIBK)	ND	ND	ug/L	5.0	1.5	SW846 8260C	1	03/28/2023 01:32	PKD	C
Acetone	ND	ND	ug/L	10.0	3.1	SW846 8260C	1	03/28/2023 01:32	PKD	C
Acrylonitrile	ND	ND	ug/L	5.0	1.2	SW846 8260C	1	03/28/2023 01:32	PKD	C



## Results

Client Sample ID	Field Blank	Collected	03/20/2023 10:00
Lab Sample ID	3293583002	Lab Receipt	03/20/2023 17:20

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 01:32	PDK	C
Bromochloromethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 01:32	PDK	C
Bromodichloromethane	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/28/2023 01:32	PDK	C
Bromoform	ND	ND	ug/L	1.0	0.40	SW846 8260C	1	03/28/2023 01:32	PDK	C
Bromomethane	ND	ND	ug/L	1.0	0.39	SW846 8260C	1	03/28/2023 01:32	PDK	C
Carbon Disulfide	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 01:32	PDK	C
Carbon Tetrachloride	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 01:32	PDK	C
Chlorobenzene	ND	ND	ug/L	1.0	0.19	SW846 8260C	1	03/28/2023 01:32	PDK	C
Chlorodibromomethane	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/28/2023 01:32	PDK	C
Chloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 01:32	PDK	C
Chloroform	ND	ND	ug/L	1.0	0.21	SW846 8260C	1	03/28/2023 01:32	PDK	C
Chloromethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 01:32	PDK	C
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 01:32	PDK	C
cis-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 01:32	PDK	C
Cyclohexane	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 01:32	PDK	C
Dibromomethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 01:32	PDK	C
Dichlorodifluoromethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 01:32	PDK	C
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/28/2023 01:32	PDK	C
Iodomethane	ND	ND	ug/L	1.0	0.42	SW846 8260C	1	03/28/2023 01:32	PDK	C
Methyl t-Butyl Ether	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 01:32	PDK	C
Methylene Chloride	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/28/2023 01:32	PDK	C
mp-Xylene	ND	ND	ug/L	2.0	0.52	SW846 8260C	1	03/28/2023 01:32	PDK	C
o-Xylene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 01:32	PDK	C
Styrene	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 01:32	PDK	C
Tetrachloroethene	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/28/2023 01:32	PDK	C
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 01:32	PDK	C
Total Xylenes	ND	ND	ug/L	3.0	0.66	SW846 8260C	1	03/28/2023 01:32	PDK	C
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.26	SW846 8260C	1	03/28/2023 01:32	PDK	C
trans-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 01:32	PDK	C
trans-1,4-Dichloro-2-butene	ND	ND	ug/L	3.0	0.86	SW846 8260C	1	03/28/2023 01:32	PDK	C
Trichloroethene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 01:32	PDK	C
Trichlorofluoromethane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 01:32	PDK	C
Vinyl Acetate	ND	ND	ug/L	5.0	1.6	SW846 8260C	1	03/28/2023 01:32	PDK	C
Vinyl Chloride	ND	ND	ug/L	1.0	0.30	SW846 8260C	1	03/28/2023 01:32	PDK	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	99%	62 - 133	03/28/2023 01:32	
1-Chloro-2-Fluorobenzene	348-51-6	83.3%	70 - 130	03/28/2023 01:58	
4-Bromofluorobenzene	460-00-4	109%	79 - 114	03/28/2023 01:32	
Dibromofluoromethane	1868-53-7	96.6%	78 - 116	03/28/2023 01:32	
Toluene-d8	2037-26-5	102%	76 - 127	03/28/2023 01:32	

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	Field Blank	Collected	03/20/2023 10:00
Lab Sample ID	3293583002	Lab Receipt	03/20/2023 17:20

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	ND	ND,1	mg/L	5	5	SM2320B-2011	1	03/29/2023 23:33	NML	F
Ammonia-N	0.016		mg/L	0.010	0.003	ASTM D6919-17	1	03/27/2023 11:02	NML	G
Chemical Oxygen Demand (COD)	16		mg/L	15	5	EPA 410.4	1	03/23/2023 11:30	KMS	G
Chloride	ND	ND	mg/L	2.0	1.5	EPA 300.0	2	03/21/2023 13:17	J1W	F
Nitrate-N	ND	ND	mg/L	1.0	0.22	EPA 300.0	2	03/21/2023 13:17	J1W	F
Sulfate	ND	ND	mg/L	2.0	1.5	EPA 300.0	2	03/21/2023 13:17	J1W	F
Total Dissolved Solids	ND	ND	mg/L	25	25	SM2540C-15	1	03/23/2023 16:04	GJB	F



## Results

Client Sample ID	SW-1	Collected	03/20/2023 09:20
Lab Sample ID	3293583003	Lab Receipt	03/20/2023 17:20

### METALS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Antimony, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:40	MO	G1
Arsenic, Total	0.0014J	J	mg/L	0.0033	0.0011	SW846 6020A	1	03/30/2023 14:40	MO	G1
Barium, Total	0.15		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:40	MO	G1
Beryllium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/30/2023 14:40	MO	G1
Cadmium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/30/2023 14:40	MO	G1
Calcium, Total	36.5		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 14:40	MO	G1
Chromium, Total	0.0013J	J	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:40	MO	G1
Cobalt, Total	0.28		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:40	MO	G1
Copper, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:40	MO	G1
Hardness	168	2	mg/L			SW846 6020A	1	03/30/2023 14:40	MO	G1
Iron, Total	75.5		mg/L	0.056	0.019	SW846 6020A	1	03/30/2023 14:40	MO	G1
Lead, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:40	MO	G1
Magnesium, Total	18.6		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 14:40	MO	G1
Manganese, Total	9.5		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:40	MO	G1
Mercury, Total	ND	ND	mg/L	0.00050	0.00017	SW846 7470A	1	03/23/2023 11:42	WDA	G
Nickel, Total	0.0074		mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:40	MO	G1
Potassium, Total	4.2		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 14:40	MO	G1
Selenium, Total	ND	ND	mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:40	MO	G1
Silver, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:40	MO	G1
Sodium, Total	32.8		mg/L	0.11	0.037	SW846 6020A	1	03/30/2023 14:40	MO	G1
Thallium, Total	ND	ND	mg/L	0.0011	0.00037	SW846 6020A	1	03/30/2023 14:40	MO	G1
Vanadium, Total	ND	ND	mg/L	0.0022	0.00074	SW846 6020A	1	03/30/2023 14:40	MO	G1
Zinc, Total	0.0051J	J	mg/L	0.0056	0.0019	SW846 6020A	1	03/30/2023 14:40	MO	G1

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/28/2023 03:49	PKD	C
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	0.22	SW846 8260C	1	03/28/2023 03:49	PKD	C
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/28/2023 03:49	PKD	C
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 03:49	PKD	C
1,1-Dichloroethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/28/2023 03:49	PKD	C
1,1-Dichloroethene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 03:49	PKD	C
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	0.60	SW846 8260C	1	03/28/2023 03:49	PKD	C
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.020	0.0047	SW846 8011	1	03/28/2023 02:13	VLM	A
1,2-Dibromo-3-chloropropane	ND	ND	ug/L	7.0	1.5	SW846 8260C	1	03/28/2023 03:49	PKD	C
1,2-Dibromoethane	ND	ND	ug/L	0.020	0.0096	SW846 8011	1	03/28/2023 02:13	VLM	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	0.28	SW846 8260C	1	03/28/2023 03:49	PKD	C
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	0.38	SW846 8260C	1	03/28/2023 03:49	PKD	C
1,2-Dichloroethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 03:49	PKD	C
1,2-Dichloropropane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 03:49	PKD	C
1,4-Dichlorobenzene	0.96J	J	ug/L	1.0	0.27	SW846 8260C	1	03/28/2023 03:49	PKD	C
2-Butanone	ND	ND	ug/L	10.0	1.8	SW846 8260C	1	03/28/2023 03:49	PKD	C
2-Hexanone	ND	ND	ug/L	5.0	1.3	SW846 8260C	1	03/28/2023 03:49	PKD	C
4-Methyl-2-Pentanone(MIBK)	ND	ND	ug/L	5.0	1.5	SW846 8260C	1	03/28/2023 03:49	PKD	C
Acetone	ND	ND	ug/L	10.0	3.1	SW846 8260C	1	03/28/2023 03:49	PKD	C
Acrylonitrile	ND	ND	ug/L	5.0	1.2	SW846 8260C	1	03/28/2023 03:49	PKD	C



## Results

Client Sample ID	SW-1	Collected	03/20/2023 09:20
Lab Sample ID	3293583003	Lab Receipt	03/20/2023 17:20

### VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	0.26J	J	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 03:49	PDK	C
Bromochloromethane	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 03:49	PDK	C
Bromodichloromethane	ND	ND	ug/L	1.0	0.27	SW846 8260C	1	03/28/2023 03:49	PDK	C
Bromoform	ND	ND	ug/L	1.0	0.40	SW846 8260C	1	03/28/2023 03:49	PDK	C
Bromomethane	ND	ND	ug/L	1.0	0.39	SW846 8260C	1	03/28/2023 03:49	PDK	C
Carbon Disulfide	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 03:49	PDK	C
Carbon Tetrachloride	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 03:49	PDK	C
Chlorobenzene	ND	ND	ug/L	1.0	0.19	SW846 8260C	1	03/28/2023 03:49	PDK	C
Chlorodibromomethane	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/28/2023 03:49	PDK	C
Chloroethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 03:49	PDK	C
Chloroform	ND	ND	ug/L	1.0	0.21	SW846 8260C	1	03/28/2023 03:49	PDK	C
Chloromethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 03:49	PDK	C
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.32	SW846 8260C	1	03/28/2023 03:49	PDK	C
cis-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 03:49	PDK	C
Cyclohexane	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 03:49	PDK	C
Dibromomethane	ND	ND	ug/L	1.0	0.31	SW846 8260C	1	03/28/2023 03:49	PDK	C
Dichlorodifluoromethane	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 03:49	PDK	C
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260C	1	03/28/2023 03:49	PDK	C
Iodomethane	ND	ND	ug/L	1.0	0.42	SW846 8260C	1	03/28/2023 03:49	PDK	C
Methyl t-Butyl Ether	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 03:49	PDK	C
Methylene Chloride	ND	ND	ug/L	1.0	0.45	SW846 8260C	1	03/28/2023 03:49	PDK	C
mp-Xylene	ND	ND	ug/L	2.0	0.52	SW846 8260C	1	03/28/2023 03:49	PDK	C
o-Xylene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 03:49	PDK	C
Styrene	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 03:49	PDK	C
Tetrachloroethene	ND	ND	ug/L	1.0	0.35	SW846 8260C	1	03/28/2023 03:49	PDK	C
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260C	1	03/28/2023 03:49	PDK	C
Total Xylenes	ND	ND	ug/L	3.0	0.66	SW846 8260C	1	03/28/2023 03:49	PDK	C
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	0.26	SW846 8260C	1	03/28/2023 03:49	PDK	C
trans-1,3-Dichloropropene	ND	ND	ug/L	1.0	0.29	SW846 8260C	1	03/28/2023 03:49	PDK	C
trans-1,4-Dichloro-2-butene	ND	ND	ug/L	3.0	0.86	SW846 8260C	1	03/28/2023 03:49	PDK	C
Trichloroethene	ND	ND	ug/L	1.0	0.33	SW846 8260C	1	03/28/2023 03:49	PDK	C
Trichlorofluoromethane	ND	ND	ug/L	1.0	0.24	SW846 8260C	1	03/28/2023 03:49	PDK	C
Vinyl Acetate	ND	ND	ug/L	5.0	1.6	SW846 8260C	1	03/28/2023 03:49	PDK	C
Vinyl Chloride	ND	ND	ug/L	1.0	0.30	SW846 8260C	1	03/28/2023 03:49	PDK	C

### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	97.5%	62 - 133	03/28/2023 03:49	
1-Chloro-2-Fluorobenzene	348-51-6	70.5%	70 - 130	03/28/2023 02:13	
4-Bromofluorobenzene	460-00-4	106%	79 - 114	03/28/2023 03:49	
Dibromofluoromethane	1868-53-7	95.8%	78 - 116	03/28/2023 03:49	
Toluene-d8	2037-26-5	102%	76 - 127	03/28/2023 03:49	

### WET CHEMISTRY

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
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## Results

Client Sample ID	SW-1	Collected	03/20/2023 09:20
Lab Sample ID	3293583003	Lab Receipt	03/20/2023 17:20

### WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	157	1	mg/L	5	5	SM2320B-2011	1	03/29/2023 23:45	NML	E
Ammonia-N	1.31		mg/L	0.100	0.03	ASTM D6919-17	10	03/23/2023 06:26	NML	F
Chemical Oxygen Demand (COD)	43		mg/L	15	5	EPA 410.4	1	03/27/2023 14:04	KMS	F
Chloride	65.5		mg/L	2.0	1.5	EPA 300.0	2	03/21/2023 13:28	J1W	E
Nitrate-N	ND	ND	mg/L	1.0	0.22	EPA 300.0	2	03/21/2023 13:28	J1W	E
Sulfate	28.6		mg/L	2.0	1.5	EPA 300.0	2	03/21/2023 13:28	J1W	E
Total Dissolved Solids	358		mg/L	25	25	SM2540C-15	1	03/23/2023 16:04	GJB	E



## Results

Client Sample ID	FMW-35	Collected	03/20/2023 10:25
Lab Sample ID	3293583004	Lab Receipt	03/20/2023 17:20

### GASOLINE RANGE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Gasoline Range Organics	ND	ND	ug/L	100	17.0	SW846 8015D	1	03/27/2023 09:50	JTH	B

#### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
a,a,a-Trifluorotoluene	98-08-8	119%	90 - 129	03/27/2023 09:50	

### PETROLEUM HC's

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Diesel Range Organics C10-C28	0.34		mg/L	0.16	0.029	SW846 8015D	1	03/23/2023 00:09	DXL	E

#### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
o-Terphenyl	84-15-1	84.7%	26 - 139	03/23/2023 00:09	

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260B	1	03/28/2023 01:07	PDK	A
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260B	1	03/28/2023 01:07	PDK	A
Naphthalene	0.76J	J	ug/L	2.0	0.34	SW846 8260B	1	03/28/2023 01:07	PDK	A
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260B	1	03/28/2023 01:07	PDK	A
Total Xylenes	ND	ND	ug/L	1.5	0.42	SW846 8260B	1	03/28/2023 01:07	PDK	A

#### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	101%	62 - 133	03/28/2023 01:07	
4-Bromofluorobenzene	460-00-4	102%	79 - 114	03/28/2023 01:07	
Dibromofluoromethane	1868-53-7	101%	78 - 116	03/28/2023 01:07	
Toluene-d8	2037-26-5	98.1%	76 - 127	03/28/2023 01:07	



**Project** Eastern Sanitary Landfill  
**Workorder** 3293583

## Results

Client Sample ID	FMW-15	Collected	03/20/2023 11:15
Lab Sample ID	3293583005	Lab Receipt	03/20/2023 17:20

### GASOLINE RANGE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Gasoline Range Organics	ND	ND	ug/L	100	17.0	SW846 8015D	1	03/27/2023 10:16	JTH	B

#### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
a,a,a-Trifluorotoluene	98-08-8	118%	90 - 129	03/27/2023 10:16	

### PETROLEUM HC's

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Diesel Range Organics C10-C28	0.075J	J	mg/L	0.16	0.029	SW846 8015D	1	03/23/2023 00:43	DXL	E

#### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
o-Terphenyl	84-15-1	77%	26 - 139	03/23/2023 00:43	

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260B	1	03/28/2023 01:30	PDK	A
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260B	1	03/28/2023 01:30	PDK	A
Naphthalene	ND	ND	ug/L	2.0	0.34	SW846 8260B	1	03/28/2023 01:30	PDK	A
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260B	1	03/28/2023 01:30	PDK	A
Total Xylenes	ND	ND	ug/L	1.5	0.42	SW846 8260B	1	03/28/2023 01:30	PDK	A

#### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	102%	62 - 133	03/28/2023 01:30	
4-Bromofluorobenzene	460-00-4	104%	79 - 114	03/28/2023 01:30	
Dibromofluoromethane	1868-53-7	97.8%	78 - 116	03/28/2023 01:30	
Toluene-d8	2037-26-5	99.7%	76 - 127	03/28/2023 01:30	





**Project** Eastern Sanitary Landfill  
**Workorder** 3293583

## Results

Client Sample ID	SB-16	Collected	03/20/2023 13:20
Lab Sample ID	3293583006	Lab Receipt	03/20/2023 17:20

### GASOLINE RANGE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Gasoline Range Organics	ND	ND	ug/L	100	17.0	SW846 8015D	1	03/27/2023 10:42	JTH	B

#### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
a,a,a-Trifluorotoluene	98-08-8	119%	90 - 129	03/27/2023 10:42	

### PETROLEUM HC's

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Diesel Range Organics C10-C28	0.076J	J	mg/L	0.15	0.029	SW846 8015D	1	03/23/2023 01:17	DXL	E

#### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
o-Terphenyl	84-15-1	81.4%	26 - 139	03/23/2023 01:17	

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260B	1	03/28/2023 01:53	PDK	A
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260B	1	03/28/2023 01:53	PDK	A
Naphthalene	ND	ND	ug/L	2.0	0.34	SW846 8260B	1	03/28/2023 01:53	PDK	A
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260B	1	03/28/2023 01:53	PDK	A
Total Xylenes	ND	ND	ug/L	1.5	0.42	SW846 8260B	1	03/28/2023 01:53	PDK	A

#### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	99.5%	62 - 133	03/28/2023 01:53	
4-Bromofluorobenzene	460-00-4	101%	79 - 114	03/28/2023 01:53	
Dibromofluoromethane	1868-53-7	98.5%	78 - 116	03/28/2023 01:53	
Toluene-d8	2037-26-5	99.4%	76 - 127	03/28/2023 01:53	



## Results

Client Sample ID	FMW-41	Collected	03/20/2023 14:50
Lab Sample ID	3293583007	Lab Receipt	03/20/2023 17:20

### GASOLINE RANGE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Gasoline Range Organics	ND	ND	ug/L	100	17.0	SW846 8015D	1	03/27/2023 11:08	JTH	B

#### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
a,a,a-Trifluorotoluene	98-08-8	118%	90 - 129	03/27/2023 11:08	

### PETROLEUM HC's

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Diesel Range Organics C10-C28	0.077J	J	mg/L	0.16	0.029	SW846 8015D	1	03/23/2023 01:50	DXL	E

#### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
o-Terphenyl	84-15-1	97.6%	26 - 139	03/23/2023 01:50	

### VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	MDL	Method	Dilution	Analysis Date/Time	By	Cntr
Benzene	ND	ND	ug/L	1.0	0.23	SW846 8260B	1	03/28/2023 02:15	PDK	A
Ethylbenzene	ND	ND	ug/L	1.0	0.34	SW846 8260B	1	03/28/2023 02:15	PDK	A
Naphthalene	ND	ND	ug/L	2.0	0.34	SW846 8260B	1	03/28/2023 02:15	PDK	A
Toluene	ND	ND	ug/L	1.0	0.23	SW846 8260B	1	03/28/2023 02:15	PDK	A
Total Xylenes	ND	ND	ug/L	1.5	0.42	SW846 8260B	1	03/28/2023 02:15	PDK	A

#### SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	101%	62 - 133	03/28/2023 02:15	
4-Bromofluorobenzene	460-00-4	101%	79 - 114	03/28/2023 02:15	
Dibromofluoromethane	1868-53-7	101%	78 - 116	03/28/2023 02:15	
Toluene-d8	2037-26-5	98.1%	76 - 127	03/28/2023 02:15	



### Sample - Method Cross Reference Table

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3293583001	Trip Blank	SW846 8011	SW846 8011	
		SW846 8260C	N/A	
3293583002	Field Blank	EPA 200.7	EPA TRMD	
		SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
		SM2540C-15	N/A	
3293583003	SW-1	SW846 6020A	SW846 3015A	
		SW846 7470A	SW846 7470A	
		SW846 8011	SW846 8011	
		SW846 8260C	N/A	
		ASTM D6919-17	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		SM2320B-2011	N/A	
SM2540C-15	N/A			
3293583004	FMW-35	SW846 8015D	SW846 3510C	
		SW846 8015D	N/A	
		SW846 8260B	N/A	
3293583005	FMW-15	SW846 8015D	SW846 3510C	
		SW846 8015D	N/A	
		SW846 8260B	N/A	
3293583006	SB-16	SW846 8015D	SW846 3510C	
		SW846 8015D	N/A	
		SW846 8260B	N/A	
3293583007	FMW-41	SW846 8015D	SW846 3510C	
		SW846 8015D	N/A	
		SW846 8260B	N/A	



**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Lab ID	Sample ID	Preparation Method	Prep Batch	Prep Date/Time	By	Analysis Method	Anly Batch
3293583001	Trip Blank	SW846 8011	966340	03/27/2023 17:20	VLM	SW846 8011	966415
		N/A	N/A	N/A		SW846 8260C	966452
3293583002	Field Blank	EPA TRMD	963924	03/21/2023 23:24	ANN	EPA 200.7	965778
		SW846 3015A	965278	03/23/2023 13:11	JSE	SW846 6020A	967359
		SW846 7470A	965025	03/23/2023 07:11	WDA	SW846 7470A	965353
		SW846 8011	966340	03/27/2023 17:20	VLM	SW846 8011	966415
		N/A	N/A	N/A		SW846 8260C	966452
		N/A	N/A	N/A		ASTM D6919-17	965804
		N/A	N/A	N/A		EPA 300.0	963624
		N/A	N/A	N/A		EPA 410.4	965258
		N/A	N/A	N/A		SM2320B-2011	966511
3293583003	SW-1	N/A	N/A	N/A		SM2540C-15	964365
		SW846 3015A	965278	03/23/2023 13:11	JSE	SW846 6020A	967359
		SW846 7470A	965025	03/23/2023 07:11	WDA	SW846 7470A	965353
		SW846 8011	966340	03/27/2023 17:20	VLM	SW846 8011	966415
		N/A	N/A	N/A		SW846 8260C	966452
		N/A	N/A	N/A		ASTM D6919-17	963814
		N/A	N/A	N/A		EPA 300.0	963624
		N/A	N/A	N/A		EPA 410.4	966273
3293583004	FMW-35	N/A	N/A	N/A		SM2320B-2011	966511
		N/A	N/A	N/A		SM2540C-15	964365
		SW846 3510C	963847	03/22/2023 08:35	SRL	SW846 8015D	964524
		N/A	N/A	N/A		SW846 8015D	966274
		N/A	N/A	N/A		SW846 8260B	966457
		SW846 3510C	963847	03/22/2023 08:35	SRL	SW846 8015D	964524
3293583005	FMW-15	N/A	N/A	N/A		SW846 8015D	966274
		N/A	N/A	N/A		SW846 8260B	966457
		N/A	N/A	N/A		SW846 8015D	966274
3293583006	SB-16	N/A	N/A	N/A		SW846 8015D	966274
		N/A	N/A	N/A		SW846 8260B	966457
		N/A	N/A	N/A		SW846 8015D	966274
3293583007	FMW-41	N/A	N/A	N/A		SW846 8015D	966274
		N/A	N/A	N/A		SW846 8260B	966457
		N/A	N/A	N/A		SW846 8015D	966274

# CHAIN OF CUSTODY / SAMPLE INFORMATION FORM

Maryland Environmental Service • 259 Najoles Rd. • Millersville, MD 21108 • (410) 729-8200 • FAX (410) 729-8340

3293583

Logged By: MJE  
Print: GJM



**Laboratory:** ALS

**Client Name:** Maryland Environmental Service, Attn: Cheryl Griffin

**Facility Name:** Eastern Sanitary Landfill

**Client Address:** 259 Najoles Rd, Millersville, MD 21108 410-729-8356

**Project# / Purpose:** 3926-2000

**Invoice To:** Same

**Turnaround Time:** Routine

Sample #	Sample ID	Grab or Composite	Container Description/ Preservation Status	Matrix	# of Containers	Date	Time	Analyses Required/Comments
1	Trip Blank	N/A	40 mL G Na2S2O3	W	2	3-20-23	--	VOCs (8011)
			40 mL G HCl	W	2		--	VOCs (8260)
2	Field Blank	G	40 mL G Na2S2O3	W	2	3-20-23	1000	VOCs (8011)
			40 mL G HCl	W	2			VOCs (8260)
			125 mL P HNO3	W	1			Metals - Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn (6020), Hg (7470), Hardness
			1 L P unpreserved	W	1			Alkalinity, TDS, Nitrate (EPA 300), Sulfate, Chloride
			250 mL P H2SO4	W	1			Ammonia, COD

Temp By: ME | WO Temp (°C): 10 | Therm ID: 576

Receipt Info Completed By: [Signatures]  
 Cooler Custody Seal Intact: Y N N  
 Sample Custody Seal Intact: Y N N  
 Received on Ice: 0 N N  
 Cooler & Samples Intact: Y N N  
 Correct Containers Provided: Y N N  
 Sample Label/COC Agree: Y N N  
 Adequate Sample Volumes: Y N N  
 CR6 Samples Filtered: Y N N  
 OP Samples Filtered: Y N N  
 VOA Headspace Present: Y N N  
 VOA Trip Blank: Y N N  
 PWS 4 Days?: Y N N  
 Rad Screen (uCi): Y N N  
 Courier/Tracking #: Y N N

Received by: [Signature] Date: 3/20/23 Time: 1335  
 Received by: [Signature] Date: 3/20/23 Time: 1720  
 Received by: [Signature] Date: [ ] Time: [ ]

# CHAIN OF CUSTODY / SAMPLE INFORMATION FORM 32935FS

Maryland Environmental Service • 259 Najoles Rd. • Millersville, MD 21108 • (410) 729-8200 • FAX (410) 729-8340

<b>Laboratory:</b> ALS		<b>Sampler:</b> Laura Russell / Brooke Zibell / Tom Reedy						
<b>Client Name:</b> Maryland Environmental Service, Attn: Cheryl Griffin		<b>Facility Name:</b> Eastern Sanitary Landfill						
<b>Client Address:</b> 259 Najoles Rd, Millersville, MD 21108 410-729-8356		<b>Project# / Purpose:</b> 3926-2000						
<b>Invoice To:</b> Same		<b>Turnaround Time:</b> Routine						
Sample #	Sample ID	Grab or Composite	Container Description/ Preservation Status	Matrix	# of Containers	Date	Time	Analyses Required/Comments
13	SW-1	G	40 mL G Na2S2O3	NPW	2	3-20-23	0920	VOCs (8011)
			40 mL G HCl	NPW	2			VOCs (8260)
			250 mL P unpreserved	NPW	1			(Lab to Filter) Dissolved Metals - Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn (6020), Hg (7470)
			1 L P unpreserved	NPW	1			Alkalinity, TDS, Nitrate (EPA 300), Sulfate, Chloride
			250 mL P H2SO4	NPW	1			Ammonia, COD
			125 ml Plastic HNO3	NPW	1			Hardness
Transferred by: <i>Laura Russell</i>	Received by: <i>Rev</i>			Date: 3-20-23	Time: 1525	Cooler Receipt Information (LAB USE ONLY)		
Transferred by: <i>Laura Russell</i>	Received by: <i>Rev</i>			Date: 3-20-23	Time: 1720	Sufficient ice? - Yes/No _____ Temp. = _____		
Transferred by:	Received by:			Date:	Time:	Sample containers properly pres'd? - Yes/No _____ If No, explain _____		

# CHAIN OF CUSTODY / SAMPLE INFORMATION FORM 3293583

Maryland Environmental Service • 259 Najoles Rd. • Millersville, MD 21108 • (410) 729-8200 • FAX (410) 729-8340

**Laboratory:** ALS **Sampler:** Laura Russell / Brooke Zibell / Tom Reedy

**Client Name:** Maryland Environmental Service, Attn: Cheryl Griffin **Facility Name:** Eastern Sanitary Landfill

**Client Address:** 259 Najoles Rd, Millersville, MD 21108 410-729-8356 **Project# / Purpose:** 3926-2000

**Invoice To:** Same **Turnaround Time:** Routine

Sample #	Sample ID	Grab or Composite	Container Description/ Preservation Status	Matrix	# of Containers	Date	Time	Analyses Required/Comments
4	FMW-35	G	1 L G Amber H2SO4	NPW	1	3-20-23	1025	TPH DRO (8015)
		G	40 mL G HCl	NPW	2			TPH GRO (8015)
		G	40 mL G HCl	NPW	2			BTEX: Benzene, toluene ethylbenzene, xylenes, naphthalene (8260)
5	FMW-15	G	Same as Number 4	NPW	5	3-20-23	1115	Same as Number 4
6	SB-16	G	Same as Number 4	NPW	5	3-20-23	1320	Same as Sample 4
7	FMW-41	G	Same as Sample 4	NPW	5	3-20-23	1450	Same as Sample 4
Transferred by:	<i>Laura Russell</i>	Received by:	<i>BR</i>	Date:	3-20-23	Time:	1505	Cooler Receipt Information (LAB USE ONLY) Sufficient ice? - Yes/No      Temp. = Sample containers properly pres'd? - Yes/No      If No, explain
Transferred by:	<i>BR</i>	Received by:	<i>BR</i>	Date:	3/20/23	Time:	1720	
Transferred by:		Received by:		Date:		Time:		

Initials: \_\_\_\_\_ Date: \_\_\_\_\_



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July 11<sup>th</sup>, 2023

Maryland Environmental Services

259 Najoles Rd

Millersville, MD 21108

To whom it may concern,

The Eastern Sanitary Landfill sample set that was received on 3/20/23 was regrettably not analyzed correctly for sample SW-1 3293583-003. The sample receiving staff logged sample SW-1 in for total metals instead of the requested dissolved metals. The field blank preceding SW-1 required the total metals list. The same list was then used for sample SW-1. Subsequent reviews of the work order did not catch this error. When this error was discovered the sample volume for SW-1 had been disposed of.

We are currently in the process of adding staff to our project management assistant program that will enable further enhancement to our review process. We are working to minimize similar issues moving forward.

I thank you for your understanding regarding this matter and please feel free to contact me if I can be of further assistance.

Regards,

George Methlie

Client Services Manager

ALS Global Middletown, PA

*George Methlie*



# **APPENDIX D**

Spring 2022 Groundwater and Surface Water Event Summary Tables (Analytical Results) for Volatile Organic Compounds (Table I), Metals (Table II) and Water Quality Parameters, and Assessment Monitoring Parameters

# Index for Event Summary Tables & Historical Tables

“-” - Not analyzed or not reported

B – Detected in Trip or Field Blank

- At the direction of Baltimore County, B qualifiers were continued to be entered by Reporting Staff.

ND – non-detect

- All concentrations reported as "ND" before 2014 were detected less than their Reporting Limit

J - (Before 2022) Detected below PQL, (2022-present) Detected below Reporting Limit

U – Not detected

R – Potentially biased

Shading – exceeds compliance limit (MCL, Action Level, Secondary MCL [SMCL], MDE Clean-up Standard, or TCLP standard)

<b>Monitoring Well Information Table</b>		
<b>Well No.</b>	<b>Well Information, including parameter analysis</b>	<b>Screened Formation</b>
<b>GWM-1</b>	Table I & II	Arundel
<b>GWM-2*</b>	Table I & II, and Assessment Monitoring for Organochloride Pesticides	Patapsco
<b>GWM-3</b>	Table I & II	Patapsco
<b>GWM-4</b>	Table I & II, and Assessment Monitoring for Organochloride Pesticides	Patapsco
<b>GWM-5A</b>	Table I & II	Patapsco
<b>GWM-6</b>	Table I & II	Patapsco
<b>GWM-7</b>	Not sampled as part of groundwater sampling program; gauged monthly.	NA
<b>GWM-8</b>	Table I & II	Arundel
<b>GWM-9*</b>	Table I & II, and Assessment Monitoring for Organochloride Pesticides	Patapsco
<b>GWM-10</b>	Table I & II	Arundel
<b>GWM-11</b>	Table I & II	Arundel
<b>GWM-12</b>	Table I & II	Arundel
<b>GWM-14</b>	Table I & II	Patapsco
<b>GWM-15D</b>	Table I & II	Patuxent
<b>GWM-16S</b>	Not sampled as part of groundwater sampling program; gauged monthly.	Patapsco
<b>GWM-16D*</b>	Table I & II	Patuxent
<b>GWM-17S</b>	Table I & II, and Assessment Monitoring for Organochloride Pesticides	Patapsco
<b>GWM-17D</b>	Table I & II, and Assessment Monitoring for Organochloride Pesticides	Patuxent
<b>GWM-19D</b>	Table I & II	Patuxent
<b>SMW-13</b>	Supply Monitoring Well: Table I & Table II	Patuxent
<b>SMW-32</b>	Supply Monitoring Well: Table I & Table II	Patuxent
<b>P2006-03</b>	Piezometer, not sampled	NA

\* - Background well



## ESL Spring 2023 Monitoring Event Summary - Assessment Monitoring, Organochloride Pesticides

Parameter Name	Units	Compliance Limit	Date & Well ID					
			3/13/2023			3/14/2023		
			GWM-16D	GWM-2	GWM-9	GWM-17D	GWM-17S	GWM-4
4,4'-DDD	ug/L	0.0063	ND	ND	ND	ND	ND	ND
4,4'-DDE	ug/L	0.046	ND	ND	ND	ND	ND	ND
4,4'-DDT	ug/L	0.23	ND	ND	ND	ND	ND	ND
Aldrin	ug/L	0.00092	ND	ND	ND	ND	ND	ND
alpha-HCH (alpha-BHC)	ug/L	0.0072	ND	ND	ND	ND	ND	ND
beta-BHC	ug/L	0.025	ND	ND	ND	ND	ND	ND
Chlordane	ug/L	2	ND	ND	ND	ND	ND	ND
delta-BHC	ug/L	0.2	ND	ND	ND	ND	ND	ND
Dieldrin	ug/L	0.0018	ND	0.0189	ND	0.00488	0.00408	0.00669
Endosulfan I	ug/L	10	ND	ND	ND	ND	ND	ND
Endosulfan II	ug/L	10	ND	ND	ND	ND	ND	ND
Endosulfan Sulfate	ug/L	10	ND	ND	ND	ND	ND	ND
Endrin	ug/L	2	ND	ND	ND	ND	ND	ND
Endrin Aldehyde	ug/L	2	ND	ND	ND	ND	ND	ND
gamma-BHC	ug/L	0.2	ND	ND	ND	ND	ND	ND
Heptachlor	ug/L	0.4	ND	ND	ND	ND	ND	ND
Heptachlor Epoxide	ug/L	0.2	ND	ND	ND	ND	ND	ND
Methoxychlor	ug/L	40	ND	ND	ND	ND	ND	ND
Toxaphene	ug/L	3	ND	ND	ND	ND	ND	ND

# ESL Spring 2023 Monitoring Event Summary, Leachate - Table I

Name: ESL Leachate

Sample Date:		3/17/2023		
Number of Sampling Locations:		2		
Parameter Name	Units	TCLP	L-1	L-2
Acetone	ug/L	–	48.6 J	38.1 J
Acrylonitrile	ug/L	–	ND	ND
Benzene	ug/L	500	3.6 J	12.1
Bromochloromethane	ug/L	–	ND	ND
Bromomethane	ug/L	–	ND	ND
2-Butanone	ug/L	200000	ND	ND
Carbon disulfide	ug/L	–	ND	ND
Carbon Tetrachloride	ug/L	500	ND	ND
Chlorobenzene	ug/L	100000	10.4	ND
Chloroethane	ug/L	–	ND	ND
Chloromethane	ug/L	–	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	–	ND	ND
1,2-Dibromoethane	ug/L	–	ND	ND
Dibromomethane	ug/L	–	ND	ND
1,2-Dichlorobenzene	ug/L	–	ND	ND
1,4-Dichlorobenzene	ug/L	7500	7.4	1.9 J
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND
1,1-Dichloroethane	ug/L	–	ND	ND
1,2-Dichloroethane	ug/L	500	ND	2.3 J
1,1-Dichloroethene	ug/L	700	ND	ND
cis-1,2-Dichloroethene	ug/L	–	ND	ND
trans-1,2-Dichloroethene	ug/L	–	ND	ND
Methylene Chloride	ug/L	–	ND	ND
Methyl t-Butyl Ether	ug/L	–	5.3	6.9
1,2-Dichloropropane	ug/L	–	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND
Ethylbenzene	ug/L	–	2 J	20
2-Hexanone	ug/L	–	ND	ND
Iodomethane	ug/L	–	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	–	ND	ND
Styrene	ug/L	–	ND	ND

Sample Date:		3/17/2023		
Number of Sampling Locations:		2		
Parameter Name	Units	TCLP	L-1	L-2
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	–	ND	ND
Tetrachloroethene	ug/L	700	ND	ND
Toluene	ug/L	–	2.3 J	12.9
1,1,1-Trichloroethane	ug/L	–	ND	ND
1,1,2-Trichloroethane	ug/L	–	ND	ND
Trichloroethene	ug/L	500	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND
1,2,3-Trichloropropane	ug/L	–	ND	ND
Vinyl acetate	ug/L	–	ND	ND
Vinyl chloride	ug/L	200	ND	ND
Total Xylenes	ug/L	10000	6.6 J	44.6
mp-Xylene	ug/L	10000	4.3 J	31.1
o-Xylene	ug/L	10000	2.4 J	13.4
Bromodichloromethane	ug/L	–	ND	ND
Chlorodibromomethane	ug/L	–	ND	ND
Bromofom	ug/L	–	ND	ND
Chloroform	ug/L	6000	ND	ND

## ESL Spring 2023 Monitoring Event Summary, Leachate - Table II and Water Quality Parameters

Name: ESL Leachate

Sampling Event		3/17/2023		
Number of Sampling Locations:		2		
Parameter Name	Units	TCLP	L-1	L-2
Antimony, Total	mg/L	–	ND	0.0021 J
Arsenic, Total	mg/L	5	0.0068	0.027
Barium, Total	mg/L	100	0.41	0.32
Beryllium, Total	mg/L	–	ND	ND
Cadmium, Total	mg/L	1	ND	ND
Calcium, Total	mg/L	–	129	158
Chromium, Total	mg/L	5	0.026	0.088
Cobalt, Total	mg/L	–	0.015	0.029
Copper, Total	mg/L	–	0.0043 J	0.0081 J
Iron, Total	mg/L	–	6.2	8.5
Lead, Total	mg/L	5	ND	ND
Magnesium, Total	mg/L	–	126	206
Manganese, Total	mg/L	–	0.47	1.5
Mercury, Total	mg/L	0.2	ND	ND
Nickel, Total	mg/L	–	0.043	0.26
Potassium, Total	mg/L	–	232	484
Selenium, Total	mg/L	1	ND	ND
Silver, Total	mg/L	5	ND	ND
Sodium, Total	mg/L	–	898	1550
Thallium, Total	mg/L	–	ND	ND
Vanadium, Total	mg/L	–	0.0055	0.043
Zinc, Total	mg/L	–	0.014	0.0041 J
Alkalinity, Total	mg/L	–	2300	4800
Ammonia-N	mg/L	–	391	831
Chemical Oxygen Demand (COD)	mg/L	–	622	1080
Chloride	mg/L	–	923	2270
Hardness	mg/L	–	718	1100
Nitrate-N	mg/L	–	ND	ND
pH	SU	–	7.03	7.17
Specific Conductance	umhos/cm	–	7295.1	15187
Sulfate	mg/L	–	ND	ND
Total Dissolved Solids	mg/L	–	3400	6280

Sampling Event	3/17/2023			
Number of Sampling Locations:	2			
Parameter Name	Units	TCLP	L-1	L-2
Turbidity	NTU	-	209.04	85.22



# ESL Spring 2023 Monitoring Event Summary Surface Water - Table I

Name: Eastern Sanitary Landfill - Surface water

Sample Date:		3/20/2023			
Number of Sampling Locations:		3			
Parameter Name	Units	NCTS	Field Blank	SW-1	Trip Blank
Acetone	ug/L	–	ND	ND	ND
Acrylonitrile	ug/L	0.51	ND	ND	ND
Benzene	ug/L	22	ND	0.26 J	ND
Bromochloromethane	ug/L	–	ND	ND	ND
Bromomethane	ug/L	–	ND	ND	ND
2-Butanone	ug/L	–	ND	ND	ND
Carbon disulfide	ug/L	–	ND	ND	ND
Carbon Tetrachloride	ug/L	2.3	ND	ND	ND
Chlorobenzene	ug/L	130	ND	ND	ND
Chloroethane	ug/L	–	ND	ND	ND
Chloromethane	ug/L	–	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	–	ND	ND	ND
1,2-Dibromoethane	ug/L	–	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND
1,2-Dichlorobenzene	ug/L	420	ND	ND	ND
1,4-Dichlorobenzene	ug/L	63	ND	0.96 J	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND
1,1-Dichloroethane	ug/L	–	ND	ND	ND
1,2-Dichloroethane	ug/L	3.8	ND	ND	ND
1,1-Dichloroethene	ug/L	330	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	–	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	140	ND	ND	ND
Methylene Chloride	ug/L	46	ND	ND	ND
Methyl t-Butyl Ether	ug/L	–	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND
Ethylbenzene	ug/L	530	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND
Iodomethane	ug/L	–	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	–	ND	ND	ND
Styrene	ug/L	–	ND	ND	ND

Sample Date:		3/20/2023			
Number of Sampling Locations:		3			
Parameter Name	Units	NCTS	Field Blank	SW-1	Trip Blank
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	1.7	ND	ND	ND
Tetrachloroethene	ug/L	6.9	ND	ND	ND
Toluene	ug/L	1300	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5.9	ND	ND	ND
Trichloroethene	ug/L	25	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	ND	ND	ND
Vinyl acetate	ug/L	–	ND	ND	ND
Vinyl chloride	ug/L	0.25	ND	ND	ND
Total Xylenes	ug/L	–	ND	ND	ND
mp-Xylene	ug/L	–	ND	ND	ND
o-Xylene	ug/L	–	ND	ND	ND
Bromodichloromethane	ug/L	80	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND
Bromofom	ug/L	80	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND

# ESL Spring 2023 Monitoring Event Summary Surface Water - Table II and Water Quality Parameters

Name: Eastern Sanitary Landfill - Surface water

Sampling Event		3/20/2023		
Number of Sampling Locations:		2		
Parameter Name	Units	NCTS	Field Blank	SW-1
Antimony, Total	mg/L	0.0056	ND	ND
Arsenic, Total	mg/L	0.00018	ND	0.0014 J
Barium, Total	mg/L	1	ND	0.15
Beryllium, Total	mg/L	0.004	ND	ND
Cadmium, Total	mg/L	0.00025	ND	ND
Calcium, Total	mg/L	–	ND	36.5
Chromium, Total	mg/L	0.1	ND	0.0013 J
Cobalt, Total	mg/L	–	ND	0.28
Copper, Total	mg/L	0.009	ND	ND
Iron, Total	mg/L	–	ND	75.5
Lead, Total	mg/L	0.0025	ND	ND
Magnesium, Total	mg/L	–	ND	18.6
Manganese, Total	mg/L	–	ND	9.5
Mercury, Total	mg/L	0.00077	ND	ND
Nickel, Total	mg/L	0.052	ND	0.0074
Potassium, Total	mg/L	–	ND	4.2
Selenium, Total	mg/L	0.005	ND	ND
Silver, Total	mg/L	0.0032	ND	ND
Sodium, Total	mg/L	–	0.067 J	32.8
Thallium, Total	mg/L	0.00024	ND	ND
Vanadium, Total	mg/L	–	ND	ND
Zinc, Total	mg/L	0.12	ND	0.0051 J
Alkalinity, Total	mg/L	–	ND	157
Ammonia-N	mg/L	–	0.016	1.31
Chemical Oxygen Demand (COD)	mg/L	–	16	43
Chloride	mg/L	–	ND	65.5
Hardness	mg/L	–	ND	168
Nitrate-N	mg/L	–	ND	ND
pH	SU	–	–	6.26
Specific Conductance	umhos/cm	–	–	716.7
Sulfate	mg/L	–	ND	28.6
Total Dissolved Solids	mg/L	–	ND	358

Sampling Event	3/20/2023			
Number of Sampling Locations:	2			
Parameter Name	Units	NCTS	Field Blank	SW-1
Turbidity	NTU	-	-	40.88

# **APPENDIX E**

Time Series (Historical) Data Tables

# Index for Event Summary Tables & Historical Tables

“-” - Not analyzed or not reported

B – Detected in Trip or Field Blank

- At the direction of Baltimore County, B qualifiers were continued to be entered by Reporting Staff.

ND – non-detect

- All concentrations reported as "ND" before 2014 were detected less than their Reporting Limit

J - (Before 2022) Detected below PQL, (2022-present) Detected below Reporting Limit

U – Not detected

R – Potentially biased

Shading – exceeds compliance limit (MCL, Action Level, Secondary MCL [SMCL], MDE Clean-up Standard, or TCLP standard)

<b>Monitoring Well Information Table</b>		
<b>Well No.</b>	<b>Well Information, including parameter analysis</b>	<b>Screened Formation</b>
<b>GWM-1</b>	Table I & II	Arundel
<b>GWM-2*</b>	Table I & II, and Assessment Monitoring for Organochloride Pesticides	Patapsco
<b>GWM-3</b>	Table I & II	Patapsco
<b>GWM-4</b>	Table I & II, and Assessment Monitoring for Organochloride Pesticides	Patapsco
<b>GWM-5A</b>	Table I & II	Patapsco
<b>GWM-6</b>	Table I & II	Patapsco
<b>GWM-7</b>	Not sampled as part of groundwater sampling program; gauged monthly.	NA
<b>GWM-8</b>	Table I & II	Arundel
<b>GWM-9*</b>	Table I & II, and Assessment Monitoring for Organochloride Pesticides	Patapsco
<b>GWM-10</b>	Table I & II	Arundel
<b>GWM-11</b>	Table I & II	Arundel
<b>GWM-12</b>	Table I & II	Arundel
<b>GWM-14</b>	Table I & II	Patapsco
<b>GWM-15D</b>	Table I & II	Patuxent
<b>GWM-16S</b>	Not sampled as part of groundwater sampling program; gauged monthly.	Patapsco
<b>GWM-16D*</b>	Table I & II	Patuxent
<b>GWM-17S</b>	Table I & II, and Assessment Monitoring for Organochloride Pesticides	Patapsco
<b>GWM-17D</b>	Table I & II, and Assessment Monitoring for Organochloride Pesticides	Patuxent
<b>GWM-19D</b>	Table I & II	Patuxent
<b>SMW-13</b>	Supply Monitoring Well: Table I & Table II	Patuxent
<b>SMW-32</b>	Supply Monitoring Well: Table I & Table II	Patuxent
<b>P2006-03</b>	Piezometer, not sampled	NA

\* - Background well

# Historical Well Data Table I

Name: Eastern Sanitary Landfill

Location ID: GWM-1										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	10/27/1999	3/30/2000	10/18/2000	3/28/2001	9/19/2001	4/16/2002	9/25/2002	3/27/2003
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	1	1	1	2	2
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-1

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/27/1999	3/30/2000	10/18/2000	3/28/2001	9/19/2001	4/16/2002	9/25/2002	3/27/2003
1,2,3-Trichloropropane	ug/L	–	ND	ND	ND	ND	ND	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-1

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	11/19/2003	3/25/2004	11/10/2004	5/19/2005	11/1/2005	3/22/2006	9/26/2006	4/12/2007
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND



Location ID: GWM-1		Number of Sampling Dates: 49								
Parameter Name	Units	Compliance Limit	11/19/2003	3/25/2004	11/10/2004	5/19/2005	11/1/2005	3/22/2006	9/26/2006	4/12/2007
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	2	2	2
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	–	–	–	–	–	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromofom	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-1		Number of Sampling Dates: 49								
Parameter Name	Units	Compliance Limit	11/6/2007	4/9/2008	9/24/2008	4/2/2009	10/6/2009	5/4/2010	9/21/2010	3/8/2011
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-1

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	11/6/2007	4/9/2008	9/24/2008	4/2/2009	10/6/2009	5/4/2010	9/21/2010	3/8/2011
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	2	2	ND	7	7	ND
1,1,2-Trichloroethane	ug/L	5	ND	2	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	–	–	–	–	–	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-1

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/7/2011	3/6/2012	8/30/2012	3/19/2013	9/25/2013	3/18/2014	9/4/2014	3/1/2015
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND U	5.9 J	ND U
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND U	ND U	0.45 JB
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND U	0.33 J	ND U

Location ID: GWM-1

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/7/2011	3/6/2012	8/30/2012	3/19/2013	9/25/2013	3/18/2014	9/4/2014	3/1/2015
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND U	ND U	ND U
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND U	ND U	ND U
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND U	0.87 J	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND U	ND U	ND U
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Toluene	ug/L	1000	ND	ND	ND	ND	ND	0.27 J	ND U	0.73 JB
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND U	ND U	ND U
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND U	ND U	ND U
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U

Location ID: GWM-1

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	9/11/2015	3/15/2016	9/20/2016	3/23/2017	9/18/2017	3/15/2018	9/17/2018	3/4/2019
Acetone	ug/L	1400	ND U	ND U	ND U	ND U	ND U	5 JB	ND U	ND U
Acrylonitrile	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromochloromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromomethane	ug/L	0.75	ND U	0.51 J	ND U	ND U	ND U	ND U	ND U	ND U
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloromethane	ug/L	19	ND U	0.55 J	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Dibromomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
2-Hexanone	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Iodomethane	ug/L	–	ND U	0.43 J	ND U	ND U	ND U	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-1

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	9/11/2015	3/15/2016	9/20/2016	3/23/2017	9/18/2017	3/15/2018	9/17/2018	3/4/2019
Vinyl acetate	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-1

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	9/23/2019	3/16/2020	4/7/2020	9/22/2020	3/15/2021	9/8/2021	3/14/2022	9/12/2022
Acetone	ug/L	1400	5 JB	ND U	–	4.9 J	3.5 J	ND U	ND	ND
Acrylonitrile	ug/L	–	ND U	ND U	–	ND U	ND U	ND U	ND	ND
Benzene	ug/L	5	ND U	ND U	–	ND U	ND U	ND U	ND	ND
Bromochloromethane	ug/L	–	ND U	ND U	–	ND U	ND U	ND U	ND	ND
Bromomethane	ug/L	0.75	ND U	ND U	–	0.62 J	ND U	ND U	ND	ND
2-Butanone	ug/L	700	ND U	ND U	–	ND U	ND U	ND U	ND	ND
Carbon disulfide	ug/L	81	ND U	ND U	–	0.23 JB	ND U	ND U	ND	ND
Carbon Tetrachloride	ug/L	5	ND U	ND U	–	ND U	ND U	ND U	ND	ND
Chlorobenzene	ug/L	100	ND U	ND U	–	ND U	ND U	ND U	ND	ND
Chloroethane	ug/L	2100	ND U	ND U	–	ND U	ND U	ND U	ND	ND
Chloromethane	ug/L	19	ND U	ND U	–	0.69 J	ND U	ND U	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	–	ND U	ND U	ND U	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	–	ND U	ND U	ND U	ND	ND
Dibromomethane	ug/L	–	ND U	ND U	–	ND U	ND U	ND U	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	–	ND U	ND U	ND U	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	–	ND U	ND U	ND U	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND U	ND U	–	ND U	ND U	ND U	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	–	ND U	ND U	ND U	ND	ND
1,2-Dichloroethane	ug/L	5	ND U	ND U	–	ND U	ND U	ND U	ND	ND
1,1-Dichloroethene	ug/L	7	ND U	ND U	–	ND U	ND U	ND U	ND	ND
dis-1,2-Dichloroethene	ug/L	70	ND U	ND U	–	ND U	ND U	ND U	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	–	ND U	ND U	ND U	ND	ND
Methylene Chloride	ug/L	5	ND U	ND U	–	ND U	ND U	ND U	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND U	ND U	–	ND U	ND U	ND U	ND	ND
1,2-Dichloropropane	ug/L	5	ND U	ND U	–	ND U	ND U	ND U	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND U	ND U	–	ND U	ND U	ND U	ND	ND
dis-1,3-Dichloropropene	ug/L	–	ND U	ND U	–	ND U	ND U	ND U	ND	ND
Ethylbenzene	ug/L	700	ND U	ND U	–	ND U	ND U	ND U	ND	ND
2-Hexanone	ug/L	–	ND U	ND U	–	ND U	ND U	ND U	ND	ND
Iodomethane	ug/L	–	ND U	ND U	–	ND U	ND U	ND U	ND	ND

Location ID: GWM-1										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	9/23/2019	3/16/2020	4/7/2020	9/22/2020	3/15/2021	9/8/2021	3/14/2022	9/12/2022
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	-	ND U	ND U	ND U	ND	ND
Styrene	ug/L	100	ND U	ND U	-	ND U	ND U	ND U	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	-	ND U	ND U	-	ND U	ND U	ND U	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	-	ND U	ND U	ND U	ND	ND
Tetrachloroethene	ug/L	5	ND U	ND U	-	ND U	ND U	ND U	0.41 J	ND
Toluene	ug/L	1000	ND U	ND U	-	ND U	ND U	ND U	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	-	ND U	ND U	ND U	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	-	ND U	ND U	ND U	ND	ND
Trichloroethene	ug/L	5	ND U	ND U	-	ND U	ND U	ND U	ND	ND
Trichlorofluoromethane	ug/L	-	ND U	ND U	-	ND U	ND U	ND U	ND	ND
1,2,3-Trichloropropane	ug/L	-	ND U	ND U	-	ND U	ND U	ND U	ND	ND
Vinyl acetate	ug/L	-	ND U	ND U	-	ND U	ND U	ND U	ND	ND
Vinyl chloride	ug/L	2	ND U	ND U	-	ND U	ND U	ND U	ND	ND
Total Xylenes	ug/L	10000	ND U	ND U	-	ND U	ND U	ND U	ND	ND
o-Xylene	ug/L	10000	-	ND U	-	ND U	ND U	ND U	ND	ND
mp-Xylene	ug/L	10000	-	ND U	-	ND U	ND U	ND U	ND	ND
Bromodichloromethane	ug/L	80	ND U	ND U	-	ND U	ND U	ND U	ND	ND
Chlorodibromomethane	ug/L	80	ND U	ND U	-	ND U	ND U	ND U	ND	ND
Bromoform	ug/L	80	ND U	ND U	-	ND U	ND U	ND U	ND	ND
Chloroform	ug/L	80	ND U	ND U	-	ND U	1.2	ND U	ND	ND

Location ID: GWM-1										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	3/13/2023							
Acetone	ug/L	1400	ND							
Acrylonitrile	ug/L	-	ND							
Benzene	ug/L	5	ND							
Bromochloromethane	ug/L	-	ND							
Bromomethane	ug/L	0.75	0.71 J							
2-Butanone	ug/L	700	ND							
Carbon disulfide	ug/L	81	ND							
Carbon Tetrachloride	ug/L	5	ND							
Chlorobenzene	ug/L	100	ND							
Chloroethane	ug/L	2100	ND							
Chloromethane	ug/L	19	ND							
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND							
1,2-Dibromoethane	ug/L	0.05	ND							
Dibromomethane	ug/L	-	ND							
1,2-Dichlorobenzene	ug/L	600	ND							
1,4-Dichlorobenzene	ug/L	75	ND							
trans-1,4-dichloro-2-butene	ug/L	-	ND							
1,1-Dichloroethane	ug/L	2.8	ND							
1,2-Dichloroethane	ug/L	5	ND							

Location ID: GWM-1

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/13/2023						
1,1-Dichloroethene	ug/L	7	ND						
cis-1,2-Dichloroethene	ug/L	70	ND						
trans-1,2-Dichloroethene	ug/L	100	ND						
Methylene Chloride	ug/L	5	0.6 J						
Methyl t-Butyl Ether	ug/L	20	ND						
1,2-Dichloropropane	ug/L	5	ND						
trans-1,3-Dichloropropene	ug/L	-	ND						
cis-1,3-Dichloropropene	ug/L	-	ND						
Ethylbenzene	ug/L	700	ND						
2-Hexanone	ug/L	-	ND						
Iodomethane	ug/L	-	0.77 J						
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND						
Styrene	ug/L	100	ND						
1,1,1,2-Tetrachloroethane	ug/L	-	ND						
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND						
Tetrachloroethene	ug/L	5	0.42 J						
Toluene	ug/L	1000	ND						
1,1,1-Trichloroethane	ug/L	200	ND						
1,1,2-Trichloroethane	ug/L	5	ND						
Trichloroethene	ug/L	5	ND						
Trichlorofluoromethane	ug/L	-	ND						
1,2,3-Trichloropropane	ug/L	-	ND						
Vinyl acetate	ug/L	-	ND						
Vinyl chloride	ug/L	2	ND						
Total Xylenes	ug/L	10000	ND						
o-Xylene	ug/L	10000	ND						
mp-Xylene	ug/L	10000	ND						
Bromodichloromethane	ug/L	80	ND						
Chlorodibromomethane	ug/L	80	ND						
Bromoform	ug/L	80	ND						
Chloroform	ug/L	80	ND						

## Historical Well Data Table II

Name: Eastern Sanitary Landfill

Location ID: GWM-1										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	10/27/1999	3/30/2000	10/18/2000	3/28/2001	9/19/2001	4/16/2002	9/25/2002	3/27/2003
Antimony, Total	mg/L	0.006	-	ND	0.003	ND	ND	ND	0.003	ND
Arsenic, Total	mg/L	0.01	-	ND	ND	ND	ND	ND	ND	ND
Barium, Total	mg/L	2	ND	ND	ND	0.03	0.036	0.059	0.061	0.046
Beryllium, Total	mg/L	0.004	-	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND
Calcium, Total	mg/L	-	-	-	-	-	-	-	-	-
Chromium, Total	mg/L	0.1	ND	ND	0.1	ND	0.056	0.102	0.054	ND
Cobalt, Total	mg/L	-	-	ND	ND	ND	ND	ND	ND	ND
Copper, Total	mg/L	1.3	-	ND	ND	0.021	0.085	0.072	0.089	0.041
Iron, Total	mg/L	0.3	19.61	22.5	5.05	1.602	79.25	111	58.95	1.014
Lead, Total	mg/L	0.015	ND	ND	0.006	ND	0.024	0.052	0.054	0.002
Magnesium, Total	mg/L	-	-	-	-	-	-	-	-	-
Manganese, Total	mg/L	0.043	ND	0.06	0.048	0.044	0.326	0.277	0.288	0.067
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	-	ND	ND	ND	ND	0.016	0.017	ND
Potassium, Total	mg/L	-	-	-	-	-	-	-	-	-
Selenium, Total	mg/L	0.05	-	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	-	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	-	-	-	-	-	-	-	-	-
Thallium, Total	mg/L	0.002	-	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	-	ND	ND	0.109	0.49	0.39	0.354	0.03
Zinc, Total	mg/L	0.6	ND	ND	0.186	ND	0.081	0.175	0.13	ND
Alkalinity, Total	mg/L	-	-	22	30	25	25	28	30	20
Ammonia-N	mg/L	-	0.2	0.5	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	-	10	10	ND	ND	21	150	144	ND
Chloride	mg/L	250	22	28	44.28	39.21	41.41	30.39	35.8	37.72
Hardness	mg/L	-	-	210	49	54.67	147.7	144.11	203.31	86.22
Nitrate-N	mg/L	10	2.3	2.1	1.94	1.77	1.85	1.28	1.2	1.17
pH	SU	8.5	-	-	6	9.9	9.7	9.04	9.28	9.12
Specific Conductance	umhos/cm	-	-	199	ND	ND	182	254	238	252
Sulfate	mg/L	250	31	17	20	16	30	14.17	16.93	13.87
Total Dissolved Solids	mg/L	500	105	118	123	120	129	132	137	64
Turbidity	NTU	5	-	300	1590	470	420	700	228	400

Location ID: GWM-1										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	11/19/2003	3/25/2004	11/10/2004	5/19/2005	11/1/2005	3/22/2006	9/26/2006	4/12/2007
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total	mg/L	2	0.031	0.033	0.045	0.045	0.048	0.036	0.044	0.045
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND



Location ID: GWM-1

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	11/19/2003	3/25/2004	11/10/2004	5/19/2005	11/1/2005	3/22/2006	9/26/2006	4/12/2007
Calcium, Total	mg/L	-	-	-	-	-	-	-	-	27.2
Chromium, Total	mg/L	0.1	ND	ND	0.01	0.01	0.012	ND	ND	0.01
Cobalt, Total	mg/L	-	0.01	0.01	ND	ND	ND	ND	ND	ND
Copper, Total	mg/L	1.3	ND	ND	0.024	ND	ND	0.017	ND	0.05
Iron, Total	mg/L	0.3	0.457	0.075	3.328	2.515	3.48	0.208	0.304	1.513
Lead, Total	mg/L	0.015	0.002	0.002	0.005	0.004	0.005	0.002	ND	ND
Magnesium, Total	mg/L	-	-	-	-	-	-	-	-	1.75
Manganese, Total	mg/L	0.043	0.067	ND	ND	ND	0.019	0.026	ND	ND
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/L	-	-	-	-	-	-	-	-	6.2
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	-	-	-	-	-	-	-	-	39.9
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	0.082	ND	0.075	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	ND	ND	0.115	0.108	0.032	0.029	0.108	0.086
Alkalinity, Total	mg/L	-	22	20	28.8	14.55	31.55	26.55	43.8	31.4
Ammonia-N	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Chloride	mg/L	250	25.93	21.48	12.76	12.22	16.29	14.49	14.66	17.96
Hardness	mg/L	-	49.89	43.35	53.14	40.02	74.46	20.49	91.94	75.12
Nitrate-N	mg/L	10	1.58	ND	1.47	2.01	1.43	1.01	0.83	1.16
pH	SU	8.5	9.06	8.82	8.51	8.03	8.39	8.26	7.42	8.05
Specific Conductance	umhos/cm	-	181	165	142	147	154	160	190	170
Sulfate	mg/L	250	15.59	13.48	10.53	ND	13.18	10.36	11.23	11.05
Total Dissolved Solids	mg/L	500	95	111	47	147	106	112	350	ND
Turbidity	NTU	5	3.21	13.1	298	113	246	24	32.9	312

Location ID: GWM-1

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	11/6/2007	4/9/2008	9/24/2008	4/2/2009	10/6/2009	5/4/2010	9/21/2010	3/8/2011
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total	mg/L	2	0.039	0.045	0.049	0.055	0.059	0.056	0.051	0.042
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND
Calcium, Total	mg/L	-	17.1	19.45	23.23	22.63	25.04	28.46	26.89	20.36
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	mg/L	1.3	0.13	ND	0.055	ND	ND	0.02	ND	ND
Iron, Total	mg/L	0.3	0.163	0.662	0.89	1.077	2.432	0.517	0.203	0.138
Lead, Total	mg/L	0.015	ND	ND	ND	ND	ND	ND	ND	ND
Magnesium, Total	mg/L	-	1.08	1.64	1.712	2.56	2.115	2.05	1.775	2.04
Manganese, Total	mg/L	0.043	0.085	0.013	0.062	ND	ND	0.051	0.028	0.018

Location ID: GWM-1

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	11/6/2007	4/9/2008	9/24/2008	4/2/2009	10/6/2009	5/4/2010	9/21/2010	3/8/2011
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/L	-	1.66	1.98	1.74	1.81	1.88	1.81	1.8	1.71
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	-	12.2	28.2	15	22.5	11.8	25	37.2	25
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	0.013	0.046	ND	ND	ND	ND	ND	0.1
Alkalinity, Total	mg/L	-	37	28.2	27	27.2	19	17.6	18.4	5.2
Ammonia-N	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	-	16	ND	ND	ND	ND	ND	ND	-
Chloride	mg/L	250	15.9	21.55	22.48	53.86	37.14	53.01	40.59	45.79
Hardness	mg/L	-	47.15	55.32	65.06	67.05	71.23	79.51	74.45	59.24
Nitrate-N	mg/L	10	0.94	0.98	1.04	1.65	1.01	1.52	1.38	1.18
pH	SU	8.5	8.37	8.63	9.32	9.02	8.62	8.56	8.5	8.33
Specific Conductance	umhos/cm	-	161	237	197	231	251	1131	266	251
Sulfate	mg/L	250	9.52	11.91	13.14	19	13.95	15.22	14.77	15.93
Total Dissolved Solids	mg/L	500	274	166	148	108	178	194	144	148
Turbidity	NTU	5	24	210	30.2	50	21	65	32	13

Location ID: GWM-1

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/7/2011	3/6/2012	8/30/2012	3/19/2013	9/25/2013	3/18/2014	9/4/2014	3/1/2015
Antimony, Total	mg/L	0.006	ND	ND	ND	0.002	ND	ND U	ND U	ND U
Arsenic, Total	mg/L	0.01	ND	0.002	ND	ND	0.004	0.0021 J	0.0028 J	0.0024 J
Barium, Total	mg/L	2	0.056	0.05	0.102	0.071	0.03	0.029	0.019	0.019
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND U	ND U	ND U
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND U	0.00044 J	0.00045 J
Calcium, Total	mg/L	-	20	2.97	29.56	21.9	15.39	21.8	21.4	20.6
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	0.0072	0.0061	0.013
Cobalt, Total	mg/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Copper, Total	mg/L	1.3	ND	ND	ND	ND	ND	ND U	ND U	ND U
Iron, Total	mg/L	0.3	0.8	0.303	1.136	0.155	0.099	0.091	0.037 J	0.039 J
Lead, Total	mg/L	0.015	ND	ND	ND	ND	ND	ND U	ND U	ND U
Magnesium, Total	mg/L	-	2.5	0.243	3.33	2.785	1.769	2.3	1.4	1.4
Manganese, Total	mg/L	0.043	ND	ND	0.013	ND	ND	0.0058	0.0026 J	0.0029 J
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND U	ND U	ND U
Nickel, Total	mg/L	0.039	ND	ND	ND	ND	ND	0.0035 J	0.0029 J	0.0056
Potassium, Total	mg/L	-	2	1.82	1.93	1.7	1.7	1.8	1.4	1.4
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND U	ND U	ND U
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND U	ND U	ND U
Sodium, Total	mg/L	-	17	1.78	15.1	18.2	17.73	19.2	13.7	15.1
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vanadium, Total	mg/L	0.0086	0.027	0.037	0.025	0.032	ND	0.017	0.022	0.026

Location ID: GWM-1

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/7/2011	3/6/2012	8/30/2012	3/19/2013	9/25/2013	3/18/2014	9/4/2014	3/1/2015
Zinc, Total	mg/L	0.6	ND	ND	0.01	ND	ND	0.0035 J	0.0019 J	ND U
Alkalinity, Total	mg/L	-	5.2	32.05	82.22	29.45	47.55	44	40	46
Ammonia-N	mg/L	-	0.7	ND	ND	ND	ND	0.32	0.108	ND U
Chemical Oxygen Demand (COD)	mg/L	-	11	ND	ND	ND	ND	8	ND U	ND U
Chloride	mg/L	250	34	37.37	24	30.78	34.08	51.7	30.4	30.9
Hardness	mg/L	-	68	84.33	13.81	66.2	45.7	74	63	91
Nitrate-N	mg/L	10	1.6	1.05	1.9	1.18	ND	0.2 J	0.9	1.3
pH	SU	8.5	8.34	8.28	6.94	7.34	7.74	7.41	7.98	7.72
Specific Conductance	umhos/cm	-	265	237	329	223	273	196.5	183.9	172.5
Sulfate	mg/L	250	19	14.18	21	16.43	9.69	14.2	12.3	12.1
Total Dissolved Solids	mg/L	500	69	182	218	126	116	136	119	165
Turbidity	NTU	5	94.8	31.9	47.1	75	ND	1.2	0.86	0.23

Location ID: GWM-1

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	9/11/2015	3/15/2016	9/20/2016	3/23/2017	9/18/2017	3/15/2018	9/17/2018	3/4/2019
Antimony, Total	mg/L	0.006	ND U	ND U	0.0013 J	ND U	ND U	ND U	ND U	ND U
Arsenic, Total	mg/L	0.01	0.0013 J	0.0012 J	0.0012 J	0.0015 J	0.0021 J	ND U	0.0021 J	0.0014 J
Barium, Total	mg/L	2	0.022	0.021	0.023	0.022	0.024	0.027	0.033	0.033
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Cadmium, Total	mg/L	0.005	ND U	0.00058 J	0.00055 J	0.00044 J	ND U	ND U	0.00097 J	0.00057 J
Calcium, Total	mg/L	-	18	12.7	12.5	12.4	14.6	18.8	16.8	15.1
Chromium, Total	mg/L	0.1	0.0033	0.0065	0.0072	0.0078	0.014	0.0033	0.0093	0.0068
Cobalt, Total	mg/L	-	ND U	ND U	ND U	ND U	ND U	ND U	0.024	0.011
Copper, Total	mg/L	1.3	ND U	ND U	ND U	ND U	0.0038 J	ND U	1.5	1.4
Iron, Total	mg/L	0.3	0.54	0.083	0.045 J	0.1	0.07	0.22	0.44	0.15
Lead, Total	mg/L	0.015	ND U	ND U	ND U	ND U	ND U	ND U	0.023	0.015
Magnesium, Total	mg/L	-	1.6	1.1	1.2	1.4	1.8	2.7	3	2.6
Manganese, Total	mg/L	0.043	0.016	0.0037 J	0.0054 J	0.0064	0.0059	0.0095	0.0095	0.0072
Mercury, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Nickel, Total	mg/L	0.039	0.0022 J	0.0038 J	0.0041 J	0.0042 J	0.006	0.0022 J	0.0046 J	0.0045 J
Potassium, Total	mg/L	-	1.5	1.1	1.1	1.2	1.2	1.6	1.4	1.3
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Sodium, Total	mg/L	-	11.6	7.9	7.8	10.7	13.5	16.4	14.4	9.4
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vanadium, Total	mg/L	0.0086	0.01	0.0094	0.011	0.012	0.016	0.014	0.016	0.0098
Zinc, Total	mg/L	0.6	0.0023 J	0.011	0.0026 J	0.0028 J	0.0022 J	ND U	0.039	0.019
Alkalinity, Total	mg/L	-	50	29	30	37	33	57	47	46
Ammonia-N	mg/L	-	0.666	ND U	0.032 J	ND U	ND U	0.276	0.065 J	ND U
Chemical Oxygen Demand (COD)	mg/L	-	9	ND U	5 J	5 J	10	8	ND U	ND U
Chloride	mg/L	250	22.3	12.9	10.9	15.1	21.1	27.7	23.2	11.2
Hardness	mg/L	-	68	38	38	39	43	58.1	54.1	48.3
Nitrate-N	mg/L	10	0.04 J	1.7	1.9	1.8	1.9	0.2	1.6	1.6
pH	SU	8.5	6.91	7.11	7.24	7.1	6.97	7.3	6.71	7.06

Location ID: GWM-1										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	9/11/2015	3/15/2016	9/20/2016	3/23/2017	9/18/2017	3/15/2018	9/17/2018	3/4/2019
Specific Conductance	umhos/cm	-	140.6	100.2	102.9	121.5	129.6	160.8	147.1	112.2
Sulfate	mg/L	250	7.9	50.9	4.4	7.9	10.6	13.3	8.5	5.4
Total Dissolved Solids	mg/L	500	121	92	84	111	135	109	60	107
Turbidity	NTU	5	0.77	0.41	1.3	0.19	0.7	0.77	0.81	4.68

Location ID: GWM-1										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	9/23/2019	3/16/2020	4/7/2020	9/22/2020	3/15/2021	9/8/2021	3/14/2022	9/12/2022
Antimony, Total	mg/L	0.006	ND U	ND U	-	ND U	ND U	ND U	ND	ND
Arsenic, Total	mg/L	0.01	0.0011 J	ND U	-	ND U	0.0018 J	0.0011 J	ND	0.0018 J
Barium, Total	mg/L	2	0.036	0.033	-	0.037	0.04	0.032	0.022	0.044
Beryllium, Total	mg/L	0.004	ND U	ND U	-	ND U	ND U	ND U	ND	ND
Cadmium, Total	mg/L	0.005	ND U	ND U	-	ND U	ND U	0.00031 J	0.00052 J	ND
Calcium, Total	mg/L	-	13.1	13.9	-	15.1	15.1	14.5	23	18.9
Chromium, Total	mg/L	0.1	0.0061	0.0042	-	0.004	0.028	0.011	0.015	0.012
Cobalt, Total	mg/L	-	0.011	0.017	-	0.026	0.0055 J	0.0013 J	ND	ND
Copper, Total	mg/L	1.3	0.84	1	-	0.96	0.23	0.028	0.0072	0.021
Iron, Total	mg/L	0.3	0.09	0.15	-	0.19	0.7	0.088	0.16	0.088
Lead, Total	mg/L	0.015	0.0066	0.0066	-	0.0039	0.0035	ND U	ND	ND
Magnesium, Total	mg/L	-	2.4	2.8	-	3.1	3	2.7	6.6	4
Manganese, Total	mg/L	0.043	0.0087	0.009	-	0.0096	0.018	0.0092	0.0087	0.0088
Mercury, Total	mg/L	0.002	ND U	ND U	-	ND U	ND U	ND U	ND	ND
Nickel, Total	mg/L	0.039	0.0039 J	0.0031 J	-	0.0032 J	0.015	0.0066	0.01	0.0056
Potassium, Total	mg/L	-	1.3	1.3	-	1.5	1.4	1.4	2.8	1.6
Selenium, Total	mg/L	0.05	ND U	ND U	-	ND U	ND U	0.0011 J	ND	0.0019 J
Silver, Total	mg/L	0.0094	ND U	ND U	-	ND U	ND U	ND U	ND	ND
Sodium, Total	mg/L	-	8.3	8.6	-	9.9	9.6	8.4	21.8	14.2
Thallium, Total	mg/L	0.002	ND U	ND U	-	ND U	ND U	ND U	ND	ND
Vanadium, Total	mg/L	0.0086	0.013	0.0095	-	0.0086	0.015	0.0097	ND	0.015
Zinc, Total	mg/L	0.6	0.013	0.013	-	0.013	0.05	0.0071 J	0.085	0.0054 J
Alkalinity, Total	mg/L	-	44	47	-	47	45	48	58	54
Ammonia-N	mg/L	-	0.093 J	0.08 J	-	ND U	0.171	0.06 J	0.092 J	ND
Chemical Oxygen Demand (COD)	mg/L	-	ND U	ND U	-	ND U	7 J	5 J	ND	ND
Chloride	mg/L	250	9.1	10.1	-	12.2	11.1	12.9	14.8	20
Hardness	mg/L	-	42.4	54	-	49.7	47.3	41.3	58.8	69.7
Nitrate-N	mg/L	10	1.6	1.5	-	1.7	1.8	2	1.6	1.6
pH	SU	8.5	6.62	7.37	-	6.83	6.77	7.1	7.63	6.59
Specific Conductance	umhos/cm	-	93.4	112	-	124.8	117.4	109.3	77.3	179
Sulfate	mg/L	250	3.6	3.6	-	4.5	4	4.4	7.1	10.5
Total Dissolved Solids	mg/L	500	99	110	-	100	132	100	109	129
Turbidity	NTU	5	7.91	6.68	-	5.6	15.4	2.07	5.4	23.4

Location ID: GWM-1

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/13/2023
Antimony, Total	mg/L	0.006	ND
Arsenic, Total	mg/L	0.01	0.0021 J
Barium, Total	mg/L	2	0.044
Beryllium, Total	mg/L	0.004	ND
Cadmium, Total	mg/L	0.005	ND
Calcium, Total	mg/L	-	21.7
Chromium, Total	mg/L	0.1	0.018
Cobalt, Total	mg/L	-	ND
Copper, Total	mg/L	1.3	0.019
Iron, Total	mg/L	0.3	0.13
Lead, Total	mg/L	0.015	ND
Magnesium, Total	mg/L	-	5.1
Manganese, Total	mg/L	0.043	0.0079
Mercury, Total	mg/L	0.002	ND
Nickel, Total	mg/L	0.039	0.0084
Potassium, Total	mg/L	-	1.7
Selenium, Total	mg/L	0.05	ND
Silver, Total	mg/L	0.0094	ND
Sodium, Total	mg/L	-	15.6
Thallium, Total	mg/L	0.002	ND
Vanadium, Total	mg/L	0.0086	0.014
Zinc, Total	mg/L	0.6	0.0065
Alkalinity, Total	mg/L	-	56
Ammonia-N	mg/L	-	0.148
Chemical Oxygen Demand (COD)	mg/L	-	ND
Chloride	mg/L	250	25.6
Hardness	mg/L	-	80
Nitrate-N	mg/L	10	1.6
pH	SU	8.5	6.64
Specific Conductance	umhos/cm	-	230.13
Sulfate	mg/L	250	11.1
Total Dissolved Solids	mg/L	500	150
Turbidity	NTU	5	11.53

## Historical Well Data Assessment Monitoring, Organochloride Pesticides

Name: Eastern Sanitary Landfill

Location ID: GWM-1										
Number of Sampling Dates: 13										
Parameter Name	Units	Compliance Limit	3/1/2015	9/11/2015	3/15/2016	9/20/2016	3/23/2017	9/18/2017	3/15/2018	9/17/2018
4,4'-DDD	ug/L	0.0063	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4,4'-DDE	ug/L	0.046	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4,4'-DDT	ug/L	0.23	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Aldrin	ug/L	0.00092	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
alpha-HCH (alpha-BHC)	ug/L	0.0072	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
beta-BHC	ug/L	0.025	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlordane	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
delta-BHC	ug/L	0.2	ND U	0.006 J	ND U	ND U	ND U	ND U	ND U	ND U
Dieldrin	ug/L	0.0018	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Endosulfan I	ug/L	10	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Endosulfan II	ug/L	10	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Endosulfan Sulfate	ug/L	10	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Endrin	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Endrin Aldehyde	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
gamma-BHC	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Heptachlor	ug/L	0.4	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Heptachlor Epoxide	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methoxychlor	ug/L	40	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Toxaphene	ug/L	3	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-1										
Number of Sampling Dates: 13										
Parameter Name	Units	Compliance Limit	3/4/2019	9/23/2019	4/7/2020	9/22/2020	3/15/2021			
4,4'-DDD	ug/L	0.0063	ND U	ND U	ND U	ND U	ND U			
4,4'-DDE	ug/L	0.046	ND U	ND U	ND U	ND U	ND U			
4,4'-DDT	ug/L	0.23	ND U	ND U	ND U	ND U	ND U			
Aldrin	ug/L	0.00092	ND U	ND U	ND U	ND U	ND U			
alpha-HCH (alpha-BHC)	ug/L	0.0072	ND U	ND U	ND U	ND U	ND U			
beta-BHC	ug/L	0.025	ND U	ND U	ND U	ND U	ND U			
Chlordane	ug/L	2	ND U	ND U	ND U	ND U	ND U			
delta-BHC	ug/L	0.2	ND U	ND U	ND U	ND U	ND U			
Dieldrin	ug/L	0.0018	ND U	ND U	ND U	ND U	ND U			
Endosulfan I	ug/L	10	ND U	ND U	ND U	ND U	ND U			
Endosulfan II	ug/L	10	ND U	ND U	ND U	ND U	ND U			
Endosulfan Sulfate	ug/L	10	ND U	ND U	ND U	ND U	ND U			
Endrin	ug/L	2	ND U	ND U	ND U	ND U	ND U			
Endrin Aldehyde	ug/L	2	ND U	ND U	ND U	ND U	ND U			

Location ID: GWM-1  
 Number of Sampling Dates: 13

Parameter Name	Units	Compliance Limit	3/4/2019	9/23/2019	4/7/2020	9/22/2020	3/15/2021			
gamma-BHC	ug/L	0.2	ND U	ND U	ND U	ND U	ND U			
Heptachlor	ug/L	0.4	ND U	ND U	ND U	ND U	ND U			
Heptachlor Epoxide	ug/L	0.2	ND U	ND U	ND U	ND U	ND U			
Methoxychlor	ug/L	40	ND U	ND U	ND U	ND U	ND U			
Toxaphene	ug/L	3	ND U	ND U	ND U	ND U	ND U			

# Historical Well Data Table I

Name: Eastern Sanitary Landfill

Location ID: GWM-2										
Number of Sampling Dates: 48										
Parameter Name	Units	Compliance Limit	10/28/1999	3/31/2000	10/19/2000	3/28/2001	9/19/2001	4/4/2002	9/27/2002	4/2/2003
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	3	11	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	2	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND



Location ID: GWM-2

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/28/1999	3/31/2000	10/19/2000	3/28/2001	9/19/2001	4/4/2002	9/27/2002	4/2/2003
1,2,3-Trichloropropane	ug/L	–	ND	ND	ND	ND	ND	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-2

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	12/3/2003	3/30/2004	11/10/2004	6/14/2005	11/7/2005	3/29/2006	9/26/2006	4/19/2007
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	2	1	2
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-2

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	12/3/2003	3/30/2004	11/10/2004	6/14/2005	11/7/2005	3/29/2006	9/26/2006	4/19/2007
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	–	–	–	–	–	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromofom	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	2	2	ND

Location ID: GWM-2

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	11/27/2007	4/9/2008	10/16/2008	3/26/2009	9/29/2009	5/4/2010	9/1/2010	3/15/2011
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-2

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	11/27/2007	4/9/2008	10/16/2008	3/26/2009	9/29/2009	5/4/2010	9/1/2010	3/15/2011
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	2	1	1	1	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	1	ND	ND	ND	ND	7	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	–	–	–	–	–	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	1	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	2	2	2	2	1	ND	ND	ND

Location ID: GWM-2

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/12/2011	3/20/2012	9/13/2012	3/12/2013	9/25/2013	3/18/2014	9/16/2014	3/18/2015
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND U	ND U	ND U
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND U	ND U	ND U
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND U	ND U	ND U

Location ID: GWM-2

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/12/2011	3/20/2012	9/13/2012	3/12/2013	9/25/2013	3/18/2014	9/16/2014	3/18/2015
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND U	ND U	ND U
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	1.4	ND	ND	ND	ND	1.1	1.2	0.99 J
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND U	ND U	ND U
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND U	ND U	ND U
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND U	ND U	ND U
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND U	ND U	ND U
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND U	0.31 J	0.34 J

Location ID: GWM-2

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/15/2015	3/16/2016	9/22/2016	3/24/2017	9/21/2017	3/28/2018	9/21/2018	3/12/2019
Acetone	ug/L	1400	ND U	ND U	ND U	5.5 JB	ND U	ND U	ND U	ND U
Acrylonitrile	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromochloromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromomethane	ug/L	0.75	0.56 J	0.72 J	ND U	ND U	ND U	ND U	ND U	ND U
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloromethane	ug/L	19	0.42 J	0.94 J	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Dibromomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	1.1	0.9 J	0.9 J	0.81 J	0.94 J	0.84 J	1	1.7
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
2-Hexanone	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Iodomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	0.35 J	0.44 J	ND U	ND U
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-2

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/15/2015	3/16/2016	9/22/2016	3/24/2017	9/21/2017	3/28/2018	9/21/2018	3/12/2019
Vinyl acetate	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroform	ug/L	80	0.34 J	ND U	0.31 J	ND U	ND U	ND U	0.62 JB	0.68 J

Location ID: GWM-2

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/1/2019	3/18/2020	9/23/2020	3/17/2021	9/9/2021	3/15/2022	9/12/2022	3/13/2023
Acetone	ug/L	1400	ND U	3.2 J	4.3 J	3.4 J	3.2 J	ND	ND	ND
Acrylonitrile	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromochloromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromomethane	ug/L	0.75	ND U	ND U	ND U	ND U	ND U	ND	ND	0.53 J
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloromethane	ug/L	19	ND U	ND U	0.85 J	ND U	ND U	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Dibromomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	1.5	1.2	1.3	1.2	1.4	0.99 J	0.88 J	1.1
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
2-Hexanone	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Iodomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	0.49 J

Location ID: GWM-2

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/1/2019	3/18/2020	9/23/2020	3/17/2021	9/9/2021	3/15/2022	9/12/2022	3/13/2023
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Tetrachloroethene	ug/L	5	ND U	0.41 J	0.37 J	0.42 J	ND U	0.6 J	0.44 J	0.57 J
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Trichlorofluoromethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2,3-Trichloropropane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl acetate	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
o-Xylene	ug/L	10000	-	ND U	ND U	ND U	ND U	ND	ND	ND
mp-Xylene	ug/L	10000	-	ND U	ND U	ND U	ND U	ND	ND	ND
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromoform	ug/L	80	0.56 J	ND U	ND U	ND U	ND U	ND	ND	ND
Chloroform	ug/L	80	0.31 J	0.34 JB	0.24 J	0.22 J	0.24 J	ND	ND	0.29 J

## Historical Well Data Table II

Name: Eastern Sanitary Landfill

Location ID: GWM-2										
Number of Sampling Dates: 48										
Parameter Name	Units	Compliance Limit	10/28/1999	3/31/2000	10/19/2000	3/28/2001	9/19/2001	4/4/2002	9/27/2002	4/2/2003
Antimony, Total	mg/L	0.006	-	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	mg/L	0.01	-	ND	ND	ND	ND	ND	ND	ND
Barium, Total	mg/L	2	ND	ND	0.046	0.086	0.088	0.085	0.08	0.075
Beryllium, Total	mg/L	0.004	-	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND
Calcium, Total	mg/L	-	-	-	-	-	-	-	-	-
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	-	-	ND	0.037	ND	0.037	0.043	0.037	0.033
Copper, Total	mg/L	1.3	-	ND	0.024	0.014	ND	0.014	0.032	ND
Iron, Total	mg/L	0.3	1.66	0.52	0.62	0.183	0.208	0.7	0.363	0.083
Lead, Total	mg/L	0.015	ND	ND	ND	ND	0.002	ND	ND	0.002
Magnesium, Total	mg/L	-	-	-	-	-	-	-	-	-
Manganese, Total	mg/L	0.043	0.07	0.08	0.102	0.109	0.065	0.056	0.069	0.072
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	-	0.11	0.057	0.08	0.079	0.068	0.113	0.118
Potassium, Total	mg/L	-	-	-	-	-	-	-	-	-
Selenium, Total	mg/L	0.05	-	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	-	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	-	-	-	-	-	-	-	-	-
Thallium, Total	mg/L	0.002	-	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	-	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	4.87	ND	0.124	0.065	0.064	0.105	0.087	0.077
Alkalinity, Total	mg/L	-	-	3	2	2	1	2	ND	2
Ammonia-N	mg/L	-	0.2	0.2	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	-	10	10	ND	ND	6	ND	ND	ND
Chloride	mg/L	250	42	47	50.98	53.14	60.55	52.5	53.74	83.37
Hardness	mg/L	-	-	55	30	34.01	32.05	49.49	45.8	47.67
Nitrate-N	mg/L	10	2.9	3.2	2.73	2.77	2.67	2.13	1.96	2.65
pH	SU	8.5	-	-	4.83	4.6	4.7	4.25	4.55	4.2
Specific Conductance	umhos/cm	-	-	227	ND	ND	227	259	261	310
Sulfate	mg/L	250	15	15.1	14	ND	16	13.08	12.53	17.28
Total Dissolved Solids	mg/L	500	104	116	133	129	128	105	168	229
Turbidity	NTU	5	-	10	28	5.8	1.14	0.4	0.8	0.4

Location ID: GWM-2										
Number of Sampling Dates: 48										
Parameter Name	Units	Compliance Limit	12/3/2003	3/30/2004	11/10/2004	6/14/2005	11/7/2005	3/29/2006	9/26/2006	4/19/2007
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total	mg/L	2	0.077	0.068	0.066	0.071	0.075	0.059	0.063	0.06
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND



Location ID: GWM-2

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	12/3/2003	3/30/2004	11/10/2004	6/14/2005	11/7/2005	3/29/2006	9/26/2006	4/19/2007
Calcium, Total	mg/L	-	-	-	-	-	-	-	-	12.35
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	-	0.046	ND	0.07	0.042	0.027	0.041	0.041	0.046
Copper, Total	mg/L	1.3	ND	ND	ND	ND	ND	0.018	0.014	ND
Iron, Total	mg/L	0.3	0.148	0.181	0.221	0.318	1.045	0.106	0.225	0.057
Lead, Total	mg/L	0.015	ND	ND	ND	0.003	0.002	ND	ND	ND
Magnesium, Total	mg/L	-	-	-	-	-	-	-	-	9.7
Manganese, Total	mg/L	0.043	0.035	0.105	0.077	0.09	0.075	0.08	0.092	0.084
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	0.081	ND	0.102	0.079	0.084	0.105	0.098	0.104
Potassium, Total	mg/L	-	-	-	-	-	-	-	-	7.45
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	-	-	-	-	-	-	-	-	51.1
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	0.101	0.085	0.171	0.137	0.304	0.079	0.155	0.088
Alkalinity, Total	mg/L	-	4	2	3	2.4	3.9	1	4.2	3.4
Ammonia-N	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Chloride	mg/L	250	68.97	62.72	59.8	51.74	51.49	63.66	63.91	60.98
Hardness	mg/L	-	46.95	41.7	44.96	49.93	40.53	13.44	79.83	70.78
Nitrate-N	mg/L	10	1.62	1.33	1.54	1.4	1.24	1.6	1.74	1.42
pH	SU	8.5	4.16	4.13	3.78	4.02	4.11	3.82	4.17	3.99
Specific Conductance	umhos/cm	-	282	268	248	262	244	253	277	289
Sulfate	mg/L	250	16	15.93	15.78	15.97	14.19	14.92	16.09	13.58
Total Dissolved Solids	mg/L	500	166	28	112	256	154	135	144	36
Turbidity	NTU	5	11.3	13	10	12.2	144	4.11	7.89	9.18

Location ID: GWM-2

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	11/27/2007	4/9/2008	10/16/2008	3/26/2009	9/29/2009	5/4/2010	9/1/2010	3/15/2011
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total	mg/L	2	0.05	0.046	0.042	0.041	0.045	0.049	0.045	0.046
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND
Calcium, Total	mg/L	-	7.56	8.6	9	3.95	5.85	10.11	9.16	7.58
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	-	0.043	0.051	0.066	0.04	0.084	0.057	0.065	0.061
Copper, Total	mg/L	1.3	ND	0.078	0.032	0.011	0.031	ND	ND	0.053
Iron, Total	mg/L	0.3	0.276	ND	0.111	0.104	0.315	0.2	0.097	0.163
Lead, Total	mg/L	0.015	ND	ND	ND	ND	ND	ND	ND	ND
Magnesium, Total	mg/L	-	2.79	7	3.089	7.2	8.2	11.65	2.61	2.864
Manganese, Total	mg/L	0.043	0.101	0.095	0.108	0.067	0.078	0.143	0.042	0.136

Location ID: GWM-2

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	11/27/2007	4/9/2008	10/16/2008	3/26/2009	9/29/2009	5/4/2010	9/1/2010	3/15/2011
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	0.075	0.111	0.104	0.09	0.147	0.096	0.162	0.129
Potassium, Total	mg/L	-	2.92	3.26	2.8	2.46	2.88	2.72	2.95	2.51
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	-	28.6	43.4	44.1	34.4	27.2	58.2	55.3	42.6
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	0.083	0.101	0.081	0.05	0.048	0.085	0.072	0.085
Alkalinity, Total	mg/L	-	4.8	4.2	2.4	2.8	ND	4.2	ND	ND
Ammonia-N	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	-	10	ND	12	ND	ND	ND	11	ND
Chloride	mg/L	250	61.94	64.15	58.07	58.06	69.6	119.98	75.72	86.19
Hardness	mg/L	-	30.37	50.3	35.2	39.51	48.38	73.22	33.62	30.72
Nitrate-N	mg/L	10	1.54	1.67	1.65	1.63	1.52	2.12	1.83	2.33
pH	SU	8.5	4.19	3.77	4.61	4.56	4.39	4.74	4.58	4.33
Specific Conductance	umhos/cm	-	232	315	280	272	271	368	251	313
Sulfate	mg/L	250	12.14	13.05	12.89	13.04	13.58	21.54	13.4	13.99
Total Dissolved Solids	mg/L	500	188	182	238	106	156	218	222	164
Turbidity	NTU	5	2.06	1.1	0.4	ND	0.1	11	5.7	4.4

Location ID: GWM-2

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/12/2011	3/20/2012	9/13/2012	3/12/2013	9/25/2013	3/18/2014	9/16/2014	3/18/2015
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND U	ND U	ND U
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND U	ND U	ND U
Barium, Total	mg/L	2	0.1	0.109	0.112	0.141	0.06	0.11	0.11	0.11
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	0.00038 J	0.0004 J	0.00032 J
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND U	ND U	0.0008 J
Calcium, Total	mg/L	-	8.3	1.8	5.73	13.17	12.88	9.5	7.2	9.2
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	0.0056	0.019	0.012
Cobalt, Total	mg/L	-	0.041	0.048	0.038	0.055	ND	0.046	0.044	0.11
Copper, Total	mg/L	1.3	ND	ND	ND	ND	ND	0.0027 J	0.0094	0.063
Iron, Total	mg/L	0.3	0.28	0.101	0.123	0.07	1.137	0.04 J	0.074	0.36
Lead, Total	mg/L	0.015	ND	ND	ND	ND	ND	0.0014 J	0.00078 J	0.016
Magnesium, Total	mg/L	-	6.2	0.7	6.434	7.069	6.078	7.9	7.6	7
Manganese, Total	mg/L	0.043	0.093	0.099	0.082	0.108	0.41	0.12	0.12	0.12
Mercury, Total	mg/L	0.002	ND	ND	-	ND	ND	ND U	ND U	ND U
Nickel, Total	mg/L	0.039	0.09	0.1	0.084	0.117	ND	0.091	0.1	0.088
Potassium, Total	mg/L	-	3.1	2.96	2.62	2.87	2.75	3.1	2.9	2.9
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND U	ND U	ND U
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND U	ND U	ND U
Sodium, Total	mg/L	-	28	3.5	28.4	31.6	15.71	38.6	37.3	36.8
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND U	ND U	ND U

Location ID: GWM-2

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/12/2011	3/20/2012	9/13/2012	3/12/2013	9/25/2013	3/18/2014	9/16/2014	3/18/2015
Zinc, Total	mg/L	0.6	0.075	0.088	0.071	0.106	ND	0.069	0.078	0.072
Alkalinity, Total	mg/L	-	3	ND	7.71	2.7	3.3	2 J	3 J	4 J
Ammonia-N	mg/L	-	ND	ND	ND	ND	ND	0.13	0.124	ND U
Chemical Oxygen Demand (COD)	mg/L	-	26	ND	ND	9	ND	4 J	ND U	ND U
Chloride	mg/L	250	69	83.5	59.09	84.47	74.67	88.2	89.4	84.5
Hardness	mg/L	-	52	73.86	40.79	62	57.2	69	59	85
Nitrate-N	mg/L	10	2.3	1.36	2.37	2.69	2.65	3.1	2.9	3.4
pH	SU	8.5	4.32	4.48	4.06	6.55	4.27	4.65	4.68	4.52
Specific Conductance	umhos/cm	-	317	365	338	300	355	283	286	273
Sulfate	mg/L	250	11	10.01	14	15.44	14.05	13.3	20.2	13.5
Total Dissolved Solids	mg/L	500	140	192	176	160	173	201	253	218
Turbidity	NTU	5	13.6	10.66	3.66	1	ND	0.6	0.82	0.76

Location ID: GWM-2

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/15/2015	3/16/2016	9/22/2016	3/24/2017	9/21/2017	3/28/2018	9/21/2018	3/12/2019
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Arsenic, Total	mg/L	0.01	ND U	ND U	ND U	ND U	0.0032 J	ND U	ND U	ND U
Barium, Total	mg/L	2	0.1	0.092	0.095	0.093	0.092	0.1	0.12	0.13
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	ND U	ND U	ND U	0.00044 J
Cadmium, Total	mg/L	0.005	ND U	ND U	0.00053 J	0.0018	0.0008 J	0.00058 J	ND U	ND U
Calcium, Total	mg/L	-	8.8	8.3	8.2	7.6	8	9.1	8.8	10.4
Chromium, Total	mg/L	0.1	0.024	0.0031	0.017	0.052	0.0088	0.017	0.0023	0.0048
Cobalt, Total	mg/L	-	0.058	0.037	0.06	0.071	0.38	0.056	0.043	0.052
Copper, Total	mg/L	1.3	0.044	0.006	0.026	0.15	0.18	0.021	0.0042 J	0.0046 J
Iron, Total	mg/L	0.3	0.28	0.024 J	0.25	1	0.68	0.24	0.097	0.072
Lead, Total	mg/L	0.015	0.0062	ND U	0.0012 J	0.018	0.013	0.0017 J	ND U	ND U
Magnesium, Total	mg/L	-	6.9	6.6	6.1	5.7	6.1	7.2	7.8	6.9
Manganese, Total	mg/L	0.043	0.12	0.1	0.11	0.12	0.11	0.13	0.15	0.17
Mercury, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Nickel, Total	mg/L	0.039	0.09	0.078	0.08	0.082	0.077	0.085	0.087	0.11
Potassium, Total	mg/L	-	2.9	2.8	2.7	2.7	2.7	2.9	2.9	2.8
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Sodium, Total	mg/L	-	36.7	36.5	34.9	32.8	35.4	40.4	40.2	37.3
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Zinc, Total	mg/L	0.6	0.067	0.068	0.063	0.072	0.076	0.063	0.062	0.08
Alkalinity, Total	mg/L	-	5	3 J	4 J	4 J	4 J	4 J	7	3 J
Ammonia-N	mg/L	-	ND U	ND U	ND U	0.032 J	ND U	0.081 J	0.057 J	0.119
Chemical Oxygen Demand (COD)	mg/L	-	3 J	3 J	ND U	ND U	ND U	ND U	ND U	10 J
Chloride	mg/L	250	85.3	77.1	76.9	71.1	82.1	82.7	87.7	86.9
Hardness	mg/L	-	54	48	46	53	45.2	52.3	54.3	54.6
Nitrate-N	mg/L	10	2.9	2.7	2.4	2.3	3.1	2.9	2.7	1.4
pH	SU	8.5	4.58	4.74	4.47	4.55	4.74	4.53	4.58	4.52

Location ID: GWM-2										
Number of Sampling Dates: 48										
Parameter Name	Units	Compliance Limit	9/15/2015	3/16/2016	9/22/2016	3/24/2017	9/21/2017	3/28/2018	9/21/2018	3/12/2019
Specific Conductance	umhos/cm	-	258	255	242	247	244	275	294	271
Sulfate	mg/L	250	15.4	20.5	16.4	15.3	15.9	14.4	14.7	16.2
Total Dissolved Solids	mg/L	500	171	179	177	168	149	156	184	194
Turbidity	NTU	5	1.5	1.23	1.91	0.37	2.13	3.12	0.59	0.83

Location ID: GWM-2										
Number of Sampling Dates: 48										
Parameter Name	Units	Compliance Limit	10/1/2019	3/18/2020	9/23/2020	3/17/2021	9/9/2021	3/15/2022	9/12/2022	3/13/2023
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Barium, Total	mg/L	2	0.12	0.098	0.083	0.089	0.095	0.095	0.092	0.099
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	0.00032 J	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Calcium, Total	mg/L	-	10	8.5	7.1	8.1	8.3	8.1	7.5	8.5
Chromium, Total	mg/L	0.1	0.0019 J	0.0037	0.018	0.0048	0.0028 J	0.0038	0.0077	0.0039
Cobalt, Total	mg/L	-	0.05	0.04	0.04	0.038	0.043	0.038	0.038	0.042
Copper, Total	mg/L	1.3	0.0067	0.0057	0.0047 J	0.0046 J	0.0043 J	0.029	0.0034 J	0.0023 J
Iron, Total	mg/L	0.3	0.034 J	0.045 J	0.32	0.081	0.086	0.091	0.42	0.11
Lead, Total	mg/L	0.015	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Magnesium, Total	mg/L	-	7.7	7	5.5	6.4	6.3	6.4	6.2	6.7
Manganese, Total	mg/L	0.043	0.16	0.13	0.12	0.16	0.14	0.14	0.14	0.15
Mercury, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Nickel, Total	mg/L	0.039	0.1	0.083	0.079	0.078	0.088	0.084	0.079	0.087
Potassium, Total	mg/L	-	2.9	3	2.5	2.7	2.7	2.8	2.7	2.8
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	0.0012 J	ND	ND	ND
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Sodium, Total	mg/L	-	38.6	40.9	34.9	37.2	36	39	35.7	38.3
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	0.0002 J	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Zinc, Total	mg/L	0.6	0.072	0.065	0.063	0.06	0.068	0.068	0.067	0.069
Alkalinity, Total	mg/L	-	2 J	5 J	4 J	5	6	ND	5	10
Ammonia-N	mg/L	-	0.198	0.096 J	0.058 J	0.152	ND U	0.126	ND	0.132
Chemical Oxygen Demand (COD)	mg/L	-	ND U	ND U	ND U	10 J	5 J	ND	ND	6 J
Chloride	mg/L	250	82.3	75.7	64	67.3	78.5	71.5	69.5	77.3
Hardness	mg/L	-	56.9	47.5	42.9	43	44.7	45.7	48.1	49.1
Nitrate-N	mg/L	10	1.4	1.9	1.3	2	2	1.8	1.8	1.9
pH	SU	8.5	4.52	4.65	4.37	4.68	4.28	4.72	4.54	4.6
Specific Conductance	umhos/cm	-	231	263	196.4	221	201	256	252.9	356.68
Sulfate	mg/L	250	16.6	21.1	21.6	21.1	21.3	15.3	16.5	17.1
Total Dissolved Solids	mg/L	500	192	208	172	104	198	146	162	182
Turbidity	NTU	5	0.4	1.06	3.3	1.53	1.7	1.4	5.24	21.41

## Historical Well Data Assessment Monitoring, Organochloride Pesticides

Name: Eastern Sanitary Landfill

Location ID: GWM-2										
Number of Sampling Dates: 13										
Parameter Name	Units	Compliance Limit	3/24/2017	9/21/2017	3/28/2018	9/21/2018	3/12/2019	10/1/2019	4/7/2020	9/23/2020
4,4'-DDD	ug/L	0.0063	0.013 J	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4,4'-DDE	ug/L	0.046	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4,4'-DDT	ug/L	0.23	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Aldrin	ug/L	0.00092	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
alpha-HCH (alpha-BHC)	ug/L	0.0072	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
beta-BHC	ug/L	0.025	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlordane	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
delta-BHC	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Dieldrin	ug/L	0.0018	0.017 J	0.019	0.014	0.013	0.012	0.018 J	0.026	0.023
Endosulfan I	ug/L	10	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Endosulfan II	ug/L	10	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Endosulfan Sulfate	ug/L	10	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Endrin	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Endrin Aldehyde	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
gamma-BHC	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Heptachlor	ug/L	0.4	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Heptachlor Epoxide	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methoxychlor	ug/L	40	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Toxaphene	ug/L	3	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-2										
Number of Sampling Dates: 13										
Parameter Name	Units	Compliance Limit	3/17/2021	9/9/2021	3/15/2022	9/12/2022	3/13/2023			
4,4'-DDD	ug/L	0.0063	ND U	ND U	ND	ND	ND			
4,4'-DDE	ug/L	0.046	ND U	ND U	ND	ND	ND			
4,4'-DDT	ug/L	0.23	ND U	ND U	ND	ND	ND			
Aldrin	ug/L	0.00092	ND U	ND U	ND	ND	ND			
alpha-HCH (alpha-BHC)	ug/L	0.0072	ND U	ND U	ND	ND	ND			
beta-BHC	ug/L	0.025	ND U	ND U	ND	ND	ND			
Chlordane	ug/L	2	ND U	ND U	ND	ND	ND			
delta-BHC	ug/L	0.2	ND U	ND U	ND	ND	ND			
Dieldrin	ug/L	0.0018	0.02	0.016	ND	0.0091	0.0189			
Endosulfan I	ug/L	10	ND U	ND U	ND	ND	ND			
Endosulfan II	ug/L	10	ND U	ND U	ND	ND	ND			
Endosulfan Sulfate	ug/L	10	ND U	ND U	ND	ND	ND			
Endrin	ug/L	2	ND U	ND U	ND	ND	ND			
Endrin Aldehyde	ug/L	2	ND U	ND U	ND	ND	ND			

Location ID: GWM-2  
 Number of Sampling Dates: 13

Parameter Name	Units	Compliance Limit	3/17/2021	9/9/2021	3/15/2022	9/12/2022	3/13/2023			
gamma-BHC	ug/L	0.2	ND U	ND U	ND	ND	ND			
Heptachlor	ug/L	0.4	ND U	ND U	ND	ND	ND			
Heptachlor Epoxide	ug/L	0.2	ND U	ND U	ND	ND	ND			
Methoxychlor	ug/L	40	ND U	ND U	ND	ND	ND			
Toxaphene	ug/L	3	ND U	ND U	ND	ND	ND			

# Historical Well Data Table I

Name: Eastern Sanitary Landfill

Location ID: GWM-3										
Number of Sampling Dates: 48										
Parameter Name	Units	Compliance Limit	10/28/1999	3/31/2000	10/19/2000	3/29/2001	10/25/2001	3/26/2002	9/23/2002	4/2/2003
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	17.5	11.6	ND	9	ND	7	5	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-3

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/28/1999	3/31/2000	10/19/2000	3/29/2001	10/25/2001	3/26/2002	9/23/2002	4/2/2003
1,2,3-Trichloropropane	ug/L	–	ND	ND	ND	ND	ND	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	1	3	5	6

Location ID: GWM-3

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/24/2003	4/1/2004	10/14/2004	4/20/2005	11/7/2005	3/29/2006	9/21/2006	4/19/2007
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	3	3	ND	ND	ND	ND	ND	8
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND



Location ID: GWM-3		Number of Sampling Dates: 48								
Parameter Name	Units	Compliance Limit	9/24/2003	4/1/2004	10/14/2004	4/20/2005	11/7/2005	3/29/2006	9/21/2006	4/19/2007
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	–	–	–	–	–	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromofom	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	3	2	1	ND	2	2	2

Location ID: GWM-3		Number of Sampling Dates: 48								
Parameter Name	Units	Compliance Limit	11/20/2007	4/3/2008	10/16/2008	3/26/2009	9/29/2009	5/11/2010	8/26/2010	3/8/2011
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-3										
Number of Sampling Dates: 48										
Parameter Name	Units	Compliance Limit	11/20/2007	4/3/2008	10/16/2008	3/26/2009	9/29/2009	5/11/2010	8/26/2010	3/8/2011
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	-	-	-	-	-	-	-	-	-
Vinyl acetate	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	2	2	2	2	ND	ND	ND	ND

Location ID: GWM-3										
Number of Sampling Dates: 48										
Parameter Name	Units	Compliance Limit	10/12/2011	3/13/2012	9/5/2012	3/12/2013	9/25/2013	3/18/2014	9/16/2014	3/18/2015
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND U	ND U	ND U
Acrylonitrile	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromochloromethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND U	ND U	0.48 JB
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	0.34 J	ND U	ND U

Location ID: GWM-3

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/12/2011	3/13/2012	9/5/2012	3/12/2013	9/25/2013	3/18/2014	9/16/2014	3/18/2015
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND U	ND U	ND U
Dibromomethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	0.38 J	ND U	ND U
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND U	ND U	ND U
2-Hexanone	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Iodomethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND U	ND U	ND U
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND U	ND U	0.24 JB
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vinyl acetate	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND U	ND U	ND U
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND U	ND U	ND U
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND U	0.21 J	ND U

Location ID: GWM-3  
 Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/15/2015	3/16/2016	9/22/2016	3/29/2017	9/21/2017	3/28/2018	9/20/2018	3/12/2019
Acetone	ug/L	1400	ND U	ND U	ND U	3.2 J	ND U	6.1 JB	ND U	ND U
Acrylonitrile	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromochloromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromomethane	ug/L	0.75	0.4 J	0.89 J	ND U	ND U	ND U	ND U	ND U	ND U
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloromethane	ug/L	19	0.5 J	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Dibromomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
2-Hexanone	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Iodomethane	ug/L	–	ND U	0.58 J	ND U	ND U	ND U	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl acetate	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-3		Number of Sampling Dates: 48								
Parameter Name	Units	Compliance Limit	9/15/2015	3/16/2016	9/22/2016	3/29/2017	9/21/2017	3/28/2018	9/20/2018	3/12/2019
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	0.41 J	0.37 J

Location ID: GWM-3		Number of Sampling Dates: 48								
Parameter Name	Units	Compliance Limit	10/1/2019	3/18/2020	9/24/2020	3/17/2021	9/9/2021	3/15/2022	9/16/2022	3/15/2023
Acetone	ug/L	1400	3.3 J	ND U	ND U	ND U	ND U	ND	ND	ND
Acrylonitrile	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromochloromethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromomethane	ug/L	0.75	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloromethane	ug/L	19	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Dibromomethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
2-Hexanone	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Iodomethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND

Location ID: GWM-3

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/1/2019	3/18/2020	9/24/2020	3/17/2021	9/9/2021	3/15/2022	9/16/2022	3/15/2023
1,1,1,2-Tetrachloroethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl acetate	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
o-Xylene	ug/L	10000	–	ND U	ND U	ND U	ND U	ND	ND	ND
mp-Xylene	ug/L	10000	–	ND U	ND U	ND U	ND U	ND	ND	ND
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloroform	ug/L	80	0.31 J	ND U	ND U	ND U	ND U	ND	ND	ND

## Historical Well Data Table II

Name: Eastern Sanitary Landfill

Location ID: GWM-3		Number of Sampling Dates: 48									
Parameter Name	Units	Compliance Limit	10/28/1999	3/31/2000	10/19/2000	3/29/2001	10/25/2001	3/26/2002	9/23/2002	4/2/2003	
Antimony, Total	mg/L	0.006	--	ND	ND	ND	ND	ND	ND	ND	
Arsenic, Total	mg/L	0.01	--	ND	ND	ND	ND	ND	ND	ND	
Barium, Total	mg/L	2	ND	ND	0.052	0.086	0.088	0.094	0.097	0.093	
Beryllium, Total	mg/L	0.004	--	ND	ND	ND	ND	ND	ND	ND	
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	
Calcium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	
Cobalt, Total	mg/L	--	--	ND	ND	ND	ND	ND	ND	ND	
Copper, Total	mg/L	1.3	--	ND	0.073	0.047	0.032	0.02	0.028	ND	
Iron, Total	mg/L	0.3	3.27	0.49	0.104	ND	0.032	0.71	0.092	0.051	
Lead, Total	mg/L	0.015	ND	ND	ND	ND	0.002	0.004	ND	ND	
Magnesium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Manganese, Total	mg/L	0.043	0.1	0.09	0.095	0.096	0.037	0.049	0.043	0.038	
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND	
Nickel, Total	mg/L	0.039	--	ND	ND	ND	ND	ND	ND	ND	
Potassium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Selenium, Total	mg/L	0.05	--	ND	ND	ND	ND	ND	ND	ND	
Silver, Total	mg/L	0.0094	--	ND	ND	ND	ND	ND	ND	ND	
Sodium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Thallium, Total	mg/L	0.002	--	ND	ND	ND	ND	ND	ND	ND	
Vanadium, Total	mg/L	0.0086	--	ND	ND	ND	ND	ND	ND	ND	
Zinc, Total	mg/L	0.6	1.24	ND	0.083	ND	ND	0.06	0.018	0.023	
Alkalinity, Total	mg/L	--	--	6	8	5	5	8	6	6	
Ammonia-N	mg/L	--	0.2	0.2	ND	ND	ND	ND	ND	ND	
Chemical Oxygen Demand (COD)	mg/L	--	10	10	ND	ND	ND	ND	ND	ND	
Chloride	mg/L	250	22	20	20.09	26.03	28.88	30.51	30.35	57.53	
Hardness	mg/L	--	--	40	24	26.21	22.01	48.14	42.42	49.86	
Nitrate-N	mg/L	10	2.1	2.7	2.42	3.15	1.89	1.9	1.57	2.39	
pH	SU	8.5	--	--	4.96	4.9	4.72	4.8	4.52	4.4	
Specific Conductance	umhos/cm	--	--	161	ND	ND	172	192	208	263	
Sulfate	mg/L	250	24.6	20.7	19	9	25	16.07	15.6	19.4	
Total Dissolved Solids	mg/L	500	93	90	101	104	95	119	87	101	
Turbidity	NTU	5	--	23	32	65	3.15	28.1	2.6	2.3	

Location ID: GWM-3		Number of Sampling Dates: 48									
Parameter Name	Units	Compliance Limit	9/24/2003	4/1/2004	10/14/2004	4/20/2005	11/7/2005	3/29/2006	9/21/2006	4/19/2007	
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND	
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	
Barium, Total	mg/L	2	0.09	0.06	0.056	0.058	0.062	0.056	0.067	0.062	
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND	
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	

Location ID: GWM-3

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/24/2003	4/1/2004	10/14/2004	4/20/2005	11/7/2005	3/29/2006	9/21/2006	4/19/2007
Calcium, Total	mg/L	--	--	--	--	--	--	--	--	9.45
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	mg/L	1.3	ND	0.013	ND	ND	ND	0.021	0.011	ND
Iron, Total	mg/L	0.3	ND	0.119	0.019	0.061	0.125	0.056	0.183	ND
Lead, Total	mg/L	0.015	ND	ND	ND	ND	0.002	ND	ND	ND
Magnesium, Total	mg/L	--	--	--	--	--	--	--	--	9.9
Manganese, Total	mg/L	0.043	0.03	0.03	0.026	0.028	0.03	0.019	0	0.02
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/L	--	--	--	--	--	--	--	--	7
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	--	--	--	--	--	--	--	--	47.7
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	0.207	ND	0.116	ND	0.033	0.049	0.086	0.026
Alkalinity, Total	mg/L	--	4	6	8.8	11	11.05	8.8	10.2	10.1
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	--	ND	31	ND	ND	ND	ND	ND	ND
Chloride	mg/L	250	39.6	38.36	85.52	64.85	36.27	36.45	28.89	34.92
Hardness	mg/L	--	51.03	40.67	53.93	43.73	59.45	38.85	62.92	64.36
Nitrate-N	mg/L	10	1.72	1.68	3.06	2.83	1.37	1.43	1.29	1.37
pH	SU	8.5	4.43	4.44	4.47	4.56	4.59	4.47	4.46	4.37
Specific Conductance	umhos/cm	--	231	217	258	302	228	209	200	240
Sulfate	mg/L	250	15.84	18.87	35.26	37.73	21.86	26.65	23.13	21.96
Total Dissolved Solids	mg/L	500	89	142	128	212	146	127	152	27
Turbidity	NTU	5	30	30.7	8.3	ND	25.4	51	24.4	6.71

Location ID: GWM-3

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	11/20/2007	4/3/2008	10/16/2008	3/26/2009	9/29/2009	5/11/2010	8/26/2010	3/8/2011
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total	mg/L	2	0.04	0.047	0.04	0.035	0.039	0.041	0.039	0.038
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND
Calcium, Total	mg/L	--	6.85	6.5	1.36	2.9	4.4	5	7.15	6.53
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	--	ND	ND	0.081	ND	0.025	ND	ND	0.01
Copper, Total	mg/L	1.3	0.045	ND	0.073	ND	ND	0.019	ND	ND
Iron, Total	mg/L	0.3	0.187	0.006	0.501	ND	0.24	0.254	ND	0.012
Lead, Total	mg/L	0.015	ND	ND	ND	ND	ND	ND	ND	ND
Magnesium, Total	mg/L	--	2.86	9.9	1.243	9.8	9.25	10.7	2.681	2.924
Manganese, Total	mg/L	0.043	0.08	0.07	0.137	0.026	ND	0.017	0.071	0.081
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND



Location ID: GWM-3  
Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	11/20/2007	4/3/2008	10/16/2008	3/26/2009	9/29/2009	5/11/2010	8/26/2010	3/8/2011
Nickel, Total	mg/L	0.039	ND	ND	0.067	ND	ND	ND	ND	ND
Potassium, Total	mg/L	--	1.85	2.37	2.16	1.9	2.03	2	2.05	1.9
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	--	30.4	32.4	3.6	25.8	6.6	35.2	35.4	33.6
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	0.014	0.048	0.039	ND	ND	ND	ND	0.018
Alkalinity, Total	mg/L	--	9.8	8.2	10.2	7.8	1.59	1.2	5.1	ND
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	--	12	ND	20	ND	ND	ND	12	--
Chloride	mg/L	250	57.81	33.41	30.9	34.96	40.46	47.89	49.31	56.84
Hardness	mg/L	--	28.88	57	8.52	47.58	49.08	56.55	28.9	28.34
Nitrate-N	mg/L	10	2.64	1.53	1.5	1.91	2.17	2.79	--	2.79
pH	SU	8.5	4.82	4.3	5.05	4.96	4.88	4.91	4.66	4.78
Specific Conductance	umhos/cm	--	221	272	272	216	245	200	276	299
Sulfate	mg/L	250	32.36	20.86	21.22	27.74	21.73	22.49	21.68	23.04
Total Dissolved Solids	mg/L	500	166	174	210	84	130	136	168	114
Turbidity	NTU	5	41.4	15.6	15.6	ND	5.2	2.4	1.1	3.3

Location ID: GWM-3  
Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/12/2011	3/13/2012	9/5/2012	3/12/2013	9/25/2013	3/18/2014	9/16/2014	3/18/2015
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND U	ND U	ND U
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND U	ND U	ND U
Barium, Total	mg/L	2	0.084	0.097	0.118	0.121	0.09	0.08	0.074	0.084
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND U	ND U	ND U
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND U	ND U	0.00049 J
Calcium, Total	mg/L	--	7.6	2.05	6.28	13.03	5.06	7.9	7.7	8.2
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	0.0049	0.0033	0.0037
Cobalt, Total	mg/L	--	ND	ND	ND	ND	ND	0.005 J	0.0042 J	0.0059
Copper, Total	mg/L	1.3	ND	ND	ND	ND	ND	0.011	0.013	0.0034 J
Iron, Total	mg/L	0.3	0.3	0.012	ND	0.102	0.01	0.02 J	ND U	ND U
Lead, Total	mg/L	0.015	ND	ND	ND	ND	ND	0.0019 J	ND U	ND U
Magnesium, Total	mg/L	--	7.2	0.858	9.004	8.373	7.429	7.6	7.1	6.1
Manganese, Total	mg/L	0.043	0.027	0.025	0.045	0.038	0.02	0.025	0.022	0.03
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	0.00034 J	0.00028 J	0.00033 J
Nickel, Total	mg/L	0.039	ND	ND	ND	ND	ND	0.0043 J	0.0029 J	0.0035 J
Potassium, Total	mg/L	--	2.1	2.27	2.05	2.07	1.79	2	1.8	1.6
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND U	ND U	ND U
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND U	ND U	ND U
Sodium, Total	mg/L	--	18	2.5	34.7	27.1	22.52	25.2	24.2	21.2
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND U	ND U	ND U
Zinc, Total	mg/L	0.6	0.01	0.014	ND	ND	ND	0.0096	0.0041 J	0.0034 J
Alkalinity, Total	mg/L	--	20	2.44	11.27	8.82	6.66	8	10	10

Location ID: GWM-3  
Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/12/2011	3/13/2012	9/5/2012	3/12/2013	9/25/2013	3/18/2014	9/16/2014	3/18/2015
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	0.13	0.09 J	ND U
Chemical Oxygen Demand (COD)	mg/L	--	11	ND	ND	9	ND	12	ND U	ND U
Chloride	mg/L	250	43	50.41	54.84	61.11	46.6	53.4	55.4	49.4
Hardness	mg/L	--	48	86.53	52.75	67	43.2	59	50	63
Nitrate-N	mg/L	10	3.2	2.19	3.3	2.72	2.69	3.1	3.6	3.3
pH	SU	8.5	4.72	4.78	4.53	5.82	4.73	5.12	5.23	5.07
Specific Conductance	umhos/cm	--	255	327	374	271	287	205	193.4	216
Sulfate	mg/L	250	14	22.73	31.95	32.83	26.55	25.5	28.1	29.5
Total Dissolved Solids	mg/L	500	110	188	164	148	119	93	144	189
Turbidity	NTU	5	131	0.77	2.05	4.6	ND	0.55	0.24	0.18

Location ID: GWM-3  
Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/15/2015	3/16/2016	9/22/2016	3/29/2017	9/21/2017	3/28/2018	9/20/2018	3/12/2019
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Arsenic, Total	mg/L	0.01	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Barium, Total	mg/L	2	0.081	0.086	0.094	0.095	0.085	0.085	0.085	0.091
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Cadmium, Total	mg/L	0.005	ND U	0.00068 J	0.00076 J	ND U	ND U	0.00054 J	0.00053 J	ND U
Calcium, Total	mg/L	--	9	9.5	9.3	9.3	8.5	9.1	9.1	10.4
Chromium, Total	mg/L	0.1	0.004	0.0082	0.014	0.0059	0.004	0.0038	0.0033	0.0047
Cobalt, Total	mg/L	--	0.0045 J	0.0062	0.013	0.0084	0.009	0.0069	0.0042 J	0.005 J
Copper, Total	mg/L	1.3	0.0046 J	0.0038 J	0.01	0.0051 J	0.016	0.0057	0.0069	0.0066
Iron, Total	mg/L	0.3	0.019 J	0.033 J	0.083	0.039 J	0.037 J	0.02 J	ND U	ND U
Lead, Total	mg/L	0.015	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Magnesium, Total	mg/L	--	8.1	8.8	8.6	8.8	7.5	8.2	8.2	7.9
Manganese, Total	mg/L	0.043	0.024	0.033	0.042	0.044	0.037	0.03	0.015	0.021
Mercury, Total	mg/L	0.002	0.00027 J	0.00033 J	0.0017	0.0004 J	0.00024 J	0.00027 J	0.00017 J	0.00019 J
Nickel, Total	mg/L	0.039	0.0034 J	0.0079	0.011	0.0067	0.0042 J	0.0035 J	0.003 J	0.0038 J
Potassium, Total	mg/L	--	2	2	2.1	2	1.9	2.1	2	2.2
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Sodium, Total	mg/L	--	27.1	31.1	33.4	31.1	27.5	30.8	29.1	29.7
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Zinc, Total	mg/L	0.6	0.0032 J	0.0072	0.0051 J	0.0057	0.0047 J	0.004 J	0.0044 J	0.0051 J
Alkalinity, Total	mg/L	--	11	12	11	11	11	12	13	11
Ammonia-N	mg/L	--	ND U	ND U	0.074 J	0.048 J	ND U	0.054 J	0.038 J	0.089 J
Chemical Oxygen Demand (COD)	mg/L	--	ND U	ND U	ND U	4 J	ND U	ND U	ND U	12 J
Chloride	mg/L	250	60.1	60.8	62.2	67.5	54.4	57.6	55.6	53.7
Hardness	mg/L	--	58	60	67	63	52.2	56.6	56.5	58.6
Nitrate-N	mg/L	10	2.9	2.6	2.7	2.5	2.7	3.2	3.3	4
pH	SU	8.5	5.02	5.25	5.14	5.01	5.19	5.33	5.24	5.22
Specific Conductance	umhos/cm	--	213	246	251	255	218	236	232	238
Sulfate	mg/L	250	32	31.6	30.6	33.2	33.3	32.4	30.8	30.4
Total Dissolved Solids	mg/L	500	148	176	177	172	173	143	141	186

Location ID: GWM-3										
Number of Sampling Dates: 48										
Parameter Name	Units	Compliance Limit	9/15/2015	3/16/2016	9/22/2016	3/29/2017	9/21/2017	3/28/2018	9/20/2018	3/12/2019
Turbidity	NTU	5	0.58	0.38	1.4	1.46	0.85	0.94	1.39	1.02

Location ID: GWM-3										
Number of Sampling Dates: 48										
Parameter Name	Units	Compliance Limit	10/1/2019	3/18/2020	9/24/2020	3/17/2021	9/9/2021	3/15/2022	9/16/2022	3/15/2023
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND U	ND U	ND U	ND U	0.0002 J	ND	ND	ND
Barium, Total	mg/L	2	0.092	0.081	0.069	0.2 R	0.082	0.078	0.068	0.067
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND U	ND U	ND U	0.00038 J	ND U	0.0012	0.0005 J	ND
Calcium, Total	mg/L	--	10.2	10.1	8.5	318 R	9.5	8.8	8	8.3
Chromium, Total	mg/L	0.1	0.003	0.003	0.0034	0.0056 R	0.0094	0.007	0.0055	0.0067
Cobalt, Total	mg/L	--	0.0044 J	0.0079	0.004 J	0.0054 J	0.0036 J	0.0084	0.0029 J	0.0037 J
Copper, Total	mg/L	1.3	0.0051 J	0.0058	0.0058	0.018 R	0.0048 J	0.0047 J	0.017	ND
Iron, Total	mg/L	0.3	ND U	ND U	ND U	4.9 R	ND U	0.085	0.041 J	0.043 J
Lead, Total	mg/L	0.015	ND U	0.00076 J	ND U	0.0012 J	ND U	ND	ND	ND
Magnesium, Total	mg/L	--	10.2	9.2	7.3	86.4 R	8.1	7.9	6.7	6.7
Manganese, Total	mg/L	0.043	0.022	0.018	0.015	2.3 R	0.025	0.018	0.012	0.012
Mercury, Total	mg/L	0.002	0.00031 J	ND U	0.00025 J	0.0018	ND U	0.00025 J	0.0012	0.00034 J
Nickel, Total	mg/L	0.039	0.0035 J	0.0032 J	0.0029 J	0.0046 J	0.0045 J	0.0038 J	0.004 J	0.004 J
Potassium, Total	mg/L	--	2.2	2.4	2	3.9 R	2.1	2.1	1.9	1.9
Selenium, Total	mg/L	0.05	ND U	0.0021 J	0.0019 J	ND U	0.0012 J	ND	ND	ND
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Sodium, Total	mg/L	--	34.6	35	28.4	706 R	33	31.1	20.8	19.1
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Zinc, Total	mg/L	0.6	0.0069	0.006	0.0069	0.0096 R	0.0097 J	0.006	0.011	0.0042 J
Alkalinity, Total	mg/L	--	18	20	17	19	17	18	18	14
Ammonia-N	mg/L	--	0.249	ND U	ND U	0.287	ND U	0.077 J	0.084 J	0.233
Chemical Oxygen Demand (COD)	mg/L	--	7 J	ND U	ND U	7 J	7 J	ND	ND	17
Chloride	mg/L	250	57.4	54	45.4	45.2	59.6	42.5	30.8	31.2
Hardness	mg/L	--	67.5	58.5	54	50	56.5	53.2	48.9	47
Nitrate-N	mg/L	10	3.1	2	1.5	1.8	2.2	1.7	1.8	2.1
pH	SU	8.5	5.18	5.24	5.28	5.17	4.99	5.26	4.72	5.04
Specific Conductance	umhos/cm	--	126.4	244	191.7	200	214	227	156.3	165.68
Sulfate	mg/L	250	31.3	31.8	28.6	31.6	35	30.5	26.2	24.2
Total Dissolved Solids	mg/L	500	210	188	152	166	210	157	125	88
Turbidity	NTU	5	0.44	1.29	0.98	11.4	1.39	1.08	3.98	8.1

# Historical Well Data Assessment Monitoring, Organochloride Pesticides

Name: Eastern Sanitary Landfill

Location ID: GWM-3			
Number of Sampling Dates: 1			
Parameter Name	Units	Compliance Limit	9/9/2021
4,4'-DDD	ug/L	0.0063	ND U
4,4'-DDE	ug/L	0.046	ND U
4,4'-DDT	ug/L	0.23	ND U
Aldrin	ug/L	0.00092	ND U
alpha-HCH (alpha-BHC)	ug/L	0.0072	ND U
beta-BHC	ug/L	0.025	ND U
Chlordane	ug/L	2	ND U
delta-BHC	ug/L	0.2	ND U
Dieldrin	ug/L	0.0018	ND U
Endosulfan I	ug/L	10	ND U
Endosulfan II	ug/L	10	ND U
Endosulfan Sulfate	ug/L	10	ND U
Endrin	ug/L	2	ND U
Endrin Aldehyde	ug/L	2	ND U
gamma-BHC	ug/L	0.2	ND U
Heptachlor	ug/L	0.4	ND U
Heptachlor Epoxide	ug/L	0.2	ND U
Methoxychlor	ug/L	40	ND U
Toxaphene	ug/L	3	ND U

# Historical Well Data Table I

Name: Eastern Sanitary Landfill

Location ID: GWM-4										
Number of Sampling Dates: 48										
Parameter Name	Units	Compliance Limit	10/26/1999	3/28/2000	10/17/2000	3/26/2001	10/29/2001	3/19/2002	9/12/2002	3/25/2003
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	1	1	1	2	3	ND
Bromochloromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	1	1	3	1
trans-1,4-dichloro-2-butene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	2	ND	5	2	2
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	1	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	18.9	15.5	ND	33	9	2	8	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-4

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/26/1999	3/28/2000	10/17/2000	3/26/2001	10/29/2001	3/19/2002	9/12/2002	3/25/2003
1,2,3-Trichloropropane	ug/L	–	ND	ND	ND	ND	ND	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	1	2	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-4

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	12/3/2003	3/23/2004	10/14/2004	4/20/2005	9/28/2005	3/15/2006	9/19/2006	4/12/2007
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	3	3	ND	ND	ND	3	2	2
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	3
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	1	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	2	1	ND	ND	ND	3	2	2
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	1	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	12	ND	ND	ND	8	7	8
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-4		Number of Sampling Dates: 48								
Parameter Name	Units	Compliance Limit	12/3/2003	3/23/2004	10/14/2004	4/20/2005	9/28/2005	3/15/2006	9/19/2006	4/12/2007
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	–	–	–	–	–	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromofom	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	2	ND	2

Location ID: GWM-4		Number of Sampling Dates: 48								
Parameter Name	Units	Compliance Limit	10/23/2007	3/18/2008	9/25/2008	3/17/2009	10/1/2009	4/15/2010	8/24/2010	3/15/2011
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	2	2	2	2	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	4	2	2	2.4
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	3	2	2	2	1	1	1	ND

Location ID: GWM-4		Number of Sampling Dates: 48								
Parameter Name	Units	Compliance Limit	10/23/2007	3/18/2008	9/25/2008	3/17/2009	10/1/2009	4/15/2010	8/24/2010	3/15/2011
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	1	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	7	7	6	5	ND	5	4	2.7
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	-	-	-	-	-	-	-	-	-
Vinyl acetate	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromofom	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorofom	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-4		Number of Sampling Dates: 48								
Parameter Name	Units	Compliance Limit	10/18/2011	2/28/2012	8/28/2012	2/26/2013	9/18/2013	3/20/2014	9/9/2014	3/16/2015
Acetone	ug/L	1400	ND	ND	ND	ND	ND	5.5 J	ND U	ND U
Acrylonitrile	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Benzene	ug/L	5	ND	1	ND	ND	ND	0.79 J	0.37 J	0.47 J
Bromochloromethane	ug/L	-	ND	4	ND	ND	ND	ND U	ND U	ND U
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	0.45 J	0.43 J	0.51 JB
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND U	ND U	ND U



Location ID: GWM-4

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/18/2011	2/28/2012	8/28/2012	2/26/2013	9/18/2013	3/20/2014	9/9/2014	3/16/2015
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	0.24 J	ND U	ND U
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND U	ND U	ND U
Dibromomethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	2.7	7	3	2	1	4	1.7	2.2
trans-1,4-dichloro-2-butene	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND	2	1	ND	ND	ND U	0.33 J	0.33 J
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND	1	ND	ND	ND	ND U	ND U	0.39 J
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	5	7	2	2	2	2.9	3.4	2.8
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND U	ND U	ND U
2-Hexanone	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Iodomethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND U	ND U	ND U
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND	1	ND	ND	ND	ND U	ND U	ND U
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND U	ND U	0.69 JB
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vinyl acetate	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND U	ND U	ND U
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND U	ND U	ND U
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U

Location ID: GWM-4  
 Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/9/2015	3/18/2016	9/20/2016	3/23/2017	9/18/2017	3/15/2018	9/17/2018	3/5/2019
Acetone	ug/L	1400	ND U	5.1 J	ND U	ND U	ND U	ND U	ND U	ND U
Acrylonitrile	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Benzene	ug/L	5	0.33 J	0.37 J	0.39 J	ND U	0.3 J	ND U	ND U	ND U
Bromochloromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromomethane	ug/L	0.75	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloromethane	ug/L	19	ND U	0.35 J	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Dibromomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	2	2.1	2.2	1.8	2	1.8	1.6	1.7
trans-1,4-dichloro-2-butene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	0.34 J	ND U	0.39 J	ND U	0.44 J	ND U
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	2.4	2.2	2	1.5	1.8	1.3	1.7	1.7
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
2-Hexanone	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Iodomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl acetate	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-4		Number of Sampling Dates: 48								
Parameter Name	Units	Compliance Limit	9/9/2015	3/18/2016	9/20/2016	3/23/2017	9/18/2017	3/15/2018	9/17/2018	3/5/2019
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-4		Number of Sampling Dates: 48								
Parameter Name	Units	Compliance Limit	9/24/2019	3/16/2020	9/22/2020	3/16/2021	9/14/2021	3/22/2022	9/13/2022	3/14/2023
Acetone	ug/L	1400	3.1 J	ND U	5 J	3.4 J	ND U	ND	ND	ND
Acrylonitrile	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Benzene	ug/L	5	0.25 J	0.58 J	ND U	ND U	ND U	ND	ND	ND
Bromochloromethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromomethane	ug/L	0.75	ND U	ND U	0.45 J	ND U	ND U	ND	ND	ND
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorobenzene	ug/L	100	ND U	0.22 J	ND U	ND U	ND U	ND	ND	ND
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloromethane	ug/L	19	ND U	ND U	0.72 J	ND U	ND U	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Dibromomethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	1.9	3.4	1.6	1.3	1.4	1.4	ND	1.3
trans-1,4-dichloro-2-butene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	0.34 J	0.33 J	ND U	ND U	ND U	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	2	1.3	1.6	1.1	1.3	1.1	0.78 J	1
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
2-Hexanone	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Iodomethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND

Location ID: GWM-4

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/24/2019	3/16/2020	9/22/2020	3/16/2021	9/14/2021	3/22/2022	9/13/2022	3/14/2023
1,1,1,2-Tetrachloroethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl acetate	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
o-Xylene	ug/L	10000	–	ND U	ND U	ND U	ND U	ND	ND	ND
mp-Xylene	ug/L	10000	–	ND U	ND U	ND U	ND U	ND	ND	ND
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloroform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND

## Historical Well Data Table II

Name: Eastern Sanitary Landfill

Location ID: GWM-4											
Number of Sampling Dates: 48											
Parameter Name	Units	Compliance Limit	10/26/1999	3/28/2000	10/17/2000	3/26/2001	10/29/2001	3/19/2002	9/12/2002	3/25/2003	
Antimony, Total	mg/L	0.006	--	ND	ND	ND	ND	ND	ND	ND	
Arsenic, Total	mg/L	0.01	--	ND	ND	ND	ND	ND	ND	ND	
Barium, Total	mg/L	2	ND	ND	0.029	0.052	0.054	0.05	0.049	0.044	
Beryllium, Total	mg/L	0.004	--	ND	ND	ND	ND	ND	ND	ND	
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	
Calcium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	
Cobalt, Total	mg/L	--	--	ND	0.011	ND	0.014	0.016	0.02	0.017	
Copper, Total	mg/L	1.3	--	ND	ND	0.017	ND	0.04	0.012	0.011	
Iron, Total	mg/L	0.3	ND	0.95	0.208	0.348	0.862	1.343	0.376	0.122	
Lead, Total	mg/L	0.015	ND	ND	0.002	ND	0.003	0.003	ND	ND	
Magnesium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Manganese, Total	mg/L	0.043	0.1	0.12	0.085	0.12	0.137	0.122	0.282	0.18	
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND	
Nickel, Total	mg/L	0.039	--	ND	ND	ND	ND	ND	0.013	ND	
Potassium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Selenium, Total	mg/L	0.05	--	ND	ND	ND	ND	ND	ND	ND	
Silver, Total	mg/L	0.0094	--	ND	ND	ND	ND	ND	ND	ND	
Sodium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Thallium, Total	mg/L	0.002	--	ND	ND	ND	ND	ND	ND	ND	
Vanadium, Total	mg/L	0.0086	--	ND	ND	ND	ND	ND	ND	ND	
Zinc, Total	mg/L	0.6	ND	ND	0.08	0.052	0.052	0.06	0.033	ND	
Alkalinity, Total	mg/L	--	--	41	42	37.5	35	40	50	40	
Ammonia-N	mg/L	--	0.2	0.2	ND	ND	ND	ND	ND	ND	
Chemical Oxygen Demand (COD)	mg/L	--	--	10	ND	ND	17	ND	12	ND	
Chloride	mg/L	250	41	41	43.58	40.46	46.89	44.64	73	44.24	
Hardness	mg/L	--	--	93	62	92.07	82.66	102.02	111.9	73.53	
Nitrate-N	mg/L	10	4	5.2	4.17	3.89	2.54	2.42	1.24	2.43	
pH	SU	8.5	--	--	5.13	5.6	5.23	5.25	5.11	4.94	
Specific Conductance	umhos/cm	--	--	280	ND	ND	288	322	441	295	
Sulfate	mg/L	250	10	10	8	ND	13	8.27	12.02	7.37	
Total Dissolved Solids	mg/L	500	152	156	166	163	161	167	218	150	
Turbidity	NTU	5	--	13	16	39.5	56	33	33	6.83	

Location ID: GWM-4											
Number of Sampling Dates: 48											
Parameter Name	Units	Compliance Limit	12/3/2003	3/23/2004	10/14/2004	4/20/2005	9/28/2005	3/15/2006	9/19/2006	4/12/2007	
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND	
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	
Barium, Total	mg/L	2	0.045	0.048	0.061	0.068	0.065	0.06	0.065	0.06	
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND	
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	

Location ID: GWM-4  
 Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	12/3/2003	3/23/2004	10/14/2004	4/20/2005	9/28/2005	3/15/2006	9/19/2006	4/12/2007
Calcium, Total	mg/L	--	--	--	--	--	--	--	--	43.55
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	--	0.021	0.019	0.02	0.032	0.033	0.034	0.038	0.03
Copper, Total	mg/L	1.3	ND	ND	ND	ND	ND	ND	0.018	0.019
Iron, Total	mg/L	0.3	ND	0.117	0.035	0.068	0.12	0.1	0.625	0.207
Lead, Total	mg/L	0.015	ND	ND	ND	ND	ND	ND	ND	ND
Magnesium, Total	mg/L	--	--	--	--	--	--	--	--	10
Manganese, Total	mg/L	0.043	0.189	0.155	0.153	0.242	0.276	0.292	8.25	0.283
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	ND	0.018	0.012	0.015	0.015	0.018	0.014	0.014
Potassium, Total	mg/L	--	--	--	--	--	--	--	--	22.35
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	--	--	--	--	--	--	--	--	69.2
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	ND	ND	0.087	0.021	0.04	0.071	0.1	0.07
Alkalinity, Total	mg/L	--	45	25	26.8	38.3	45.6	48.25	34	66.4
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	--	ND	ND	11	ND	ND	ND	ND	ND
Chloride	mg/L	250	50.31	38.71	93.39	116.87	75.09	85.96	61.9	85.82
Hardness	mg/L	--	78.08	59.27	62.2	76.49	100	79.88	92.15	149.92
Nitrate-N	mg/L	10	2.56	2.61	4.26	4.51	2.04	1.43	1.86	1.34
pH	SU	8.5	5.15	4.71	4.6	4.95	4.87	4.9	4.89	5.12
Specific Conductance	umhos/cm	--	335	273	295	760	398	526	346	465
Sulfate	mg/L	250	12.47	9.38	17.71	24.53	17.17	19.57	15.23	20.03
Total Dissolved Solids	mg/L	500	200	161	153	308	358	604	206	22
Turbidity	NTU	5	1.35	10.99	9.8	9.9	16.6	15	0	8.66

Location ID: GWM-4  
 Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/23/2007	3/18/2008	9/25/2008	3/17/2009	10/1/2009	4/15/2010	8/24/2010	3/15/2011
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total	mg/L	2	0.056	0.041	0.057	0.051	0.07	0.072	0.07	0.066
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND
Calcium, Total	mg/L	--	16.71	5.1	25.24	15.03	25.9	19.83	17.62	19.16
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	--	0.03	0.027	0.051	0.038	0.14	0.065	0.08	0.252
Copper, Total	mg/L	1.3	0.112	ND	0.01	0.021	0.041	0.028	ND	ND
Iron, Total	mg/L	0.3	0.21	ND	1.402	0.574	1.674	2.54	1.628	3.979
Lead, Total	mg/L	0.015	ND	ND	ND	ND	ND	ND	ND	ND
Magnesium, Total	mg/L	--	2.98	6.6	3.211	7.95	17.6	9.25	2.626	2.934
Manganese, Total	mg/L	0.043	0.262	0.248	0.321	0.352	0.714	0.458	0.529	1.345
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-4

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/23/2007	3/18/2008	9/25/2008	3/17/2009	10/1/2009	4/15/2010	8/24/2010	3/15/2011
Nickel, Total	mg/L	0.039	0.017	0.015	ND	0.014	0.019	0.016	0.022	0.019
Potassium, Total	mg/L	--	5.65	3.28	4	3.11	4.1	3.27	3.82	3.27
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	--	36.4	60.6	61.4	38.9	48	50.8	46.2	52.2
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	0.035	0.014	ND	0.013	ND	ND	ND	0.034
Alkalinity, Total	mg/L	--	39.6	42.2	52.7	47.2	89.4	36.9	161	46
Ammonia-N	mg/L	--	ND	ND	ND	ND	1.67	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	--	11	63	ND	10	ND	ND	ND	12
Chloride	mg/L	250	90.16	68.87	71.06	87.39	83.42	75.28	15.68	74.8
Hardness	mg/L	--	54	39.91	76.25	70.27	137.15	87.61	54.87	59.92
Nitrate-N	mg/L	10	1.22	0.77	0.08	0.79	0.03	0.15	ND	ND
pH	SU	8.5	4.91	4.9	5.44	5.39	5.54	5.01	5.25	5.26
Specific Conductance	umhos/cm	--	391	439	428	389	572	378	385	443
Sulfate	mg/L	250	19.8	15.3	19.94	20.68	18.41	21.2	16.1	20.21
Total Dissolved Solids	mg/L	500	336	272	232	232	226	198	216	248
Turbidity	NTU	5	13.4	6.76	89.8	8.1	8.2	30	22	9.1

Location ID: GWM-4

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/18/2011	2/28/2012	8/28/2012	2/26/2013	9/18/2013	3/20/2014	9/9/2014	3/16/2015
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND U	ND U	ND U
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	0.0013 J	0.001 J	0.0014 J
Barium, Total	mg/L	2	0.11	0.123	0.148	0.165	0.03	0.19	0.13	0.14
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND U	ND U	ND U
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND U	ND U	ND U
Calcium, Total	mg/L	--	19	2.36	24.61	40.16	5.11	31.9	52.2	41.5
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	0.0016 J	0.0024	0.0024
Cobalt, Total	mg/L	--	0.24	0.263	0.192	0.194	ND	0.33	0.079	0.095
Copper, Total	mg/L	1.3	ND	ND	ND	ND	ND	0.0033 J	0.0088	0.0036 J
Iron, Total	mg/L	0.3	4.6	7.949	8.767	7.262	0.439	63.6	4.1	4.8
Lead, Total	mg/L	0.015	ND	ND	ND	ND	ND	ND U	ND U	ND U
Magnesium, Total	mg/L	--	8.8	1.004	12.15	12.02	0.486	18.7	11.4	12.7
Manganese, Total	mg/L	0.043	1.4	1.74	1.094	1.138	0.02	3	0.92	0.91
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND U	ND U	ND U
Nickel, Total	mg/L	0.039	0.02	0.021	0.017	0.017	ND	0.022	0.01	0.014
Potassium, Total	mg/L	--	5.5	4.72	5.18	5.24	8.11	6.1	7.1	6.5
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND U	ND U	ND U
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND U	ND U	ND U
Sodium, Total	mg/L	--	36	4.8	76.4	50.4	20.44	47.1	52.7	56.2
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND U	ND U	ND U
Zinc, Total	mg/L	0.6	0.031	0.076	0.02	0.015	ND	0.0072	0.015	0.0086
Alkalinity, Total	mg/L	--	56	82.9	111.65	116.39	29.26	175	152	160

Location ID: GWM-4  
Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/18/2011	2/28/2012	8/28/2012	2/26/2013	9/18/2013	3/20/2014	9/9/2014	3/16/2015
Ammonia-N	mg/L	--	1	1.3	2.01	1.62	ND	0.642	1.63	1.65
Chemical Oxygen Demand (COD)	mg/L	--	15	ND	ND	ND	ND	ND U	25	ND U
Chloride	mg/L	250	63	85.76	76	89.53	8.93	74.1	98.2	99.1
Hardness	mg/L	--	76	100.35	111.48	149.8	14.8	255	191	189
Nitrate-N	mg/L	10	ND	ND	ND	0.15	ND	ND U	ND U	0.7
pH	SU	8.5	5.87	5.4	5.34	5.42	5.29	6.24	6.41	6.28
Specific Conductance	umhos/cm	--	442	532	765	497	735	659	591	561
Sulfate	mg/L	250	12	22.61	35	23.35	31.23	32.5	32.5	27.4
Total Dissolved Solids	mg/L	500	230	296	290	370	100	381	423	356
Turbidity	NTU	5	11.7	10.06	6.54	11.4	ND	1.2	9.01	3.61

Location ID: GWM-4  
Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/9/2015	3/18/2016	9/20/2016	3/23/2017	9/18/2017	3/15/2018	9/17/2018	3/5/2019
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND U	ND U	ND U	0.001 J
Arsenic, Total	mg/L	0.01	0.0014 J	0.0014 J	ND U	0.0012 J	0.0019 J	ND U	ND U	ND U
Barium, Total	mg/L	2	0.13	0.15	0.15	0.14	0.14	0.15	0.15	0.18
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Cadmium, Total	mg/L	0.005	ND U	ND U	ND U	ND U	0.0012	ND U	ND U	ND U
Calcium, Total	mg/L	--	46.4	49.5	59.3	46.7	47.2	48.5	59.6	60
Chromium, Total	mg/L	0.1	0.0023	0.0048	0.0032	0.0047	0.003	0.0033	0.0019 J	0.0019 J
Cobalt, Total	mg/L	--	0.083	0.053	0.075	0.034	0.07	0.039	0.04	0.054
Copper, Total	mg/L	1.3	0.009	0.0066	0.043	0.014	0.015	0.0038 J	0.02	0.011
Iron, Total	mg/L	0.3	6.2	5.5	7.7	3.8	7.6	4.8	2.7	3.1
Lead, Total	mg/L	0.015	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Magnesium, Total	mg/L	--	10.7	13.3	14.6	14.9	14.9	14.8	12.5	15.3
Manganese, Total	mg/L	0.043	0.84	0.67	0.78	0.42	0.79	0.49	0.62	0.82
Mercury, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Nickel, Total	mg/L	0.039	0.011	0.013	0.012	0.01	0.015	0.012	0.0098	0.011
Potassium, Total	mg/L	--	8.4	11.9	13.2	8.6	6.9	7.1	6.7	8.9
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Sodium, Total	mg/L	--	49.6	54.8	58.1	60.3	63.5	65.6	58	69
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	ND U	0.0022	ND U	ND U
Zinc, Total	mg/L	0.6	0.015	0.0076	0.016	0.016	0.024	0.0046 J	0.014	0.011
Alkalinity, Total	mg/L	--	148	164	192	146	160	162	198	170
Ammonia-N	mg/L	--	1.95	1.68	2.72	2.23	2.59	1.15	1.75	0.84
Chemical Oxygen Demand (COD)	mg/L	--	1 J	13	13	6 J	12	11	ND U	16
Chloride	mg/L	250	93.6	99.3	110	132	140	124	109	107
Hardness	mg/L	--	178	173	201	191	247	182	200	213
Nitrate-N	mg/L	10	ND U	0.6	ND U	1.4	0.32	1.1	0.1 J	1.2
pH	SU	8.5	6.26	6.39	6.44	6.53	6.22	6.57	6.62	6.7
Specific Conductance	umhos/cm	--	556	584	692	641	667	613	678	621
Sulfate	mg/L	250	30.4	29.4	34.5	32.9	32.3	29	33.4	31.8
Total Dissolved Solids	mg/L	500	355	352	457	411	446	366	363	538



Location ID: GWM-4											
Number of Sampling Dates: 48											
Parameter Name	Units	Compliance Limit	9/9/2015	3/18/2016	9/20/2016	3/23/2017	9/18/2017	3/15/2018	9/17/2018	3/5/2019	
Turbidity	NTU	5	2.72	1.36	3.46	2.64	0.73	3.33	4.27	2.85	

Location ID: GWM-4											
Number of Sampling Dates: 48											
Parameter Name	Units	Compliance Limit	9/24/2019	3/16/2020	9/22/2020	3/16/2021	9/14/2021	3/22/2022	9/13/2022	3/14/2023	
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND U	ND	ND	ND	
Arsenic, Total	mg/L	0.01	0.0018 J	0.0013 J	ND U	ND U	0.0007 J	ND	ND	ND	
Barium, Total	mg/L	2	0.15	0.25	0.14	0.18	0.16	0.16	0.15	0.15	
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	ND U	ND	ND	ND	
Cadmium, Total	mg/L	0.005	ND U	0.00044 J	ND U	ND U	ND U	ND	ND	ND	
Calcium, Total	mg/L	--	51.2	52	69.1	64.6	73	66.6	67	61.3	
Chromium, Total	mg/L	0.1	0.00086 J	0.0035	0.00089 J	0.00098 J	0.0051	0.00087 J	0.0014 J	0.0014 J	
Cobalt, Total	mg/L	--	0.06	0.25	0.031	0.02	0.036	0.029	0.022	0.05	
Copper, Total	mg/L	1.3	0.045	0.033	0.002 J	0.017	0.016	0.012	0.0042 J	0.0079	
Iron, Total	mg/L	0.3	4.7	89	0.028 J	2.3	2	1.4	0.51	1.8	
Lead, Total	mg/L	0.015	ND U	0.0023	ND U	ND U	ND U	ND	0.0016 J	ND	
Magnesium, Total	mg/L	--	12.8	26.3	14.7	16.2	15	14.1	13.3	13	
Manganese, Total	mg/L	0.043	0.72	3.2	0.62	0.46	0.62	0.64	0.53	0.76	
Mercury, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND	ND	ND	
Nickel, Total	mg/L	0.039	0.011	0.017	0.0081	0.0093	0.027	0.0096	0.0092	0.009	
Potassium, Total	mg/L	--	9.1	7.2	13.5	13.7	13	10.5	9.7	8.6	
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	ND U	ND	ND	ND	
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND	ND	ND	
Sodium, Total	mg/L	--	60.5	83	62.9	71.4	64	66.6	60.8	56.9	
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND	ND	ND	
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	ND U	ND	ND	ND	
Zinc, Total	mg/L	0.6	0.016	0.007	0.0069	0.0055 J	0.0081 J	0.0054 J	0.0035 J	0.0084	
Alkalinity, Total	mg/L	--	169	163	195	188	222	168	178	159	
Ammonia-N	mg/L	--	2.13	0.7	1.14	0.875	1.01	0.739	0.415	0.52	
Chemical Oxygen Demand (COD)	mg/L	--	ND U	22	ND U	11 J	9 J	ND	5 J	56	
Chloride	mg/L	250	111	172	104	106	111	127	107	112	
Hardness	mg/L	--	181	239	233	202	224	216	221	236	
Nitrate-N	mg/L	10	0.06 J	ND U	0.1 J	0.92	0.34	0.9 J	0.62 J	0.53 J	
pH	SU	8.5	6.38	6.68	6.49	6.67	6.57	6.57	6.25	6.45	
Specific Conductance	umhos/cm	--	643	627	650	663	743	687	707	759.99	
Sulfate	mg/L	250	32.8	28	31.9	31.4	32.5	31.5	29.6	29.2	
Total Dissolved Solids	mg/L	500	450	566	494	500	526	434	432	396	
Turbidity	NTU	5	2.01	2.19	1.41	1.29	0.7	1.23	3.18	0.41	

## Historical Well Data Assessment Monitoring, Organochloride Pesticides

Name: Eastern Sanitary Landfill

Location ID: GWM-4										
Number of Sampling Dates: 18										
Parameter Name	Units	Compliance Limit	9/9/2014	3/16/2015	9/9/2015	3/18/2016	9/20/2016	3/23/2017	9/18/2017	3/15/2018
4,4'-DDD	ug/L	0.0063	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4,4'-DDE	ug/L	0.046	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4,4'-DDT	ug/L	0.23	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Aldrin	ug/L	0.00092	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
alpha-HCH (alpha-BHC)	ug/L	0.0072	0.0086 J	0.0093 J	0.0073 J	ND U	0.0053 J	0.0045 J	ND U	ND U
beta-BHC	ug/L	0.025	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlordane	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
delta-BHC	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Dieldrin	ug/L	0.0018	0.014 J	0.022 J	0.014 J	0.0058 J	0.01 J	0.012 J	0.012 J	0.008
Endosulfan I	ug/L	10	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Endosulfan II	ug/L	10	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Endosulfan Sulfate	ug/L	10	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Endrin	ug/L	2	0.006 J	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Endrin Aldehyde	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
gamma-BHC	ug/L	0.2	0.006 J	ND U	0.0049 J	ND U	0.0051 J	ND U	0.0038 J	ND U
Heptachlor	ug/L	0.4	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Heptachlor Epoxide	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methoxychlor	ug/L	40	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Toxaphene	ug/L	3	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-4										
Number of Sampling Dates: 18										
Parameter Name	Units	Compliance Limit	9/17/2018	3/5/2019	9/24/2019	4/7/2020	9/22/2020	3/16/2021	9/14/2021	3/22/2022
4,4'-DDD	ug/L	0.0063	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND
4,4'-DDE	ug/L	0.046	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND
4,4'-DDT	ug/L	0.23	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND
Aldrin	ug/L	0.00092	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND
alpha-HCH (alpha-BHC)	ug/L	0.0072	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND
beta-BHC	ug/L	0.025	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND
Chlordane	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND
delta-BHC	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND
Dieldrin	ug/L	0.0018	0.0028 J	0.0021 J	ND U	0.017	0.015	0.0078	0.012	ND
Endosulfan I	ug/L	10	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND
Endosulfan II	ug/L	10	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND
Endosulfan Sulfate	ug/L	10	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND
Endrin	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND
Endrin Aldehyde	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND

Location ID: GWM-4										
Number of Sampling Dates: 18										
Parameter Name	Units	Compliance Limit	9/17/2018	3/5/2019	9/24/2019	4/7/2020	9/22/2020	3/16/2021	9/14/2021	3/22/2022
gamma-BHC	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND
Heptachlor	ug/L	0.4	ND U	ND U	ND U	ND U	ND U	ND U	0.0019 J	ND
Heptachlor Epoxide	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND
Methoxychlor	ug/L	40	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND
Toxaphene	ug/L	3	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND

Location ID: GWM-4										
Number of Sampling Dates: 18										
Parameter Name	Units	Compliance Limit	9/13/2022	3/14/2023						
4,4'-DDD	ug/L	0.0063	ND	ND						
4,4'-DDE	ug/L	0.046	ND	ND						
4,4'-DDT	ug/L	0.23	ND	ND						
Aldrin	ug/L	0.00092	ND	ND						
alpha-HCH (alpha-BHC)	ug/L	0.0072	ND	ND						
beta-BHC	ug/L	0.025	ND	ND						
Chlordane	ug/L	2	ND	ND						
delta-BHC	ug/L	0.2	ND	ND						
Dieldrin	ug/L	0.0018	0.0031	0.00669						
Endosulfan I	ug/L	10	ND	ND						
Endosulfan II	ug/L	10	ND	ND						
Endosulfan Sulfate	ug/L	10	ND	ND						
Endrin	ug/L	2	ND	ND						
Endrin Aldehyde	ug/L	2	ND	ND						
gamma-BHC	ug/L	0.2	ND	ND						
Heptachlor	ug/L	0.4	ND	ND						
Heptachlor Epoxide	ug/L	0.2	ND	ND						
Methoxychlor	ug/L	40	ND	ND						
Toxaphene	ug/L	3	ND	ND						

# Historical Well Data Table I

Name: Eastern Sanitary Landfill

Location ID: GWM-5A										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	10/26/1999	3/28/2000	10/17/2000	3/29/2001	9/17/2001	3/19/2002	9/12/2002	3/25/2003
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	5	2	ND	6	4
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	1	1	ND	1	2	1
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	1	1	1	1	1	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-5A

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/26/1999	3/28/2000	10/17/2000	3/29/2001	9/17/2001	3/19/2002	9/12/2002	3/25/2003
1,2,3-Trichloropropane	ug/L	–	ND	ND	ND	ND	ND	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-5A

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	9/17/2003	3/23/2004	9/27/2004	3/15/2005	9/28/2005	3/15/2006	9/19/2006	4/10/2007
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	2	2	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-5A

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	9/17/2003	3/23/2004	9/27/2004	3/15/2005	9/28/2005	3/15/2006	9/19/2006	4/10/2007
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	1	ND	ND	2	2	2
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	–	–	–	–	–	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromofom	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-5A

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	9/25/2007	3/18/2008	9/25/2008	3/17/2009	10/1/2009	4/13/2010	8/24/2010	3/3/2011
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	2	ND	1	1	ND

Location ID: GWM-5A

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	9/25/2007	3/18/2008	9/25/2008	3/17/2009	10/1/2009	4/13/2010	8/24/2010	3/3/2011
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	2	2	2	2	ND	ND	7	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	–	–	–	–	–	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-5A

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/4/2011	2/28/2012	8/28/2012	2/26/2013	9/19/2013	12/5/2013	3/19/2014	9/4/2014
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND U	ND U
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND U	ND U
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND U	ND U
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND U	ND U
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	0.5 J	0.76 J
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND U	ND U
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND U	ND U

Location ID: GWM-5A

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/4/2011	2/28/2012	8/28/2012	2/26/2013	9/19/2013	12/5/2013	3/19/2014	9/4/2014
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND U	ND U
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND U	ND U
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND U	ND U
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND U	ND U
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND	ND	1	ND	1	ND	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND	1	ND	ND	ND	ND	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND U	ND U
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	0.34 J	0.35 J
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND U	ND U
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND U	ND U
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND U	ND U
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND U	ND U
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND U	ND U
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND U	ND U
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	7	ND	ND	ND	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND U	ND U
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND U	ND U
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND U	ND U
1,1,1-Trichloroethane	ug/L	200	ND	7	ND	ND	ND	ND	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND U	ND U
Trichloroethene	ug/L	5	ND	ND	ND	1	ND	ND	ND U	ND U
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND U	ND U
1,2,3-Trichloropropane	ug/L	–	ND	ND	ND	ND	ND	ND	ND U	ND U
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND U	ND U
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND U	ND U
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND U	ND U
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND U	ND U
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND U	ND U
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND U	ND U
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND U	ND U



Location ID: GWM-5A

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/17/2015	9/11/2015	3/15/2016	9/21/2016	3/28/2017	9/19/2017	3/26/2018	9/18/2018
Acetone	ug/L	1400	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Acrylonitrile	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromochloromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromomethane	ug/L	0.75	ND U	ND U	ND U	ND U	ND U	0.51 JB	ND U	ND U
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloromethane	ug/L	19	ND U	ND U	0.51 J	ND U	ND U	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Dibromomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND U	ND U	ND U	0.51 J	ND U	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
2-Hexanone	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Iodomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-5A

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/17/2015	9/11/2015	3/15/2016	9/21/2016	3/28/2017	9/19/2017	3/26/2018	9/18/2018
Vinyl acetate	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-5A

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/4/2019	9/23/2019	3/19/2020	9/23/2020	3/19/2021	9/15/2021	3/16/2022	9/14/2022
Acetone	ug/L	1400	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Acrylonitrile	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Bromochloromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Bromomethane	ug/L	0.75	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Chloromethane	ug/L	19	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Dibromomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
2-Hexanone	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Iodomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND

Location ID: GWM-5A

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/4/2019	9/23/2019	3/19/2020	9/23/2020	3/19/2021	9/15/2021	3/16/2022	9/14/2022
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Trichlorofluoromethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,2,3-Trichloropropane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Vinyl acetate	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
o-Xylene	ug/L	10000	-	-	ND U	ND U	ND U	ND U	ND	ND
mp-Xylene	ug/L	10000	-	-	ND U	ND U	ND U	ND U	ND	ND
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Chloroform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND

Location ID: GWM-5A

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/16/2023							
Acetone	ug/L	1400	ND							
Acrylonitrile	ug/L	-	ND							
Benzene	ug/L	5	ND							
Bromochloromethane	ug/L	-	ND							
Bromomethane	ug/L	0.75	ND							
2-Butanone	ug/L	700	ND							
Carbon disulfide	ug/L	81	ND							
Carbon Tetrachloride	ug/L	5	ND							
Chlorobenzene	ug/L	100	ND							
Chloroethane	ug/L	2100	ND							
Chloromethane	ug/L	19	ND							
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND							
1,2-Dibromoethane	ug/L	0.05	ND							
Dibromomethane	ug/L	-	ND							
1,2-Dichlorobenzene	ug/L	600	ND							
1,4-Dichlorobenzene	ug/L	75	ND							
trans-1,4-dichloro-2-butene	ug/L	-	ND							
1,1-Dichloroethane	ug/L	2.8	ND							
1,2-Dichloroethane	ug/L	5	ND							

Location ID: GWM-5A

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/16/2023						
1,1-Dichloroethene	ug/L	7	ND						
cis-1,2-Dichloroethene	ug/L	70	ND						
trans-1,2-Dichloroethene	ug/L	100	ND						
Methylene Chloride	ug/L	5	ND						
Methyl t-Butyl Ether	ug/L	20	ND						
1,2-Dichloropropane	ug/L	5	ND						
trans-1,3-Dichloropropene	ug/L	–	ND						
cis-1,3-Dichloropropene	ug/L	–	ND						
Ethylbenzene	ug/L	700	ND						
2-Hexanone	ug/L	–	ND						
Iodomethane	ug/L	–	ND						
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND						
Styrene	ug/L	100	ND						
1,1,1,2-Tetrachloroethane	ug/L	–	ND						
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND						
Tetrachloroethene	ug/L	5	ND						
Toluene	ug/L	1000	ND						
1,1,1-Trichloroethane	ug/L	200	ND						
1,1,2-Trichloroethane	ug/L	5	ND						
Trichloroethene	ug/L	5	ND						
Trichlorofluoromethane	ug/L	–	ND						
1,2,3-Trichloropropane	ug/L	–	ND						
Vinyl acetate	ug/L	–	ND						
Vinyl chloride	ug/L	2	ND						
Total Xylenes	ug/L	10000	ND						
o-Xylene	ug/L	10000	ND						
mp-Xylene	ug/L	10000	ND						
Bromodichloromethane	ug/L	80	ND						
Chlorodibromomethane	ug/L	80	ND						
Bromoform	ug/L	80	ND						
Chloroform	ug/L	80	ND						

## Historical Well Data Table II

Name: Eastern Sanitary Landfill

Location ID: GWM-5A										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	10/26/1999	3/28/2000	10/17/2000	3/29/2001	9/17/2001	3/19/2002	9/12/2002	3/25/2003
Antimony, Total	mg/L	0.006	-	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	mg/L	0.01	-	ND	ND	ND	ND	ND	ND	ND
Barium, Total	mg/L	2	ND	ND	0.047	ND	0.046	0.069	0.064	0.067
Beryllium, Total	mg/L	0.004	-	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND
Calcium, Total	mg/L	-	-	-	-	-	-	-	-	-
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	-	-	ND	ND	ND	ND	ND	ND	ND
Copper, Total	mg/L	1.3	-	ND	0.011	ND	ND	0.018	0.027	0.035
Iron, Total	mg/L	0.3	ND	0.24	0.128	ND	0.029	0.185	0.152	0.068
Lead, Total	mg/L	0.015	ND	ND	0.003	ND	ND	ND	0.002	0.002
Magnesium, Total	mg/L	-	-	-	-	-	-	-	-	-
Manganese, Total	mg/L	0.043	ND	0.05	0.04	ND	0.036	0.027	0.033	0.029
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	-	ND	ND	ND	ND	ND	0.012	ND
Potassium, Total	mg/L	-	-	-	-	-	-	-	-	-
Selenium, Total	mg/L	0.05	-	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	-	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	-	-	-	-	-	-	-	-	-
Thallium, Total	mg/L	0.002	-	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	-	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	ND	ND	0.052	ND	0.02	0.038	0.055	0.018
Alkalinity, Total	mg/L	-	-	15	15	32	15	10	12	32
Ammonia-N	mg/L	-	0.2	0.2	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	-	-	10	ND	ND	7	ND	ND	ND
Chloride	mg/L	250	22	22	26.85	24.92	33.29	25.08	26.78	35.42
Hardness	mg/L	-	-	70	72	83.05	56.8	43.84	52.7	78.82
Nitrate-N	mg/L	10	2.4	3.1	2.29	2.24	2.32	1.65	1.59	1.56
pH	SU	8.5	-	-	4.95	5.5	4.9	4.92	4.6	5.07
Specific Conductance	umhos/cm	-	-	167	ND	ND	175	178	210	277
Sulfate	mg/L	250	10	12.3	17	11	18	10.07	10.66	16.31
Total Dissolved Solids	mg/L	500	80	92	95	138	133	88	18	144
Turbidity	NTU	5	-	4	3	6.2	3.82	4.6	7.5	2.54

Location ID: GWM-5A										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	9/17/2003	3/23/2004	9/27/2004	3/15/2005	9/28/2005	3/15/2006	9/19/2006	4/10/2007
Antimony, Total	mg/L	0.006	ND	ND	ND	0.002	ND	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total	mg/L	2	0.05	0.07	0.086	0.081	0.07	0.062	0.074	0.072
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-5A

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	9/17/2003	3/23/2004	9/27/2004	3/15/2005	9/28/2005	3/15/2006	9/19/2006	4/10/2007
Calcium, Total	mg/L	-	-	-	-	-	-	-	-	26.05
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	-	ND	ND	ND	ND	ND	0.014	ND	ND
Copper, Total	mg/L	1.3	ND	ND	ND	ND	ND	ND	0.025	0.019
Iron, Total	mg/L	0.3	0.038	0.072	0.063	0.124	0.058	0.071	0.173	0.04
Lead, Total	mg/L	0.015	ND	0.006	0.003	ND	ND	ND	0.003	ND
Magnesium, Total	mg/L	-	-	-	-	-	-	-	-	12.25
Manganese, Total	mg/L	0.043	0.015	0.02	0.014	0.036	0.039	0.066	0.294	0.065
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	0.014	0.014	ND	0.012	0.017	0.024	0.022	0.016
Potassium, Total	mg/L	-	-	-	-	-	-	-	-	6.95
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	-	-	-	-	-	-	-	-	39.8
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	0.042	ND	0.161	0.123	0.072	0.054	0.082	0.096
Alkalinity, Total	mg/L	-	32	28	24	23.55	19.6	16.6	18	21.5
Ammonia-N	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	-	ND	14	ND	ND	ND	ND	ND	ND
Chloride	mg/L	250	47.13	40.05	56.29	38.26	45.97	55.35	51.88	47.16
Hardness	mg/L	-	98.25	93.03	79.31	78.04	99.75	55.28	108.54	115.49
Nitrate-N	mg/L	10	1.46	1.3	1.82	1.73	2.26	1.63	1.5	1.53
pH	SU	8.5	4.95	4.91	4.54	4.71	4.58	4.59	4.48	4.61
Specific Conductance	umhos/cm	-	462	316	254	229	304	309	311	303
Sulfate	mg/L	250	30.14	24.98	21.53	16.21	30.26	33.93	28.09	25.77
Total Dissolved Solids	mg/L	500	285	189	155	243	136	152	192	782
Turbidity	NTU	5	2.89	4.77	4.6	3.43	9.69	5.8	5.72	3.87

Location ID: GWM-5A

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	9/25/2007	3/18/2008	9/25/2008	3/17/2009	10/1/2009	4/13/2010	8/24/2010	3/3/2011
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total	mg/L	2	0.068	0.051	0.054	0.046	0.055	0.05	0.044	0.047
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND
Calcium, Total	mg/L	-	18.35	6.7	24.25	14.84	26.16	25.61	23.81	20.88
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	-	ND	ND	0.013	ND	0.014	0.025	ND	ND
Copper, Total	mg/L	1.3	ND	0.04	0.065	ND	ND	ND	0.04	0.014
Iron, Total	mg/L	0.3	ND	ND	0.106	0.008	0.499	0.112	0.016	0.049
Lead, Total	mg/L	0.015	ND	ND	ND	ND	ND	ND	ND	ND
Magnesium, Total	mg/L	-	19.05	9.95	3308	11.55	14.65	11.7	2.718	11.35
Manganese, Total	mg/L	0.043	0.073	0.121	0.147	0.091	0.114	0.134	0.16	0.133

Location ID: GWM-5A		Number of Sampling Dates: 49									
Parameter Name	Units	Compliance Limit	9/25/2007	3/18/2008	9/25/2008	3/17/2009	10/1/2009	4/13/2010	8/24/2010	3/3/2011	
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND	
Nickel, Total	mg/L	0.039	0.02	0.018	0.014	0.014	0.018	0.013	0.017	0.015	
Potassium, Total	mg/L	-	4.25	2.3	3.08	2.71	3.55	2.95	3.48	4.25	
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND	
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND	
Sodium, Total	mg/L	-	43.2	30.2	47.4	30.5	20.2	37.6	35	36.5	
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND	
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND	
Zinc, Total	mg/L	0.6	0.027	0.047	ND	0.02	ND	0.026	ND	0.028	
Alkalinity, Total	mg/L	-	19.8	18.2	33.4	37.3	61.4	42.8	42.7	36.6	
Ammonia-N	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
Chemical Oxygen Demand (COD)	mg/L	-	12	21	ND	ND	ND	ND	ND	10	
Chloride	mg/L	250	51.27	52.67	59.25	70.07	80.14	57.16	67	66.68	
Hardness	mg/L	-	124.27	57.7	74.17	84.62	125.65	112.13	70.65	98.88	
Nitrate-N	mg/L	10	1.68	1.47	1.64	1.88	1.83	1.26	1.38	1.09	
pH	SU	8.5	4.64	4.61	5.23	5.29	5.4	4.96	5.19	5.01	
Specific Conductance	umhos/cm	-	320	348	376	364	436	312	386	363	
Sulfate	mg/L	250	25.26	22.52	28.58	31.49	30.62	19.6	22.72	22.28	
Total Dissolved Solids	mg/L	500	368	242	182	254	234	178	202	160	
Turbidity	NTU	5	0.11	1.47	8.93	2.4	4.6	3.3	1.3	1.3	

Location ID: GWM-5A		Number of Sampling Dates: 49									
Parameter Name	Units	Compliance Limit	10/4/2011	2/28/2012	8/28/2012	2/26/2013	9/19/2013	12/5/2013	3/19/2014	9/4/2014	
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND U	0.0008 J	
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND U	ND U	
Barium, Total	mg/L	2	0.12	0.134	0.132	0.173	0.36	0.13	0.11	0.1	
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND U	ND U	
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND U	ND U	
Calcium, Total	mg/L	-	24	3.41	21.73	37.84	37.13	43.62	57.3	44.8	
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	0.005	0.0025	
Cobalt, Total	mg/L	-	ND	ND	ND	0.012	0.02	ND	0.014	0.027	
Copper, Total	mg/L	1.3	ND	ND	ND	ND	ND	ND	0.0062	0.0077	
Iron, Total	mg/L	0.3	ND	0.089	0.296	0.342	4.576	0.239	0.66	1.9	
Lead, Total	mg/L	0.015	ND	ND	ND	ND	ND	ND	0.0012 J	ND U	
Magnesium, Total	mg/L	-	11	1.123	9.668	9.907	20.02	8.26	9.8	10.9	
Manganese, Total	mg/L	0.043	0.21	0.219	0.247	0.373	4.89	0.23	0.3	0.71	
Mercury, Total	mg/L	0.002	0.0005	0.0006	0.0009	ND	ND	ND	0.0008	0.00061	
Nickel, Total	mg/L	0.039	0.015	0.014	0.012	0.015	ND	0.011	0.031	0.014	
Potassium, Total	mg/L	-	4.6	3.87	4.09	3.64	4.8	3.43	4	4.2	
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND U	ND U	
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	-	ND U	ND U	
Sodium, Total	mg/L	-	27	3.3	29.6	31.5	244.2	24.11	25.3	27.3	
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND U	ND U	
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND U	ND U	

Location ID: GWM-5A

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/4/2011	2/28/2012	8/28/2012	2/26/2013	9/19/2013	12/5/2013	3/19/2014	9/4/2014
Zinc, Total	mg/L	0.6	0.024	0.016	0.017	0.015	0.04	0.01	0.0073	0.012
Alkalinity, Total	mg/L	-	58	61.95	54.41	65.11	77.33	102.39	157	106
Ammonia-N	mg/L	-	ND	ND	ND	ND	ND	ND	0.26	ND U
Chemical Oxygen Demand (COD)	mg/L	-	13	ND	ND	ND	ND	ND	ND U	10
Chloride	mg/L	250	68	76.25	48	64.1	58.97	57.91	53	72.6
Hardness	mg/L	-	120	131.56	94.07	135.3	175.2	142.9	196	223
Nitrate-N	mg/L	10	1.5	1.25	1.7	1.06	0.66	0.58	0.3	0.3
pH	SU	8.5	5.21	5.14	5	5.11	5.37	6.11	6.33	5.98
Specific Conductance	umhos/cm	-	441	416	456	357	443	477	267	394
Sulfate	mg/L	250	23	25.38	26	22.76	20.24	21.06	23.5	30
Total Dissolved Solids	mg/L	500	210	236	228	246	77	-	291	256
Turbidity	NTU	5	2.3	5.69	5.58	3.51	ND	0.32	1.1	9.46

Location ID: GWM-5A

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/17/2015	9/11/2015	3/15/2016	9/21/2016	3/28/2017	9/19/2017	3/26/2018	9/18/2018
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Arsenic, Total	mg/L	0.01	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Barium, Total	mg/L	2	0.099	0.099	0.095	0.092	0.09	0.086	0.081	0.12
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Cadmium, Total	mg/L	0.005	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Calcium, Total	mg/L	-	43.6	39.9	38	38.4	31.5	30	34.5	47.5
Chromium, Total	mg/L	0.1	0.0017 J	0.0019 J	0.0016 J	0.0029	0.0016 J	0.0021 J	0.0017 J	ND U
Cobalt, Total	mg/L	-	0.0086	0.012	0.015	0.015	0.012	0.023	0.018	0.058
Copper, Total	mg/L	1.3	0.0075	0.01	0.015	0.0089	0.0063	0.011	0.0055 J	0.0072
Iron, Total	mg/L	0.3	0.87	1.1	1.1	1.3	0.51	2	0.69	3.1
Lead, Total	mg/L	0.015	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Magnesium, Total	mg/L	-	8.7	10	9	8.8	7.6	8.3	8.7	12.1
Manganese, Total	mg/L	0.043	0.3	0.67	0.57	0.56	0.4	0.71	0.55	2
Mercury, Total	mg/L	0.002	0.00064	0.00066	0.00083	0.00088	0.00091	0.0012	0.00095	0.00087
Nickel, Total	mg/L	0.039	0.008	0.012	0.0089	0.0081	0.0077	0.01	0.0089	0.015
Potassium, Total	mg/L	-	4.2	4.4	3.9	3.7	3.5	3.1	3.5	3.7
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Silver, Total	mg/L	0.0094	ND U	ND U	0.0069	ND U	ND U	ND U	ND U	ND U
Sodium, Total	mg/L	-	28.1	34.3	30.1	28.3	26	25.2	28.9	37
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Zinc, Total	mg/L	0.6	0.0063	0.0075	0.0093	0.0055 J	0.0042 J	0.0071	0.0049 J	0.008
Alkalinity, Total	mg/L	-	150	101	101	102	86	90	98	144
Ammonia-N	mg/L	-	ND U	ND U	ND U	ND U	ND U	0.01 J	0.158	0.066 J
Chemical Oxygen Demand (COD)	mg/L	-	ND U	9	1 J	8	5 J	9	ND U	ND U
Chloride	mg/L	250	58.7	67.1	65.2	63.5	64.8	59.2	62	88.4
Hardness	mg/L	-	189	165	134	93	113	109	122	169
Nitrate-N	mg/L	10	0.22	0.24	0.22	0.18 J	0.16 J	0.12 J	0.1 J	0.16 J
pH	SU	8.5	6.02	5.8	6.06	5.84	5.93	5.79	5.96	6.03



Location ID: GWM-5A										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	3/17/2015	9/11/2015	3/15/2016	9/21/2016	3/28/2017	9/19/2017	3/26/2018	9/18/2018
Specific Conductance	umhos/cm	-	376	380	373	371	332	325	306	494
Sulfate	mg/L	250	26	29.3	26.7	20.1	24.2	22.2	24.4	29.8
Total Dissolved Solids	mg/L	500	266	281	266	257	205	215	202	300
Turbidity	NTU	5	1.87	1.9	0.58	2.05	0.85	0.5	1.93	1.52

Location ID: GWM-5A										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	3/4/2019	9/23/2019	3/19/2020	9/23/2020	3/19/2021	9/15/2021	3/16/2022	9/14/2022
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Arsenic, Total	mg/L	0.01	ND U	ND U	ND U	ND U	ND U	0.00028 J	ND	ND
Barium, Total	mg/L	2	0.14	0.12	0.1	0.11	0.11	0.11	0.095	0.1
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Cadmium, Total	mg/L	0.005	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Calcium, Total	mg/L	-	56	37.4	43.2	31.4	45.3	29	23.2	33.3
Chromium, Total	mg/L	0.1	0.0011 J	0.00095 J	0.0041	0.0024	0.00098 J	0.012	0.0016 J	0.0035
Cobalt, Total	mg/L	-	0.08	0.087	0.057	0.054	0.033	0.047	0.075	0.046
Copper, Total	mg/L	1.3	0.009	0.0093	0.0078	0.0044 J	ND U	ND U	ND	ND
Iron, Total	mg/L	0.3	2.7	3.3	1.2	2.4	0.65	1.3	1.8	1.5
Lead, Total	mg/L	0.015	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Magnesium, Total	mg/L	-	13.6	12.5	9.7	10.6	10.1	11	9	9.2
Manganese, Total	mg/L	0.043	1.9	1.8	1.1	1.2	0.76	1	1.1	0.82
Mercury, Total	mg/L	0.002	ND U	0.00076	0.00033 J	0.00082	0.00077	0.00094	0.00088	0.00048 J
Nickel, Total	mg/L	0.039	0.013	0.012	0.011	0.014	0.013	0.014	0.012	0.013
Potassium, Total	mg/L	-	5.3	4.9	4.1	3.6	3.7	3.9	3.6	3.7
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Sodium, Total	mg/L	-	41.7	39.7	32	34.1	33.5	29	25.3	29.1
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Zinc, Total	mg/L	0.6	0.0076	0.01	0.0085	0.0084	0.0057	0.01	0.0099	0.006
Alkalinity, Total	mg/L	-	124	105	130	77	126	78	70	80
Ammonia-N	mg/L	-	0.149	0.118	0.041 J	ND U	ND U	0.087 J	0.186	0.128
Chemical Oxygen Demand (COD)	mg/L	-	9 J	ND U	ND U	11 J	5 J	7 J	ND	7 J
Chloride	mg/L	250	77.6	71.5	66.8	70.9	64.1	57.3	50.9	59.9
Hardness	mg/L	-	196	145	150	130	156	104	92.4	130
Nitrate-N	mg/L	10	0.08 J	ND U	0.1 J	0.08 J	0.08 J	0.08 J	ND	ND
pH	SU	8.5	6.11	5.81	5.72	5.66	6.08	5.69	5.61	5.53
Specific Conductance	umhos/cm	-	465	438	366	326	390	341	310	321.8
Sulfate	mg/L	250	29	29.3	26.7	28.5	28.3	29.4	22.5	22.8
Total Dissolved Solids	mg/L	500	346	305	246	266	264	220	220	190
Turbidity	NTU	5	7.4	4.33	5.7	2.74	1.28	1.64	0.72	3.78

Location ID: GWM-5A  
 Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/16/2023
Antimony, Total	mg/L	0.006	ND
Arsenic, Total	mg/L	0.01	ND
Barium, Total	mg/L	2	0.099
Beryllium, Total	mg/L	0.004	ND
Cadmium, Total	mg/L	0.005	ND
Calcium, Total	mg/L	-	23.9
Chromium, Total	mg/L	0.1	0.0045
Cobalt, Total	mg/L	-	0.073
Copper, Total	mg/L	1.3	ND
Iron, Total	mg/L	0.3	2
Lead, Total	mg/L	0.015	ND
Magnesium, Total	mg/L	-	8.5
Manganese, Total	mg/L	0.043	1
Mercury, Total	mg/L	0.002	0.00045 J
Nickel, Total	mg/L	0.039	0.013
Potassium, Total	mg/L	-	3.3
Selenium, Total	mg/L	0.05	ND
Silver, Total	mg/L	0.0094	ND
Sodium, Total	mg/L	-	27.1
Thallium, Total	mg/L	0.002	ND
Vanadium, Total	mg/L	0.0086	ND
Zinc, Total	mg/L	0.6	0.0085
Alkalinity, Total	mg/L	-	57
Ammonia-N	mg/L	-	ND
Chemical Oxygen Demand (COD)	mg/L	-	12 J
Chloride	mg/L	250	59.1
Hardness	mg/L	-	95.2
Nitrate-N	mg/L	10	ND
pH	SU	8.5	5.44
Specific Conductance	umhos/cm	-	335.3
Sulfate	mg/L	250	22.4
Total Dissolved Solids	mg/L	500	218
Turbidity	NTU	5	0.85

# Historical Well Data Table I

Name: Eastern Sanitary Landfill

Location ID: GWM-6										
Number of Sampling Dates: 48										
Parameter Name	Units	Compliance Limit	10/29/1999	3/31/2000	10/19/2000	3/30/2001	10/25/2001	4/16/2002	9/27/2002	4/2/2003
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	13.8	27.9	24	11	12	18	22	ND
Bromochloromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	26.1	42.6	ND	20	1	34	7	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	5.4	9.7	11	7	2	2	ND	ND
2-Hexanone	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-6  
Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/29/1999	3/31/2000	10/19/2000	3/30/2001	10/25/2001	4/16/2002	9/27/2002	4/2/2003
1,2,3-Trichloropropane	ug/L	–	ND	ND	ND	ND	ND	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	40.3	63.1	44	13	6	8	4	3
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-6  
Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	12/3/2003	3/23/2004	11/17/2004	6/7/2005	11/10/2005	3/22/2006	9/26/2006	4/26/2007
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	11	28	9	50	50	44	44	46
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	2	ND	ND	ND	48	54	50
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	4	3	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-6		Number of Sampling Dates: 48								
Parameter Name	Units	Compliance Limit	12/3/2003	3/23/2004	11/17/2004	6/7/2005	11/10/2005	3/22/2006	9/26/2006	4/26/2007
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	–	–	–	–	–	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	3	1	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromofom	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-6		Number of Sampling Dates: 48								
Parameter Name	Units	Compliance Limit	11/27/2007	4/9/2008	10/16/2008	4/2/2009	10/14/2009	5/11/2010	9/28/2010	3/22/2011
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	22	21	35	42	48	33	5	4.8
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-6		Number of Sampling Dates: 48								
Parameter Name	Units	Compliance Limit	11/27/2007	4/9/2008	10/16/2008	4/2/2009	10/14/2009	5/11/2010	9/28/2010	3/22/2011
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	14	14	21	30	4	19	4	3
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	1	6	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	–	–	–	–	–	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromofom	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorofom	ug/L	80	ND	ND	ND	2	ND	ND	ND	ND

Location ID: GWM-6		Number of Sampling Dates: 48								
Parameter Name	Units	Compliance Limit	10/18/2011	3/21/2012	9/13/2012	3/19/2013	9/24/2013	3/21/2014	9/17/2014	3/19/2015
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND U	ND U	ND U
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Benzene	ug/L	5	9.8	14	15	21	22	5	8.6	16.8
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND U	ND U	ND U
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND U	ND U	ND U

Location ID: GWM-6

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/18/2011	3/21/2012	9/13/2012	3/19/2013	9/24/2013	3/21/2014	9/17/2014	3/19/2015
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND U	ND U	ND U
Dibromomethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND	1	ND	ND	ND	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	5.4	4	4	6	5	2.6	3.5	5.1
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Ethylbenzene	ug/L	700	2.8	ND	ND	ND	16	1.5	3.8	6.3
2-Hexanone	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Iodomethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND U	ND U	ND U
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Toluene	ug/L	1000	ND	ND	ND	ND	ND	0.37 J	0.69 J	1.4
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vinyl acetate	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND U	ND U	ND U
Total Xylenes	ug/L	10000	ND	ND	8	ND	ND	ND U	1.5 J	3.2
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U

Location ID: GWM-6  
 Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/15/2015	3/21/2016	9/26/2016	3/31/2017	9/21/2017	3/30/2018	9/26/2018	3/13/2019
Acetone	ug/L	1400	ND U	4.9 J	3.5 J	ND U	ND U	3.5 JB	ND U	5.4 J
Acrylonitrile	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Benzene	ug/L	5	13.4	11.4	8.5	10.5	32.2	37.2	40.2	39.5
Bromochloromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromomethane	ug/L	0.75	0.48 J	ND U	ND U	ND U	ND U	ND U	ND U	ND U
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloromethane	ug/L	19	0.36 J	0.49 J	0.42 J	ND U	ND U	ND U	ND U	0.53 J
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Dibromomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	5.2	5.7	3.5	5	10	11.7	12.2	13.1
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Ethylbenzene	ug/L	700	7.8	6.6	3.6	8.9	27.2	39.9	46	47.4
2-Hexanone	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Iodomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Toluene	ug/L	1000	1.7	0.87 J	0.61 J	1.5	5.1	4.2	5.7	13.3
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl acetate	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U



Location ID:		GWM-6								
Number of Sampling Dates:		48								
Parameter Name	Units	Compliance Limit	9/15/2015	3/21/2016	9/26/2016	3/31/2017	9/21/2017	3/30/2018	9/26/2018	3/13/2019
Total Xylenes	ug/L	10000	4.3	3.2	1.8 J	5.3	18	21	17.4	67.4
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID:		GWM-6								
Number of Sampling Dates:		48								
Parameter Name	Units	Compliance Limit	10/3/2019	4/3/2020	9/30/2020	3/22/2021	9/16/2021	3/24/2022	9/16/2022	3/17/2023
Acetone	ug/L	1400	ND U	4.3 JB	40.4	7 JB	ND U	ND	ND	ND
Acrylonitrile	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Benzene	ug/L	5	23.7	10	26.1	29.6	12.4	24.9	22	11.1
Bromochloromethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromomethane	ug/L	0.75	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
2-Butanone	ug/L	700	ND U	ND U	4.2 J	ND U	ND U	ND	ND	ND
Carbon disulfide	ug/L	81	ND U	ND U	0.24 J	ND U	ND U	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	0.33 JB	ND	ND	ND
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloromethane	ug/L	19	ND U	0.41 J	0.64 J	ND U	ND U	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Dibromomethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	7.7	3.7	7.2	8.3	3.9	7.7	6.7	4.8
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Ethylbenzene	ug/L	700	23.7	11.9	31.6	41.4	16.2	28.8	28.1	11.9
2-Hexanone	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Iodomethane	ug/L	-	ND U	ND U	0.59 J	ND U	ND U	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Styrene	ug/L	100	ND U	ND U	0.58 J	ND U	ND U	ND	ND	ND

Location ID: GWM-6

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/3/2019	4/3/2020	9/30/2020	3/22/2021	9/16/2021	3/24/2022	9/16/2022	3/17/2023
1,1,1,2-Tetrachloroethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Toluene	ug/L	1000	7.2	3.1	7.3	9.4	3.1	2	0.75 J	0.28 J
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl acetate	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Total Xylenes	ug/L	10000	42.6	22.2	56.7	74.1	23.3	14.1	3.7	ND
o-Xylene	ug/L	10000	–	10	19.3	17.3	6.6	ND	ND	ND
mp-Xylene	ug/L	10000	–	12.2	37.4	56.8	16.7	14.1	3.7	ND
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloroform	ug/L	80	ND U	ND U	ND U	0.29 J	ND U	0.22 JB	ND	ND

## Historical Well Data Table II

Name: Eastern Sanitary Landfill

Location ID: GWM-6		Number of Sampling Dates: 48									
Parameter Name	Units	Compliance Limit	10/29/1999	3/31/2000	10/19/2000	3/30/2001	10/25/2001	4/16/2002	9/27/2002	4/2/2003	
Antimony, Total	mg/L	0.006	--	ND	ND	ND	ND	ND	ND	ND	
Arsenic, Total	mg/L	0.01	--	ND	ND	ND	ND	ND	ND	ND	
Barium, Total	mg/L	2	ND	ND	ND	0.017	0.022	0.041	0.05	0.046	
Beryllium, Total	mg/L	0.004	--	ND	ND	ND	ND	ND	ND	ND	
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	
Calcium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	
Cobalt, Total	mg/L	--	--	ND	ND	ND	ND	ND	ND	ND	
Copper, Total	mg/L	1.3	--	ND	0.03	0.055	ND	0.015	0.023	0.018	
Iron, Total	mg/L	0.3	ND	0.34	0.226	ND	0.078	0.29	0.096	0.037	
Lead, Total	mg/L	0.015	ND	ND	0.004	ND	0.002	0.002	0.002	ND	
Magnesium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Manganese, Total	mg/L	0.043	ND	ND	0.465	0.083	0.045	0.033	0.056	0.07	
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND	
Nickel, Total	mg/L	0.039	--	ND	ND	ND	ND	ND	ND	ND	
Potassium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Selenium, Total	mg/L	0.05	--	ND	ND	ND	ND	ND	ND	ND	
Silver, Total	mg/L	0.0094	--	ND	ND	ND	ND	ND	ND	ND	
Sodium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Thallium, Total	mg/L	0.002	--	ND	ND	ND	ND	ND	ND	ND	
Vanadium, Total	mg/L	0.0086	--	ND	ND	ND	ND	ND	ND	ND	
Zinc, Total	mg/L	0.6	ND	ND	0.139	0.04	0.053	0.065	0.024	0.062	
Alkalinity, Total	mg/L	--	--	5	4	4	5	4	4	6	
Ammonia-N	mg/L	--	0.2	0.2	ND	ND	ND	ND	ND	ND	
Chemical Oxygen Demand (COD)	mg/L	--	10	10	ND	11	7	ND	ND	ND	
Chloride	mg/L	250	10	10	10.69	8.98	12.31	9.68	11.94	23.67	
Hardness	mg/L	--	--	17	10	8.87	14.66	14.99	15.12	16.77	
Nitrate-N	mg/L	10	0.4	0.6	0.48	0.69	0.21	0.2	0.3	0.67	
pH	SU	8.5	--	--	5.06	4.8	4.44	4.9	4.88	4.26	
Specific Conductance	umhos/cm	--	--	64	ND	ND	76.2	493	89.8	116	
Sulfate	mg/L	250	10	10	5	3	10	5.48	5.18	6.54	
Total Dissolved Solids	mg/L	500	37	47	42	44	43	36	67	137	
Turbidity	NTU	5	--	30	128	6.8	40.9	75	41.4	6.5	

Location ID: GWM-6		Number of Sampling Dates: 48									
Parameter Name	Units	Compliance Limit	12/3/2003	3/23/2004	11/17/2004	6/7/2005	11/10/2005	3/22/2006	9/26/2006	4/26/2007	
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND	
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	
Barium, Total	mg/L	2	0.04	0.036	0.034	0.038	0.07	0.051	0.046	0.05	
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND	
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	

Location ID: GWM-6  
 Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	12/3/2003	3/23/2004	11/17/2004	6/7/2005	11/10/2005	3/22/2006	9/26/2006	4/26/2007
Calcium, Total	mg/L	--	--	--	--	--	--	--	--	23.2
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	--	0.011	0.013	0.042	0.042	ND	ND	0.014	0.019
Copper, Total	mg/L	1.3	ND	ND	ND	0.013	ND	0.012	0.017	ND
Iron, Total	mg/L	0.3	0.022	0.045	0.066	0.331	0.058	1.834	0.485	1.794
Lead, Total	mg/L	0.015	0.002	ND	ND	ND	ND	ND	ND	ND
Magnesium, Total	mg/L	--	--	--	--	--	--	--	--	6.2
Manganese, Total	mg/L	0.043	0.048	0.135	0.067	0.099	0.039	0.301	0.25	0.428
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	ND	ND	ND	ND	0.017	0.014	0.011	0.011
Potassium, Total	mg/L	--	--	--	--	--	--	--	--	5.7
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	--	--	--	--	--	--	--	--	40.8
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	ND	ND	0.094	0.082	0.072	0.043	0.035	ND
Alkalinity, Total	mg/L	--	8	4	9.8	19.2	19.6	53.2	34.85	43.4
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chloride	mg/L	250	35.6	38.9	41.5	31.78	45.97	53.5	28.11	48.93
Hardness	mg/L	--	34.4	42.03	36.52	29.7	99.75	127.77	76.58	83.46
Nitrate-N	mg/L	10	0.49	0.17	0.19	ND	2.26	0.5	0.1	0.2
pH	SU	8.5	4.34	4.45	4.31	4.9	4.58	5.41	5.02	5.13
Specific Conductance	umhos/cm	--	138	179	432	171	304	3460	199	257
Sulfate	mg/L	250	5.77	7.22	16.62	13.42	30.26	14.32	8.06	10.86
Total Dissolved Solids	mg/L	500	86	110	88	196	136	634	378	71
Turbidity	NTU	5	7	13	17	32.9	9.69	80	37	22.9

Location ID: GWM-6  
 Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	11/27/2007	4/9/2008	10/16/2008	4/2/2009	10/14/2009	5/11/2010	9/28/2010	3/22/2011
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total	mg/L	2	0.056	0.062	0.056	0.06	0.062	0.061	0.055	0.05
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND
Calcium, Total	mg/L	--	11.06	14.27	18.71	19.12	19.82	22.96	22.01	13.03
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	--	0.013	0.01	0.189	0.029	0.117	0.027	0.023	0.023
Copper, Total	mg/L	1.3	ND	ND	ND	ND	ND	0.043	ND	ND
Iron, Total	mg/L	0.3	0.593	1.56	2.338	1.729	2.914	2.337	1.274	1.074
Lead, Total	mg/L	0.015	ND	ND	ND	ND	ND	ND	ND	ND
Magnesium, Total	mg/L	--	2.83	6.35	3.247	15.55	14.75	16.8	2.2	2.927
Manganese, Total	mg/L	0.043	0.262	0.454	0.514	0.62	0.602	0.565	0.66	0.609
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-6  
Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	11/27/2007	4/9/2008	10/16/2008	4/2/2009	10/14/2009	5/11/2010	9/28/2010	3/22/2011
Nickel, Total	mg/L	0.039	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/L	--	1.36	1.54	1.64	1.43	1.23	1.31	1.28	1.05
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	--	8.2	21.6	25.4	21	7.4	27	69.6	28
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	0.017	0.022	ND	0.01	ND	0.01	ND	ND
Alkalinity, Total	mg/L	--	40.4	45.3	53.9	71.3	67.9	55.4	48.86	31.8
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	--	ND	ND	23	ND	ND	ND	14	ND
Chloride	mg/L	250	28.68	23.25	31.49	60.53	51.67	49.07	74.46	54.27
Hardness	mg/L	--	39.27	61.78	60.09	111.78	110.23	126.51	54.97	44.59
Nitrate-N	mg/L	10	0.08	0.12	ND	ND	ND	ND	0.25	0.31
pH	SU	8.5	5.54	5.27	5.78	6.03	5.72	5.65	5.6	5.51
Specific Conductance	umhos/cm	--	179	255	267	299	305	216	389	237
Sulfate	mg/L	250	6.17	5.16	4.78	7.57	7.03	4.22	9.09	5.54
Total Dissolved Solids	mg/L	500	166	122	158	146	162	144	220	144
Turbidity	NTU	5	33.7	23	18	15	11	8.4	12	9.9

Location ID: GWM-6  
Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/18/2011	3/21/2012	9/13/2012	3/19/2013	9/24/2013	3/21/2014	9/17/2014	3/19/2015
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND U	ND U	ND U
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND U	ND U	ND U
Barium, Total	mg/L	2	0.062	0.052	0.059	0.109	0.07	0.058	0.06	0.067
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND U	ND U	ND U
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND U	ND U	ND U
Calcium, Total	mg/L	--	14	2.32	8.13	17.16	9.64	10	10.8	11.6
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	0.0011 J	0.0013 J	0.0011 J
Cobalt, Total	mg/L	--	0.034	0.038	0.038	0.071	0.06	0.06	0.058	0.083
Copper, Total	mg/L	1.3	ND	ND	ND	ND	ND	0.0025 J	ND U	ND U
Iron, Total	mg/L	0.3	2.6	2.222	3.784	5.285	9.312	6.6	6.7	12.3
Lead, Total	mg/L	0.015	ND	ND	ND	ND	ND	ND U	ND U	ND U
Magnesium, Total	mg/L	--	9.4	0.94	7.697	11.48	9.172	7.2	7.6	7.4
Manganese, Total	mg/L	0.043	0.78	0.706	0.554	0.826	0.62	0.52	0.55	0.67
Mercury, Total	mg/L	0.002	ND	ND	--	ND	ND	ND U	ND U	ND U
Nickel, Total	mg/L	0.039	ND	ND	ND	ND	ND	0.0094	0.01	0.011
Potassium, Total	mg/L	--	1.6	1.26	1.07	1.4	1.2	1.2	1.3	1.4
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND U	ND U	ND U
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND U	ND U	ND U
Sodium, Total	mg/L	--	20	1.9	18.9	27.9	17.74	16.8	16.7	17.5
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND U	ND U	ND U
Zinc, Total	mg/L	0.6	0.012	0.015	ND	ND	ND	0.0058	0.0085	0.0042 J
Alkalinity, Total	mg/L	--	46	28.46	45.51	39.63	42.27	42	48	45

Location ID: GWM-6  
Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/18/2011	3/21/2012	9/13/2012	3/19/2013	9/24/2013	3/21/2014	9/17/2014	3/19/2015
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	ND U	0.133	ND U
Chemical Oxygen Demand (COD)	mg/L	--	19	10	ND	12	16	3 J	12	2 J
Chloride	mg/L	250	56	54.99	36.8	62.33	53.27	43.2	60	48.4
Hardness	mg/L	--	72	96.77	51.99	90.1	61.8	74	67	76
Nitrate-N	mg/L	10	0.25	0.11	0.15	0.16	0.14	0.28	ND U	ND U
pH	SU	8.5	6.14	5.48	5.31	5.31	5.9	5.82	6.09	6.1
Specific Conductance	umhos/cm	--	310	279	294	337	285	198.9	204	231
Sulfate	mg/L	250	ND	18.68	9	10.78	8.84	8.6	6.9	7.3
Total Dissolved Solids	mg/L	500	160	176	156	104	118	115	126	191
Turbidity	NTU	5	53.7	11.5	39.9	13	ND	1.66	0.7	0.54

Location ID: GWM-6  
Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/15/2015	3/21/2016	9/26/2016	3/31/2017	9/21/2017	3/30/2018	9/26/2018	3/13/2019
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND U	0.0022	ND U	ND U
Arsenic, Total	mg/L	0.01	ND U	ND U	ND U	ND U	ND U	0.0012	0.0014 J	0.0011 J
Barium, Total	mg/L	2	0.068	0.075	0.079	0.081	0.1	0.12	0.14	0.13
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	ND U	0.0011	ND U	ND U
Cadmium, Total	mg/L	0.005	ND U	ND U	ND U	ND U	ND U	0.0011	ND U	ND U
Calcium, Total	mg/L	--	13.2	13.9	12.8	14.4	21.3	23.5	22	23.8
Chromium, Total	mg/L	0.1	0.0012 J	0.00094 J	0.0038	0.0013 J	0.0018 J	0.00085	ND U	0.0018 J
Cobalt, Total	mg/L	--	0.085	0.074	0.073	0.078	0.11	0.11	0.082	0.078
Copper, Total	mg/L	1.3	ND U	ND U	0.0029 J	0.0024 J	0.0061	0.0041	0.0039 J	0.0025 J
Iron, Total	mg/L	0.3	16.4	16.4	13.7	16.3	23.3	35.6	51.4	63.3
Lead, Total	mg/L	0.015	ND U	ND U	ND U	ND U	ND U	0.0022	ND U	ND U
Magnesium, Total	mg/L	--	8.5	8.5	7.9	9.4	12.4	15	15	14.3
Manganese, Total	mg/L	0.043	0.73	0.68	0.67	0.74	1.1	1.2	1	1.1
Mercury, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	0.0005	ND U	ND U
Nickel, Total	mg/L	0.039	0.012	0.013	0.014	0.015	0.018	0.017	0.013	0.011
Potassium, Total	mg/L	--	1.5	1.6	1.6	1.7	1.9	2.1	1.8	1.9
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	ND U	0.0056	ND U	ND U
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	0.0022	ND U	ND U
Sodium, Total	mg/L	--	18.3	19.1	16.8	18.3	24	30.7	34	34.3
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	0.0011	ND U	ND U
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	ND U	0.0022	ND U	ND U
Zinc, Total	mg/L	0.6	0.0033 J	0.0037 J	0.012	0.0035 J	0.0077	0.0056	ND U	0.0026 J
Alkalinity, Total	mg/L	--	53	61	62	61	73	94	113	94
Ammonia-N	mg/L	--	ND U	ND U	0.044 J	0.045 J	0.08 J	0.111	0.079 J	0.128
Chemical Oxygen Demand (COD)	mg/L	--	5	13	7 J	14	16	19	27	29
Chloride	mg/L	250	60.7	51.6	38.4	52.3	76.2	81.9	97.4	89.7
Hardness	mg/L	--	70	70	75	101	104	120	117	118
Nitrate-N	mg/L	10	ND U	0.06 J	ND U	ND U	ND U	ND U	ND U	ND U
pH	SU	8.5	5.79	6.09	6.22	6.18	5.97	6.47	6.56	6.65
Specific Conductance	umhos/cm	--	242	255	219	252	334	410	495	514
Sulfate	mg/L	250	5.9	7.3	4.4	5.7	4.4	2.9	2.3	0.92 J
Total Dissolved Solids	mg/L	500	153	132	155	160	164	203	243	278

Location ID: GWM-6										
Number of Sampling Dates: 48										
Parameter Name	Units	Compliance Limit	9/15/2015	3/21/2016	9/26/2016	3/31/2017	9/21/2017	3/30/2018	9/26/2018	3/13/2019
Turbidity	NTU	5	0.84	0.47	1.69	0.25	0.74	0.95	1.62	0.81

Location ID: GWM-6										
Number of Sampling Dates: 48										
Parameter Name	Units	Compliance Limit	10/3/2019	4/3/2020	9/30/2020	3/22/2021	9/16/2021	3/24/2022	9/16/2022	3/17/2023
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Arsenic, Total	mg/L	0.01	0.0012 J	0.0018 J	0.0013 J	0.0017 J	0.0012 J	0.0013 J	0.0015 J	0.0017 J
Barium, Total	mg/L	2	0.11	0.087	0.1	0.12	0.11	0.13	0.13	0.12
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Calcium, Total	mg/L	--	21.1	19.2	17.9	21.6	19	18.6	17	15.6
Chromium, Total	mg/L	0.1	ND U	ND U	ND U	ND U	0.0012 J	ND	0.001 J	0.0008 J
Cobalt, Total	mg/L	--	0.048	0.042	0.038	0.035	0.031	0.025	0.02	0.017
Copper, Total	mg/L	1.3	0.0064	0.0027 J	ND U	ND U	0.0036 J	0.002 J	ND	ND
Iron, Total	mg/L	0.3	49.3	43.9	61.2	84.2	63	79.2	86.2	82.1
Lead, Total	mg/L	0.015	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Magnesium, Total	mg/L	--	14.7	12.2	11.5	14.2	10	11.6	11.2	10.2
Manganese, Total	mg/L	0.043	0.78	0.64	0.6	0.65	0.51	0.54	0.53	0.48
Mercury, Total	mg/L	0.002	ND U	0.00029 J	ND U	ND U	ND U	ND	ND	ND
Nickel, Total	mg/L	0.039	0.009	0.0084	0.0077	0.009	0.0083	0.0077	0.007	0.0059
Potassium, Total	mg/L	--	1.9	1.5	1.7	1.8	1.8	1.8	1.9	1.9
Selenium, Total	mg/L	0.05	ND U	0.002 J	ND U	ND U	0.0014 J	ND	ND	ND
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Sodium, Total	mg/L	--	33.4	28.1	29	37.9	35	41.9	40	40.6
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Zinc, Total	mg/L	0.6	0.0046 J	0.0055 J	0.002 J	0.0021 J	ND U	ND	0.0022 J	ND
Alkalinity, Total	mg/L	--	125	88	72	100	70	137	ND	39
Ammonia-N	mg/L	--	0.264	0.126	0.292	0.217	0.064 J	0.191	0.079 J	0.125
Chemical Oxygen Demand (COD)	mg/L	--	28	23	21	20	25	31	29	33
Chloride	mg/L	250	69.3	71	76	96.7	90.5	91.8	90.2	87.4
Hardness	mg/L	--	113	98.3	104	102	94.5	94.2	92	79.7
Nitrate-N	mg/L	10	ND U	ND U	ND U	ND U	0.04 J	ND	ND	ND
pH	SU	8.5	6.62	6.56	6.4	6.58	6.38	6.43	6.05	6.18
Specific Conductance	umhos/cm	--	435	321	405	518	484	508	484.6	614.9
Sulfate	mg/L	250	0.78 J	0.52 J	0.46 J	0.92 J	3.2	3.1	4.8	5.2
Total Dissolved Solids	mg/L	500	110	250	258	244	228	184	264	282
Turbidity	NTU	5	1.03	0.73	0.86	0.55	1.55	0.84	3.98	2.51

# Historical Well Data Table I

Name: Eastern Sanitary Landfill

Location ID: GWM-8											
Number of Sampling Dates: 49											
Parameter Name	Units	Compliance Limit	10/28/1999	3/30/2000	10/19/2000	3/30/2001	10/25/2001	3/26/2002	9/23/2002	4/9/2003	
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND	
Acrylonitrile	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
Bromochloromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND	
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND	
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND	
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND	
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND	
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND	
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND	
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND	
Dibromomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND	
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND	
trans-1,4-dichloro-2-butene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND	
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND	
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND	
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND	
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	ND	
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND	
2-Hexanone	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
Iodomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND	
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND	
1,1,1,2-Tetrachloroethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND	
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND	
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND	
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
Trichlorofluoromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	



Location ID: GWM-8

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/28/1999	3/30/2000	10/19/2000	3/30/2001	10/25/2001	3/26/2002	9/23/2002	4/9/2003
1,2,3-Trichloropropane	ug/L	–	ND	ND	ND	ND	ND	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-8

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	12/10/2003	3/30/2004	11/17/2004	6/7/2005	11/10/2005	3/22/2006	9/21/2006	4/12/2007
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	3	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	1	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-8		Number of Sampling Dates: 49								
Parameter Name	Units	Compliance Limit	12/10/2003	3/30/2004	11/17/2004	6/7/2005	11/10/2005	3/22/2006	9/21/2006	4/12/2007
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	–	–	–	–	–	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-8		Number of Sampling Dates: 49								
Parameter Name	Units	Compliance Limit	10/23/2007	3/26/2008	9/25/2008	3/31/2009	10/1/2009	5/11/2010	9/28/2010	3/15/2011
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-8										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	10/23/2007	3/26/2008	9/25/2008	3/31/2009	10/1/2009	5/11/2010	9/28/2010	3/15/2011
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	-	-	-	-	-	-	-	-	-
Vinyl acetate	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromofom	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorofom	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-8										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	10/4/2011	3/13/2012	9/15/2012	3/12/2013	9/18/2013	12/5/2013	3/17/2014	3/19/2014
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND U	3.9 J
Acrylonitrile	ug/L	-	ND	ND	ND	ND	ND	ND	ND U	ND U
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND U	ND U
Bromochloromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND U	ND U
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND U	0.46 J
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND U	ND U
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND U	ND U

Location ID: GWM-8

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/4/2011	3/13/2012	9/15/2012	3/12/2013	9/18/2013	12/5/2013	3/17/2014	3/19/2014
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND U	ND U
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND U	ND U
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND U	ND U
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND U	ND U
Dibromomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	-	ND	ND	ND	ND	ND	ND	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND U	ND U
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND U	ND U
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND U	ND U
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND U	ND U
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND U	ND U
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND U	ND U
2-Hexanone	ug/L	-	ND	ND	ND	ND	ND	ND	ND U	ND U
Iodomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND U	ND U
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND U	ND U
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND U	ND U
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND U	ND U
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND U	ND U
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND U	ND U
Trichlorofluoromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND U	ND U
1,2,3-Trichloropropane	ug/L	-	ND	ND	ND	ND	ND	ND	ND U	ND U
Vinyl acetate	ug/L	-	ND	ND	ND	ND	ND	ND	ND U	ND U
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND U	ND U
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND U	ND U
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND U	ND U
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND U	ND U
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND U	ND U
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND U	ND U

Location ID: GWM-8  
 Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	9/17/2014	9/14/2015	3/17/2016	9/21/2016	3/27/2017	9/20/2017	3/27/2018	9/19/2018
Acetone	ug/L	1400	ND U	ND U	ND U	ND U	3.6 JB	ND U	5.9 JB	ND U
Acrylonitrile	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromochloromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromomethane	ug/L	0.75	ND U	ND U	ND U	0.44 J	ND U	0.65 J	ND U	ND U
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloromethane	ug/L	19	0.35 J	ND U	ND U	0.4 J	ND U	ND U	0.54 J	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Dibromomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
2-Hexanone	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Iodomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl acetate	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-8		Number of Sampling Dates: 49								
Parameter Name	Units	Compliance Limit	9/17/2014	9/14/2015	3/17/2016	9/21/2016	3/27/2017	9/20/2017	3/27/2018	9/19/2018
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-8		Number of Sampling Dates: 49								
Parameter Name	Units	Compliance Limit	3/13/2019	9/25/2019	4/2/2020	9/28/2020	3/18/2021	9/9/2021	3/23/2022	9/15/2022
Acetone	ug/L	1400	ND U	11.1 B	ND U	3.4 J	3.2 J	4.6 J	3.3 J	ND
Acrylonitrile	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Bromochloromethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Bromomethane	ug/L	0.75	0.56 JB	ND U	ND U	ND U	ND U	ND U	ND	ND
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Chloromethane	ug/L	19	0.37 J	ND U	0.34 J	0.46 J	ND U	ND U	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Dibromomethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
trans-1,4-dichloro-2-butene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
trans-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
cis-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
2-Hexanone	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Iodomethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND

Location ID: GWM-8

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/13/2019	9/25/2019	4/2/2020	9/28/2020	3/18/2021	9/9/2021	3/23/2022	9/15/2022
1,1,1,2-Tetrachloroethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Trichlorofluoromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,2,3-Trichloropropane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Vinyl acetate	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
o-Xylene	ug/L	10000	–	–	ND U	ND U	ND U	ND U	ND	ND
mp-Xylene	ug/L	10000	–	–	ND U	ND U	ND U	ND U	ND	ND
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Chloroform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND

Location ID: GWM-8

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/15/2023						
Acetone	ug/L	1400	ND						
Acrylonitrile	ug/L	–	ND						
Benzene	ug/L	5	ND						
Bromochloromethane	ug/L	–	ND						
Bromomethane	ug/L	0.75	ND						
2-Butanone	ug/L	700	ND						
Carbon disulfide	ug/L	81	ND						
Carbon Tetrachloride	ug/L	5	ND						
Chlorobenzene	ug/L	100	ND						
Chloroethane	ug/L	2100	ND						
Chloromethane	ug/L	19	ND						
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND						
1,2-Dibromoethane	ug/L	0.05	ND						
Dibromomethane	ug/L	–	ND						
1,2-Dichlorobenzene	ug/L	600	ND						
1,4-Dichlorobenzene	ug/L	75	ND						
trans-1,4-dichloro-2-butene	ug/L	–	ND						
1,1-Dichloroethane	ug/L	2.8	ND						
1,2-Dichloroethane	ug/L	5	ND						
1,1-Dichloroethene	ug/L	7	ND						
cis-1,2-Dichloroethene	ug/L	70	ND						

Location ID: GWM-8

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/15/2023
trans-1,2-Dichloroethene	ug/L	100	ND
Methylene Chloride	ug/L	5	ND
Methyl t-Butyl Ether	ug/L	20	ND
1,2-Dichloropropane	ug/L	5	ND
trans-1,3-Dichloropropene	ug/L	-	ND
cis-1,3-Dichloropropene	ug/L	-	ND
Ethylbenzene	ug/L	700	ND
2-Hexanone	ug/L	-	ND
Iodomethane	ug/L	-	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND
Styrene	ug/L	100	ND
1,1,1,2-Tetrachloroethane	ug/L	-	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND
Tetrachloroethene	ug/L	5	ND
Toluene	ug/L	1000	ND
1,1,1-Trichloroethane	ug/L	200	ND
1,1,2-Trichloroethane	ug/L	5	ND
Trichloroethene	ug/L	5	ND
Trichlorofluoromethane	ug/L	-	ND
1,2,3-Trichloropropane	ug/L	-	ND
Vinyl acetate	ug/L	-	ND
Vinyl chloride	ug/L	2	ND
Total Xylenes	ug/L	10000	ND
o-Xylene	ug/L	10000	ND
mp-Xylene	ug/L	10000	ND
Bromodichloromethane	ug/L	80	ND
Chlorodibromomethane	ug/L	80	ND
Bromoform	ug/L	80	ND
Chloroform	ug/L	80	ND



## Historical Well Data Table II

Name: Eastern Sanitary Landfill

Location ID: GWM-8											
Number of Sampling Dates: 49											
Parameter Name	Units	Compliance Limit	10/28/1999	3/30/2000	10/19/2000	3/30/2001	10/25/2001	3/26/2002	9/23/2002	4/9/2003	
Antimony, Total	mg/L	0.006	--	ND	ND	ND	ND	ND	ND	ND	
Arsenic, Total	mg/L	0.01	--	ND	ND	ND	ND	ND	ND	ND	
Barium, Total	mg/L	2	ND	ND	ND	0.039	0.044	0.088	0.085	0.07	
Beryllium, Total	mg/L	0.004	--	ND	ND	ND	ND	ND	ND	ND	
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	
Calcium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	
Cobalt, Total	mg/L	--	--	ND	0.019	ND	0.017	0.018	0.012	0.013	
Copper, Total	mg/L	1.3	--	ND	0.032	0.015	0.018	0.01	0.011	ND	
Iron, Total	mg/L	0.3	5.83	6.25	4.44	5.2	7.32	14.14	6.74	3.66	
Lead, Total	mg/L	0.015	ND	ND	0.002	ND	0.002	0.002	ND	ND	
Magnesium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Manganese, Total	mg/L	0.043	0.44	0.43	0.465	0.449	0.477	0.369	0.371	0.376	
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND	
Nickel, Total	mg/L	0.039	--	ND	0.016	0.024	ND	0.021	0.024	0.024	
Potassium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Selenium, Total	mg/L	0.05	--	ND	ND	ND	ND	ND	ND	ND	
Silver, Total	mg/L	0.0094	--	ND	ND	ND	ND	ND	ND	ND	
Sodium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Thallium, Total	mg/L	0.002	--	ND	ND	ND	ND	ND	ND	ND	
Vanadium, Total	mg/L	0.0086	--	ND	ND	ND	ND	ND	ND	ND	
Zinc, Total	mg/L	0.6	ND	ND	0.139	0.081	0.09	0.097	0.134	0.098	
Alkalinity, Total	mg/L	--	--	36	35	38	34	44	34	46	
Ammonia-N	mg/L	--	0.2	0.2	ND	ND	ND	ND	ND	ND	
Chemical Oxygen Demand (COD)	mg/L	--	10	10	ND	ND	7	ND	ND	ND	
Chloride	mg/L	250	10	10	3.28	2.5	4.17	3.12	2.55	3.59	
Hardness	mg/L	--	--	85	17	12.89	17.76	21.17	22.7	35.34	
Nitrate-N	mg/L	10	0.2	0.2	ND	ND	ND	ND	ND	ND	
pH	SU	8.5	--	--	6.15	5.9	5.82	5.97	5.71	5.8	
Specific Conductance	umhos/cm	--	--	181	ND	ND	172	169	180	152	
Sulfate	mg/L	250	42.5	41.3	138	50	56	39.18	33.06	36.38	
Total Dissolved Solids	mg/L	500	108	122	103	118	103	78	91	182	
Turbidity	NTU	5	--	5	26	2.04	4.02	0.99	0.55	0.95	

Location ID: GWM-8											
Number of Sampling Dates: 49											
Parameter Name	Units	Compliance Limit	12/10/2003	3/30/2004	11/17/2004	6/7/2005	11/10/2005	3/22/2006	9/21/2006	4/12/2007	
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND	
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	
Barium, Total	mg/L	2	0.059	0.065	0.061	0.062	0.06	0.055	0.07	0.066	
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND	
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	

Location ID: GWM-8  
 Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	12/10/2003	3/30/2004	11/17/2004	6/7/2005	11/10/2005	3/22/2006	9/21/2006	4/12/2007
Calcium, Total	mg/L	--	--	--	--	--	--	--	--	1.72
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	--	0.017	ND	0.021	0.022	0.017	0.017	0.017	0.031
Copper, Total	mg/L	1.3	ND	ND	ND	ND	ND	ND	ND	0.018
Iron, Total	mg/L	0.3	4.16	6	4.64	5.36	7.3	5.536	5.2	6.19
Lead, Total	mg/L	0.015	ND	0.002	ND	ND	ND	ND	ND	ND
Magnesium, Total	mg/L	--	--	--	--	--	--	--	--	1.222
Manganese, Total	mg/L	0.043	0.415	0.525	0.534	0.46	0.332	0.337	0.374	0.315
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	0.024	0.03	0.03	0.025	0.028	0.025	0.03	0.027
Potassium, Total	mg/L	--	--	--	--	--	--	--	--	6.3
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	--	--	--	--	--	--	--	--	35.7
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	0.077	0.065	0.155	0.141	0.076	0.081	0.18	0.119
Alkalinity, Total	mg/L	--	42	40	44.8	42.7	33.95	32.1	30.5	29.1
Ammonia-N	mg/L	--	ND	1	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	--	ND	ND	ND	ND	12	ND	ND	ND
Chloride	mg/L	250	2.58	2.64	4.65	4.1	2.29	2.16	2.42	2.78
Hardness	mg/L	--	33.36	31.42	41	32.66	34.61	10.77	33.42	9.33
Nitrate-N	mg/L	10	ND	ND	ND	ND	ND	ND	ND	ND
pH	SU	8.5	5.71	5.63	5.48	5.51	5.43	5.3	5.28	5.24
Specific Conductance	umhos/cm	--	167	162	173	188	143	125	122	147
Sulfate	mg/L	250	28.77	29.96	49.3	46.61	24.22	21.11	24.3	28.26
Total Dissolved Solids	mg/L	500	93	88	110	240	408	698	92	ND
Turbidity	NTU	5	0.95	2.2	1.5	3.86	1.5	0.45	0.7	0.35

Location ID: GWM-8  
 Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/23/2007	3/26/2008	9/25/2008	3/31/2009	10/1/2009	5/11/2010	9/28/2010	3/15/2011
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total	mg/L	2	0.06	0.062	0.056	0.05	0.052	0.057	0.061	0.054
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND
Calcium, Total	mg/L	--	3.74	7	4.62	1.02	2.27	2.5	3.67	1.94
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	--	0.017	0.012	0.015	0.012	0.027	0.013	0.012	0.014
Copper, Total	mg/L	1.3	0.074	ND	0.066	ND	ND	0.032	ND	0.016
Iron, Total	mg/L	0.3	3.26	2.671	4.26	3.568	3.34	5.43	3.6	3.564
Lead, Total	mg/L	0.015	ND	ND	ND	ND	ND	ND	ND	ND
Magnesium, Total	mg/L	--	1.36	1.48	1.509	1.405	1.839	2.95	1.034	1.347
Manganese, Total	mg/L	0.043	0.36	0.297	0.312	0.273	0.378	0.313	0.274	0.27
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-8

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/23/2007	3/26/2008	9/25/2008	3/31/2009	10/1/2009	5/11/2010	9/28/2010	3/15/2011
Nickel, Total	mg/L	0.039	0.026	0.025	ND	0.021	0.044	0.026	0.031	0.019
Potassium, Total	mg/L	--	2.22	4.74	3.39	2.18	2.66	3.5	2.15	2.32
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	--	11	22.8	11.4	9.6	8.4	14.5	27.4	13.9
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	0.09	0.082	0.037	0.037	0.059	0.091	0.074	0.061
Alkalinity, Total	mg/L	--	30.2	30.7	31.1	32.7	28.2	23.9	9.8	ND
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	--	10	ND	ND	ND	ND	ND	ND	ND
Chloride	mg/L	250	2.24	2.01	2.36	3.08	2.61	2.47	1.67	2.13
Hardness	mg/L	--	16.71	23.57	17.74	8.34	13.24	18.39	13.43	10.39
Nitrate-N	mg/L	10	ND	ND	ND	ND	ND	ND	ND	ND
pH	SU	8.5	5.47	5.36	5.9	5.78	5.88	5.93	5.4	5.46
Specific Conductance	umhos/cm	--	117	129	120	108	105	114	97.2	100
Sulfate	mg/L	250	20.57	16.08	20	18.59	16.98	17.92	12.75	15.42
Total Dissolved Solids	mg/L	500	240	64	112	40	92	88	62	116
Turbidity	NTU	5	ND	ND	1.35	0.62	0.6	1	2.4	0.7

Location ID: GWM-8

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/4/2011	3/13/2012	9/15/2012	3/12/2013	9/18/2013	12/5/2013	3/17/2014	3/19/2014
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND U	ND U
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND U	ND U
Barium, Total	mg/L	2	0.2	0.224	0.211	0.328	0.14	0.1	0.11	0.062
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND U	ND U
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	0.0038	0.0021
Calcium, Total	mg/L	--	4.8	1.88	3.6	10.08	56.73	19.06	16.3	12.3
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	0.012	0.0038
Cobalt, Total	mg/L	--	0.011	0.011	ND	0.012	0.08	ND	0.006	ND U
Copper, Total	mg/L	1.3	ND	ND	ND	ND	ND	ND	0.0041 J	0.0053 J
Iron, Total	mg/L	0.3	2	3.574	2.213	3.268	5.016	0.68	2.3	0.44
Lead, Total	mg/L	0.015	ND	ND	ND	ND	ND	ND	ND U	ND U
Magnesium, Total	mg/L	--	1.3	0.182	1.542	1.938	10.81	1.64	0.56	0.38
Manganese, Total	mg/L	0.043	0.29	0.27	0.195	0.331	0.84	0.12	0.093	0.016
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND U	ND U
Nickel, Total	mg/L	0.039	0.021	0.019	0.014	0.019	ND	ND	0.012	0.003 J
Potassium, Total	mg/L	--	3.1	2.51	1.89	1.85	7.58	5.98	7.2	9
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND U	ND U
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	--	ND U	ND U
Sodium, Total	mg/L	--	6.7	0.8	7	7.5	64.25	19.48	25.9	22.2
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND U	ND U
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND U	ND U
Zinc, Total	mg/L	0.6	0.095	0.069	0.042	0.048	0.02	ND	0.012	0.0027 J
Alkalinity, Total	mg/L	--	31	27.17	38.1	27.48	165.49	50.14	28	51

Location ID: GWM-8		Number of Sampling Dates: 49									
Parameter Name	Units	Compliance Limit	10/4/2011	3/13/2012	9/15/2012	3/12/2013	9/18/2013	12/5/2013	3/17/2014	3/19/2014	
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	ND	ND U	0.145	
Chemical Oxygen Demand (COD)	mg/L	--	28	ND	ND	8	ND	ND	ND U	4 J	
Chloride	mg/L	250	1.8	1.75	2.1	2.48	88.13	6.44	11.6	10.2	
Hardness	mg/L	--	24	54.47	15.33	33.2	186.2	54.3	80	38	
Nitrate-N	mg/L	10	ND	ND	ND	ND	ND	ND	0.12 J	ND U	
pH	SU	8.5	5.75	5.68	5.48	5.48	10.96	8.61	11.21	10.82	
Specific Conductance	umhos/cm	--	104	120	124	102	244	0.2	303	260	
Sulfate	mg/L	250	8.2	14.51	17	14.48	32.56	31.76	46	30.5	
Total Dissolved Solids	mg/L	500	18	82	66	58	365	--	220	124	
Turbidity	NTU	5	2.2	1.38	1.9	0.55	ND	5.23	17.6	3.99	

Location ID: GWM-8		Number of Sampling Dates: 49									
Parameter Name	Units	Compliance Limit	9/17/2014	9/14/2015	3/17/2016	9/21/2016	3/27/2017	9/20/2017	3/27/2018	9/19/2018	
Antimony, Total	mg/L	0.006	0.00088 J	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Arsenic, Total	mg/L	0.01	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Barium, Total	mg/L	2	0.1	0.099	0.11	0.12	0.099	0.089	0.13	0.16	
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Cadmium, Total	mg/L	0.005	0.004	0.0038	0.0035	0.002	0.0021	0.0019	0.0027	0.0021	
Calcium, Total	mg/L	--	15.4	14.8	20.9	8.4	11.8	9.6	17.5	21.8	
Chromium, Total	mg/L	0.1	0.017	0.0056	0.007	0.0041	0.0025	0.0018 J	0.0032	0.0041	
Cobalt, Total	mg/L	--	0.0078	0.0056	0.0041 J	0.0071	0.0032 J	0.0024 J	0.0028 J	0.008	
Copper, Total	mg/L	1.3	0.0062	0.0034 J	ND U	0.0027 J	ND U	0.0025 J	ND U	0.0019 J	
Iron, Total	mg/L	0.3	3	2.1	1.5	2.7	1.3	0.92	1.1	2.5	
Lead, Total	mg/L	0.015	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Magnesium, Total	mg/L	--	0.51	0.6	0.51	1.6	0.66	0.86	0.5	0.45	
Manganese, Total	mg/L	0.043	0.11	0.08	0.062	0.1	0.05	0.035	0.037	0.12	
Mercury, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Nickel, Total	mg/L	0.039	0.017	0.009	0.0078	0.0095	0.0065	0.0063	0.0058	0.012	
Potassium, Total	mg/L	--	7.6	7.9	7.2	6.7	6.3	6	5.9	4.8	
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Sodium, Total	mg/L	--	25.5	30.5	30.1	32.7	26.4	28.3	28.3	23.9	
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Zinc, Total	mg/L	0.6	0.021	0.012	0.0088	0.016	0.0055 J	0.0068	0.0048 J	0.018	
Alkalinity, Total	mg/L	--	42	30	57	27	37	26	34	45	
Ammonia-N	mg/L	--	0.115	0.045 J	ND U	0.461	ND U	0.463	0.056 J	0.032 J	
Chemical Oxygen Demand (COD)	mg/L	--	21	ND U	4 J	9	5 J	10	ND U	ND U	
Chloride	mg/L	250	13.8	12.9	12.9	11.7	12	12.1	12.7	11.7	
Hardness	mg/L	--	51	49	56	30	37	27.4	45.7	56.2	
Nitrate-N	mg/L	10	0.3	0.14 J	0.12 J	0.1 J	0.48	ND U	0.5	0.32	
pH	SU	8.5	11.12	10.92	11.41	10.09	11.12	10.98	11.45	11	
Specific Conductance	umhos/cm	--	292	269	308	207	257	228	271	316	
Sulfate	mg/L	250	60	55	53.8	59	46.2	44.8	44.7	47.5	
Total Dissolved Solids	mg/L	500	133	147	172	153	148	124	334	158	

Location ID: GWM-8											
Number of Sampling Dates: 49											
Parameter Name	Units	Compliance Limit	9/17/2014	9/14/2015	3/17/2016	9/21/2016	3/27/2017	9/20/2017	3/27/2018	9/19/2018	
Turbidity	NTU	5	19.7	14.1	11.4	14.9	12.4	6.62	12.28	25.7	

Location ID: GWM-8											
Number of Sampling Dates: 49											
Parameter Name	Units	Compliance Limit	3/13/2019	9/25/2019	4/2/2020	9/28/2020	3/18/2021	9/9/2021	3/23/2022	9/15/2022	
Antimony, Total	mg/L	0.006	0.00093 J	ND U	ND U	ND U	ND U	ND U	ND	ND	
Arsenic, Total	mg/L	0.01	ND U	ND U	ND U	ND U	ND U	0.0002 J	ND	ND	
Barium, Total	mg/L	2	0.15	0.16	0.11	0.11	0.0056 UR	0.15	0.13	0.095	
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND	
Cadmium, Total	mg/L	0.005	0.0028	0.0027	0.0021	0.0022	0.0011 UR	ND U	0.0012	0.0013	
Calcium, Total	mg/L	--	18.6	16.9	9.2	10.5	0.061 JR	10.5	14.4	12.2	
Chromium, Total	mg/L	0.1	0.0061	0.012	0.0086	0.0041	0.0022 UR	0.0023 J	0.0038	0.0017 J	
Cobalt, Total	mg/L	--	0.0056 J	0.0076	0.0031 J	0.0056 J	0.0056 UR	0.009	0.0069	0.0037 J	
Copper, Total	mg/L	1.3	0.0035 J	0.0026 J	0.0047 J	ND U	ND U	ND U	0.0021 J	ND	
Iron, Total	mg/L	0.3	2	3	1.3	2	0.14 R	3.3	2.7	1	
Lead, Total	mg/L	0.015	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND	
Magnesium, Total	mg/L	--	0.49	0.59	0.92	0.88	0.076 JR	1	0.88	0.78	
Manganese, Total	mg/L	0.043	0.082	0.11	0.048	0.085	0.0045 JR	0.14	0.13	0.05	
Mercury, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND	
Nickel, Total	mg/L	0.039	0.01	0.014	0.0069	0.0076	0.0056 UR	0.011	0.01	0.0056 J	
Potassium, Total	mg/L	--	6.5	7	5.7	6.4	0.11 UR	6	6.3	6	
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND	
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND	
Sodium, Total	mg/L	--	30.4	36	31.8	38.1	0.67 R	40	46	46.2	
Thallium, Total	mg/L	0.002	0.00094 J	ND U	ND U	ND U	ND U	ND U	ND	ND	
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND	
Zinc, Total	mg/L	0.6	0.013	0.015	0.011	0.015	0.0056 UR	0.023	0.019	0.0076	
Alkalinity, Total	mg/L	--	32	45	35	29	45	33	37	33	
Ammonia-N	mg/L	--	ND U	0.102	0.053 J	ND U	0.102	ND U	ND	0.915	
Chemical Oxygen Demand (COD)	mg/L	--	14 J	9 J	10 J	12 J	17	9 J	5 J	ND	
Chloride	mg/L	250	13	12.3	11.6	12.6	12.7	15	14.5	16.4	
Hardness	mg/L	--	48.6	44.5	28.6	32.6	37.3	30	37.2	33.7	
Nitrate-N	mg/L	10	0.18 J	0.22	0.1 J	0.28	0.18 J	0.24	0.35 J	0.52 J	
pH	SU	8.5	11.51	10.8	10.95	10.64	10.66	10.8	11.24	10.71	
Specific Conductance	umhos/cm	--	300	285	168	218	257	195.2	285	266.1	
Sulfate	mg/L	250	58.6	62.4	57	65.6	70.5	76.5	79.9	83.8	
Total Dissolved Solids	mg/L	500	195	168	306	210	190	180	122	226	
Turbidity	NTU	5	19.3	20.9	12.01	135	18.5	31.7	21.4	6.46	

Location ID: GWM-8											
Number of Sampling Dates: 49											
Parameter Name	Units	Compliance Limit	3/15/2023								
Antimony, Total	mg/L	0.006	ND								
Arsenic, Total	mg/L	0.01	ND								
Barium, Total	mg/L	2	0.071								

Location ID: GWM-8

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/15/2023
Beryllium, Total	mg/L	0.004	ND
Cadmium, Total	mg/L	0.005	0.0012
Calcium, Total	mg/L	--	8.9
Chromium, Total	mg/L	0.1	0.003
Cobalt, Total	mg/L	--	0.003 J
Copper, Total	mg/L	1.3	ND
Iron, Total	mg/L	0.3	0.95
Lead, Total	mg/L	0.015	ND
Magnesium, Total	mg/L	--	0.9
Manganese, Total	mg/L	0.043	0.045
Mercury, Total	mg/L	0.002	ND
Nickel, Total	mg/L	0.039	0.0049 J
Potassium, Total	mg/L	--	6.6
Selenium, Total	mg/L	0.05	ND
Silver, Total	mg/L	0.0094	ND
Sodium, Total	mg/L	--	49.7
Thallium, Total	mg/L	0.002	ND
Vanadium, Total	mg/L	0.0086	ND
Zinc, Total	mg/L	0.6	0.0072
Alkalinity, Total	mg/L	--	29
Ammonia-N	mg/L	--	0.119
Chemical Oxygen Demand (COD)	mg/L	--	14 J
Chloride	mg/L	250	17.5
Hardness	mg/L	--	24.9
Nitrate-N	mg/L	10	0.29 J
pH	SU	8.5	10.43
Specific Conductance	umhos/cm	--	265.13
Sulfate	mg/L	250	86.5
Total Dissolved Solids	mg/L	500	192
Turbidity	NTU	5	26.51

# Historical Well Data Table I

Name: Eastern Sanitary Landfill

Location ID: GWM-9										
Number of Sampling Dates: 48										
Parameter Name	Units	Compliance Limit	10/28/1999	3/30/2000	10/19/2000	3/29/2001	9/17/2001	3/12/2002	9/9/2002	3/25/2003
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-9

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/28/1999	3/30/2000	10/19/2000	3/29/2001	9/17/2001	3/12/2002	9/9/2002	3/25/2003
1,2,3-Trichloropropane	ug/L	–	ND	ND	ND	ND	ND	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-9

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/17/2003	3/23/2004	9/27/2004	3/15/2005	9/28/2005	3/15/2006	9/19/2006	4/10/2007
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND



Location ID: GWM-9

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/17/2003	3/23/2004	9/27/2004	3/15/2005	9/28/2005	3/15/2006	9/19/2006	4/10/2007
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	–	–	–	–	–	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromofom	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-9

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/25/2007	3/18/2008	9/25/2008	3/18/2009	9/22/2009	4/13/2010	8/24/2010	3/3/2011
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-9

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/25/2007	3/18/2008	9/25/2008	3/18/2009	9/22/2009	4/13/2010	8/24/2010	3/3/2011
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	–	–	–	–	–	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	2	2	2	ND	ND	ND	ND

Location ID: GWM-9

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/4/2011	2/28/2012	8/28/2012	2/26/2013	9/24/2013	3/19/2014	9/8/2014	3/17/2015
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND U	ND U	ND U
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	0.64 J	ND U	ND U
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND U	ND U	ND U

Location ID: GWM-9

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/4/2011	2/28/2012	8/28/2012	2/26/2013	9/24/2013	3/19/2014	9/8/2014	3/17/2015
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND U	ND U	ND U
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND U	ND U	ND U
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND U	ND U	ND U
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND U	ND U	ND U
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND U	ND U	ND U
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromofom	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chlorofom	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U

Location ID: GWM-9

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/14/2015	3/17/2016	9/21/2016	3/24/2017	9/20/2017	3/27/2018	9/19/2018	3/11/2019
Acetone	ug/L	1400	ND U	ND U	ND U	4.2 JB	ND U	5.3 JB	ND U	4.4 J
Acrylonitrile	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromochloromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromomethane	ug/L	0.75	ND U	ND U	ND U	ND U	0.44 J	ND U	ND U	0.72 JB
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloromethane	ug/L	19	ND U	0.39 J	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Dibromomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND U	ND U	0.45 J	ND U	ND U	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
2-Hexanone	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Iodomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-9

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/14/2015	3/17/2016	9/21/2016	3/24/2017	9/20/2017	3/27/2018	9/19/2018	3/11/2019
Vinyl acetate	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-9

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/25/2019	3/18/2020	9/23/2020	3/17/2021	9/8/2021	3/15/2022	9/12/2022	3/13/2023
Acetone	ug/L	1400	4.3 JB	3.7 J	ND U	3.8 J	ND U	ND	ND	ND
Acrylonitrile	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromochloromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromomethane	ug/L	0.75	ND U	ND U	ND U	ND U	ND U	ND	ND	0.6 J
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloromethane	ug/L	19	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Dibromomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
2-Hexanone	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Iodomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	0.42 J	0.51 J

Location ID: GWM-9

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/25/2019	3/18/2020	9/23/2020	3/17/2021	9/8/2021	3/15/2022	9/12/2022	3/13/2023
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	0.35 J	ND	ND
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl acetate	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
o-Xylene	ug/L	10000	–	ND U	ND U	ND U	ND U	ND	ND	ND
mp-Xylene	ug/L	10000	–	ND U	ND U	ND U	ND U	ND	ND	ND
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloroform	ug/L	80	ND U	0.54 JB	0.62 J	ND U	0.24 J	7.1	14	20.3

## Historical Well Data Table II

Name: Eastern Sanitary Landfill

Location ID: GWM-9										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	10/28/1999	3/30/2000	10/19/2000	3/29/2001	9/17/2001	3/12/2002	9/9/2002	3/25/2003
Antimony, Total	mg/L	0.006	-	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	mg/L	0.01	-	ND	ND	ND	ND	ND	ND	ND
Barium, Total	mg/L	2	ND	ND	ND	0.059	0.06	0.068	0.071	0.066
Beryllium, Total	mg/L	0.004	-	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND
Calcium, Total	mg/L	-	-	-	-	-	-	-	-	-
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	-	-	ND	ND	ND	ND	ND	ND	ND
Copper, Total	mg/L	1.3	-	ND	ND	0.014	0.014	0.011	0.024	0.013
Iron, Total	mg/L	0.3	0.59	2.43	0.22	0.08	0.338	0.539	0.536	0.1
Lead, Total	mg/L	0.015	ND	ND	0.003	ND	ND	ND	ND	0.005
Magnesium, Total	mg/L	-	-	-	-	-	-	-	-	-
Manganese, Total	mg/L	0.043	ND	ND	0.032	0.047	0.022	0.011	0.025	ND
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	-	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/L	-	-	-	-	-	-	-	-	-
Selenium, Total	mg/L	0.05	-	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	-	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	-	-	-	-	-	-	-	-	-
Thallium, Total	mg/L	0.002	-	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	-	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	ND	ND	0.051	0.029	0.029	0.064	0.069	0.015
Alkalinity, Total	mg/L	-	-	40	7	36	6	4	20	34
Ammonia-N	mg/L	-	0.2	0.4	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	-	-	10	15	ND	6	ND	ND	ND
Chloride	mg/L	250	66	75	31.72	71.05	50.02	8.16	63.71	32.13
Hardness	mg/L	-	-	79	19	88.85	37.85	23.76	66.64	55.73
Nitrate-N	mg/L	10	-	1.9	1.22	1.49	0.91	0.53	1.6	0.41
pH	SU	8.5	-	-	5.31	6	5.1	4.8	5.35	5.58
Specific Conductance	umhos/cm	-	-	408	ND	ND	210	90.7	369	280
Sulfate	mg/L	250	21.7	25.2	23	17	26	14.54	25.76	20.74
Total Dissolved Solids	mg/L	500	164	218	107	207	131	ND	-	124
Turbidity	NTU	5	-	87	16	42.3	37.1	59.5	50	8.58

Location ID: GWM-9										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	9/17/2003	3/23/2004	9/27/2004	3/15/2005	9/28/2005	3/15/2006	9/19/2006	4/10/2007
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total	mg/L	2	0.062	0.042	0.041	0.035	0.029	0.026	0.035	0.032
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-9

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	9/17/2003	3/23/2004	9/27/2004	3/15/2005	9/28/2005	3/15/2006	9/19/2006	4/10/2007
Calcium, Total	mg/L	-	-	-	-	-	-	-	-	14.25
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	mg/L	1.3	ND	ND	ND	ND	ND	ND	0.027	0.02
Iron, Total	mg/L	0.3	0.153	0.021	0.418	0.221	0.072	0.046	0.15	ND
Lead, Total	mg/L	0.015	0.005	ND	0.004	0.004	ND	ND	ND	ND
Magnesium, Total	mg/L	-	-	-	-	-	-	-	-	4.3
Manganese, Total	mg/L	0.043	ND	0.011	0.015	0.015	0.014	0.011	2.5	ND
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	ND	0.011	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/L	-	-	-	-	-	-	-	-	7.5
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	-	-	-	-	-	-	-	-	40
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	0.025	ND	0.261	0.138	0.013	0.05	0.057	0.091
Alkalinity, Total	mg/L	-	10	6	8.2	10.85	8.2	12.2	17.75	11.8
Ammonia-N	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Chloride	mg/L	250	9.77	9.07	27.06	50.73	14.11	33.08	20.87	30.32
Hardness	mg/L	-	19.81	15.96	16.48	46.05	23.85	16.63	35.64	53.29
Nitrate-N	mg/L	10	0.25	0.26	0.29	0.56	0.25	0.49	0.64	0.46
pH	SU	8.5	4.77	4.9	4.6	5.03	4.63	4.92	4.83	4.9
Specific Conductance	umhos/cm	-	102	92	127	223	118	180	184	186
Sulfate	mg/L	250	10.79	9.89	7.83	8.58	9.48	11.53	18.97	14.35
Total Dissolved Solids	mg/L	500	139	50	85	120	194	406	100	534
Turbidity	NTU	5	14	19.9	100	96.3	52.7	23	10.06	11.4

Location ID: GWM-9

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	9/25/2007	3/18/2008	9/25/2008	3/18/2009	9/22/2009	4/13/2010	8/24/2010	3/3/2011
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total	mg/L	2	0.031	0.033	0.035	0.03	0.04	0.045	0.043	0.045
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND
Calcium, Total	mg/L	-	5.95	20.55	13.94	6.08	12.81	21.9	16.85	21.48
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	mg/L	1.3	0.021	0.03	0.052	0.014	ND	0.02	ND	ND
Iron, Total	mg/L	0.3	0.044	ND	0.387	0.099	0.313	ND	ND	0.119
Lead, Total	mg/L	0.015	ND	ND	ND	ND	0.002	ND	ND	ND
Magnesium, Total	mg/L	-	5.1	12.35	2.738	3.15	2.328	10	2.508	5.55
Manganese, Total	mg/L	0.043	0.04	0.018	0.078	ND	ND	0.037	ND	0.022



Location ID: GWM-9

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	9/25/2007	3/18/2008	9/25/2008	3/18/2009	9/22/2009	4/13/2010	8/24/2010	3/3/2011
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/L	-	2.39	4.4	2.95	2.13	4.66	7	3.26	3.56
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	-	28.2	157	82.8	42.8	75.1	161	75.8	87.6
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	0.032	0.024	ND	ND	0.011	0.024	0.01	0.023
Alkalinity, Total	mg/L	-	13.9	15	20.6	19.3	39.6	28.2	7.1	10.6
Ammonia-N	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	-	ND	16	ND	ND	ND	ND	ND	ND
Chloride	mg/L	250	18.34	269.95	80.61	57.28	87.9	271.69	134.17	130.29
Hardness	mg/L	-	35.91	102.17	-	28.16	73.56	95.86	52.4	76.49
Nitrate-N	mg/L	10	0.44	0.39	0.4	0.54	0.2	0.32	0.66	0.55
pH	SU	8.5	4.86	5.22	5.58	5.69	5.76	5.53	5.43	5.26
Specific Conductance	umhos/cm	-	167	1100	395	270	456	1535	545	641
Sulfate	mg/L	250	13.83	21.5	27.92	29.04	32.33	25.11	17.04	19.96
Total Dissolved Solids	mg/L	500	276	670	204	146	202	550	292	336
Turbidity	NTU	5	22	5.04	23	3.8	15	6	8.1	8.9

Location ID: GWM-9

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/4/2011	2/28/2012	8/28/2012	2/26/2013	9/24/2013	3/19/2014	9/8/2014	3/17/2015
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND U	ND U	ND U
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND U	ND U	ND U
Barium, Total	mg/L	2	0.067	0.063	0.041	0.069	0.02	0.067	0.042	0.15
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND U	ND U	ND U
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND U	ND U	ND U
Calcium, Total	mg/L	-	8.8	1.28	4.39	13.18	1.95	16.8	5.9	37.1
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	0.0018 J	0.016	0.0055
Cobalt, Total	mg/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Copper, Total	mg/L	1.3	ND	ND	ND	ND	ND	0.01	0.019	0.014
Iron, Total	mg/L	0.3	0.076	0.028	0.121	0.076	0.022	ND U	0.064	0.042 J
Lead, Total	mg/L	0.015	ND	ND	ND	ND	ND	ND U	ND U	ND U
Magnesium, Total	mg/L	-	4.1	0.385	2.024	3.326	1.495	4	2.7	7.9
Manganese, Total	mg/L	0.043	0.059	0.029	0.014	0.03	0.02	0.018	0.039	0.043
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	0.00026 J	ND U	ND U
Nickel, Total	mg/L	0.039	ND	ND	ND	ND	ND	0.005 J	0.0092	0.018
Potassium, Total	mg/L	-	3.1	2.72	2.49	2.79	1.39	4.4	2	5.4
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND U	ND U	ND U
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND U	ND U	ND U
Sodium, Total	mg/L	-	51	5.1	42.6	43.5	23.41	60.8	33.8	154
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND U	ND U	ND U

Location ID: GWM-9		Number of Sampling Dates: 49									
Parameter Name	Units	Compliance Limit	10/4/2011	2/28/2012	8/28/2012	2/26/2013	9/24/2013	3/19/2014	9/8/2014	3/17/2015	
Zinc, Total	mg/L	0.6	0.024	0.02	0.012	0.013	ND	0.0078	0.012	0.012	
Alkalinity, Total	mg/L	-	13	14.05	25.57	12.57	ND	26	11	37	
Ammonia-N	mg/L	-	ND	ND	ND	ND	ND	0.134	ND U	ND U	
Chemical Oxygen Demand (COD)	mg/L	-	15	ND	ND	ND	ND	ND U	7	ND U	
Chloride	mg/L	250	100	86.48	36	82.78	29.07	115	62.9	308	
Hardness	mg/L	-	44	47.86	19.3	46.6	11	78	25	190	
Nitrate-N	mg/L	10	0.54	0.36	1.2	0.57	0.39	0.52	0.5	0.56	
pH	SU	8.5	5.14	5.03	4.97	5.05	5.18	5.87	5.22	5.85	
Specific Conductance	umhos/cm	-	451	382	327	316	171	220	227	786	
Sulfate	mg/L	250	12	15.99	20	12.26	17.73	12.4	9.2	15.4	
Total Dissolved Solids	mg/L	500	220	216	142	180	62	229	130	584	
Turbidity	NTU	5	16	12.8	18.7	6.53	ND	0.77	1.13	1.36	

Location ID: GWM-9		Number of Sampling Dates: 49									
Parameter Name	Units	Compliance Limit	9/14/2015	3/17/2016	9/21/2016	3/24/2017	9/1/2017	9/20/2017	3/27/2018	9/19/2018	
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	0.0013 J	-	ND U	ND U	ND U	
Arsenic, Total	mg/L	0.01	ND U	ND U	ND U	ND U	-	ND U	ND U	0.0016 J	
Barium, Total	mg/L	2	0.1	0.069	0.094	0.071	-	0.046	0.088	0.056	
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	-	ND U	ND U	ND U	
Cadmium, Total	mg/L	0.005	0.00042 J	ND U	ND U	ND U	-	ND U	ND U	0.00041 J	
Calcium, Total	mg/L	-	14.2	11.7	8.5	9.2	-	11.3	28.1	12.2	
Chromium, Total	mg/L	0.1	0.0037	0.0032	0.0045	0.0017 J	-	0.0018 J	0.0015 J	0.0025	
Cobalt, Total	mg/L	-	0.004 J	0.0023 J	0.0043 J	0.0032 J	-	ND U	0.0019 J	0.13	
Copper, Total	mg/L	1.3	0.018	0.018	0.014	0.016	-	0.0075	0.0076	0.011	
Iron, Total	mg/L	0.3	0.02 J	0.044 J	0.02 J	0.021 J	-	0.027 J	0.025 J	0.5	
Lead, Total	mg/L	0.015	ND U	ND U	ND U	ND U	-	ND U	ND U	0.0019 J	
Magnesium, Total	mg/L	-	7	4.8	6	4.1	-	3.2	6.6	3.1	
Manganese, Total	mg/L	0.043	0.14	0.077	0.11	0.082	-	0.032	0.036	0.032	
Mercury, Total	mg/L	0.002	ND U	ND U	ND U	0.00099	-	0.00035 J	0.00024 J	ND U	
Nickel, Total	mg/L	0.039	0.011	0.012	0.009	0.0064	-	ND U	0.0033 J	0.0029 J	
Potassium, Total	mg/L	-	3.4	3.3	2.1	3.2	-	4.4	5.2	3.7	
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	-	ND U	ND U	ND U	
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	-	ND U	ND U	ND U	
Sodium, Total	mg/L	-	76.5	59.6	53.3	45.7	-	51.8	80.1	59.4	
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	-	ND U	ND U	ND U	
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	-	ND U	ND U	ND U	
Zinc, Total	mg/L	0.6	0.023	0.016	0.019	0.016	-	0.0068	0.006	0.015	
Alkalinity, Total	mg/L	-	24	22	5	25	-	52	58	47	
Ammonia-N	mg/L	-	ND U	ND U	ND U	ND U	-	0.06 J	0.034 J	0.066 J	
Chemical Oxygen Demand (COD)	mg/L	-	ND U	ND U	ND U	ND U	-	8	ND U	ND U	
Chloride	mg/L	250	152	93.4	109	87.6	-	64.6	164	85.2	
Hardness	mg/L	-	45	52	42	50	-	41.1	97.2	43.4	
Nitrate-N	mg/L	10	1	1.2	0.8	0.62	-	0.28	0.4	0.28	
pH	SU	8.5	5.16	5.41	4.89	5.36	-	6.09	6.37	5.8	

Location ID: GWM-9										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	9/14/2015	3/17/2016	9/21/2016	3/24/2017	9/1/2017	9/20/2017	3/27/2018	9/19/2018
Specific Conductance	umhos/cm	-	431	311	332	281	-	295	494	330
Sulfate	mg/L	250	21.8	31.6	17.5	22.8	-	27.3	27.5	23.2
Total Dissolved Solids	mg/L	500	277	239	225	234	-	199	327	150
Turbidity	NTU	5	0.92	0.53	1.4	1.13	-	3.19	2.29	0.81

Location ID: GWM-9										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	3/11/2019	9/25/2019	3/18/2020	9/23/2020	3/17/2021	9/8/2021	3/15/2022	9/12/2022
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Arsenic, Total	mg/L	0.01	0.0019 J	ND U	ND U	ND U	ND U	ND U	ND	ND
Barium, Total	mg/L	2	0.049	0.13	0.093	0.075	0.059	0.051	0.17	0.13
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	ND U	0.00014 J	ND	ND
Cadmium, Total	mg/L	0.005	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Calcium, Total	mg/L	-	7.1	11.3	11.4	8.6	7.6	7.4	21.5	14
Chromium, Total	mg/L	0.1	0.0035	0.0031	0.0016 J	0.0032	0.0026	0.0012 J	0.0043	0.0016 J
Cobalt, Total	mg/L	-	0.2	0.021	0.05	0.0026 J	ND U	0.00062 J	0.003 J	0.0038 J
Copper, Total	mg/L	1.3	0.025	0.016	0.019	0.017	0.015	0.015	0.025	0.029
Iron, Total	mg/L	0.3	0.53	0.32	0.096	0.11	0.031 J	ND U	0.03 J	0.037 J
Lead, Total	mg/L	0.015	0.0024	ND U	ND U	0.00079 J	ND U	ND U	ND	0.00081 J
Magnesium, Total	mg/L	-	3	8.9	7	5.4	4	2.9	11.4	8.5
Manganese, Total	mg/L	0.043	0.045	0.14	0.086	0.065	0.032	0.016	0.1	0.095
Mercury, Total	mg/L	0.002	0.00025 J	0.0016	ND U	0.00024 J	0.00027 J	ND U	0.00024 J	0.00031 J
Nickel, Total	mg/L	0.039	0.0092	0.0099	0.0094	0.0077	0.0092	0.0077	0.016	0.013
Potassium, Total	mg/L	-	1.9	2.3	2.5	2.3	2.4	2.5	3.2	2.5
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Sodium, Total	mg/L	-	47.5	99	88.4	62.8	58.8	45	171	139
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Zinc, Total	mg/L	0.6	0.028	0.025	0.021	0.023	0.017	0.018	0.039	0.044
Alkalinity, Total	mg/L	-	12	11	11	12	16	17	11	7
Ammonia-N	mg/L	-	0.074 J	0.149	ND U	0.063 J	0.118	0.067 J	0.103	ND
Chemical Oxygen Demand (COD)	mg/L	-	9 J	ND U	ND U	ND U	9 J	5 J	ND	ND
Chloride	mg/L	250	79.4	177	162	117	98.5	82.8	319	249
Hardness	mg/L	-	30	64.9	57.5	46.4	32.9	28.7	102	72.5
Nitrate-N	mg/L	10	0.4	0.38	0.64	0.5	0.8	0.88	1	1
pH	SU	8.5	5.21	4.93	5.21	5.12	5.07	5.28	5.29	4.83
Specific Conductance	umhos/cm	-	263	520	471	321	289	221	833	756
Sulfate	mg/L	250	15.6	8.3	9.5	8.6	9.7	10.4	6.6	5.7
Total Dissolved Solids	mg/L	500	143	286	392	264	160	176	570	464
Turbidity	NTU	5	1.67	2.05	1.53	5.36	0.81	1.34	1.42	9.59

Location ID: GWM-9

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/13/2023
Antimony, Total	mg/L	0.006	ND
Arsenic, Total	mg/L	0.01	ND
Barium, Total	mg/L	2	0.091
Beryllium, Total	mg/L	0.004	ND
Cadmium, Total	mg/L	0.005	ND
Calcium, Total	mg/L	-	11.9
Chromium, Total	mg/L	0.1	0.0021 J
Cobalt, Total	mg/L	-	0.0029 J
Copper, Total	mg/L	1.3	0.019
Iron, Total	mg/L	0.3	0.023 J
Lead, Total	mg/L	0.015	ND
Magnesium, Total	mg/L	-	6.5
Manganese, Total	mg/L	0.043	0.068
Mercury, Total	mg/L	0.002	0.00039 J
Nickel, Total	mg/L	0.039	0.01
Potassium, Total	mg/L	-	2.8
Selenium, Total	mg/L	0.05	ND
Silver, Total	mg/L	0.0094	ND
Sodium, Total	mg/L	-	120
Thallium, Total	mg/L	0.002	ND
Vanadium, Total	mg/L	0.0086	ND
Zinc, Total	mg/L	0.6	0.019
Alkalinity, Total	mg/L	-	22
Ammonia-N	mg/L	-	0.119
Chemical Oxygen Demand (COD)	mg/L	-	7 J
Chloride	mg/L	250	217
Hardness	mg/L	-	56.5
Nitrate-N	mg/L	10	1.1
pH	SU	8.5	5.1
Specific Conductance	umhos/cm	-	751.49
Sulfate	mg/L	250	6.4
Total Dissolved Solids	mg/L	500	382
Turbidity	NTU	5	3.69

# Historical Well Data Assessment Monitoring, Organochloride Pesticides

Name: Eastern Sanitary Landfill

Location ID: GWM-9										
Number of Sampling Dates: 13										
Parameter Name	Units	Compliance Limit	3/24/2017	9/1/2017	3/27/2018	9/19/2018	3/11/2019	9/25/2019	4/7/2020	9/23/2020
4,4'-DDD	ug/L	0.0063	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4,4'-DDE	ug/L	0.046	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4,4'-DDT	ug/L	0.23	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Aldrin	ug/L	0.00092	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
alpha-HCH (alpha-BHC)	ug/L	0.0072	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
beta-BHC	ug/L	0.025	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlordane	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
delta-BHC	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Dieldrin	ug/L	0.0018	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Endosulfan I	ug/L	10	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Endosulfan II	ug/L	10	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Endosulfan Sulfate	ug/L	10	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Endrin	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Endrin Aldehyde	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
gamma-BHC	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Heptachlor	ug/L	0.4	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Heptachlor Epoxide	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methoxychlor	ug/L	40	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Toxaphene	ug/L	3	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-9										
Number of Sampling Dates: 13										
Parameter Name	Units	Compliance Limit	3/17/2021	9/8/2021	3/15/2022	9/12/2022	3/13/2023			
4,4'-DDD	ug/L	0.0063	ND U	ND U	ND	ND	ND			
4,4'-DDE	ug/L	0.046	ND U	ND U	ND	ND	ND			
4,4'-DDT	ug/L	0.23	ND U	ND U	ND	ND	ND			
Aldrin	ug/L	0.00092	ND U	ND U	ND	ND	ND			
alpha-HCH (alpha-BHC)	ug/L	0.0072	ND U	ND U	ND	ND	ND			
beta-BHC	ug/L	0.025	ND U	ND U	ND	ND	ND			
Chlordane	ug/L	2	ND U	ND U	ND	ND	ND			
delta-BHC	ug/L	0.2	ND U	ND U	ND	ND	ND			
Dieldrin	ug/L	0.0018	ND U	ND U	ND	ND	ND			
Endosulfan I	ug/L	10	ND U	ND U	ND	ND	ND			
Endosulfan II	ug/L	10	ND U	ND U	ND	ND	ND			
Endosulfan Sulfate	ug/L	10	ND U	ND U	ND	ND	ND			
Endrin	ug/L	2	ND U	ND U	ND	ND	ND			

Location ID: GWM-9  
 Number of Sampling Dates: 13

Parameter Name	Units	Compliance Limit	3/17/2021	9/8/2021	3/15/2022	9/12/2022	3/13/2023
Endrin Aldehyde	ug/L	2	ND U	ND U	ND	ND	ND
gamma-BHC	ug/L	0.2	ND U	ND U	ND	ND	ND
Heptachlor	ug/L	0.4	ND U	ND U	ND	ND	ND
Heptachlor Epoxide	ug/L	0.2	ND U	ND U	ND	ND	ND
Methoxychlor	ug/L	40	ND U	ND U	ND	ND	ND
Toxaphene	ug/L	3	ND U	ND U	ND	ND	ND

# Historical Well Data Table I

Name: Eastern Sanitary Landfill

Location ID: GWM-10										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	10/28/1999	3/30/2000	10/19/2000	3/28/2001	9/19/2001	4/4/2002	9/27/2002	4/9/2003
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-10

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/28/1999	3/30/2000	10/19/2000	3/28/2001	9/19/2001	4/4/2002	9/27/2002	4/9/2003
1,2,3-Trichloropropane	ug/L	–	ND	ND	ND	ND	ND	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-10

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	12/10/2003	3/30/2004	11/10/2004	6/14/2005	11/1/2005	3/29/2006	9/26/2006	4/19/2007
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	2	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND



Location ID: GWM-10

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	12/10/2003	3/30/2004	11/10/2004	6/14/2005	11/1/2005	3/29/2006	9/26/2006	4/19/2007
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	–	–	–	–	–	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromofom	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-10

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	11/20/2007	4/3/2008	10/16/2008	4/2/2009	10/6/2009	5/4/2010	9/1/2010	3/22/2011
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	2	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-10

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	11/20/2007	4/3/2008	10/16/2008	4/2/2009	10/6/2009	5/4/2010	9/1/2010	3/22/2011
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	–	–	–	–	–	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-10

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/12/2011	3/6/2012	9/13/2012	3/19/2013	9/25/2013	3/18/2014	9/16/2014	3/18/2015
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND U	ND U	4.7 J
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND U	ND U	0.54 JB
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	0.35 J	ND U	ND U

Location ID: GWM-10

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/12/2011	3/6/2012	9/13/2012	3/19/2013	9/25/2013	3/18/2014	9/16/2014	3/18/2015
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND U	ND U	ND U
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND U	ND U	ND U
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND U	ND U	ND U
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND U	ND U	0.25 JB
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND U	ND U	ND U
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND U	ND U	ND U
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromofom	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chlorofom	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U

Location ID: GWM-10

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	9/15/2015	10/8/2015	3/16/2016	9/22/2016	3/28/2017	9/21/2017	3/28/2018	9/20/2018
Acetone	ug/L	1400	ND U	4.7 J	ND U	ND U	ND U	ND U	ND U	ND U
Acrylonitrile	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromochloromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromomethane	ug/L	0.75	0.45 J	0.58 J	ND U	ND U	ND U	ND U	ND U	ND U
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND U	0.24 JB	ND U
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloromethane	ug/L	19	0.39 J	ND U	ND U	1.1	ND U	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Dibromomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
2-Hexanone	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Iodomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-10										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	9/15/2015	10/8/2015	3/16/2016	9/22/2016	3/28/2017	9/21/2017	3/28/2018	9/20/2018
Vinyl acetate	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-10										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	3/12/2019	10/1/2019	3/18/2020	9/24/2020	3/17/2021	9/9/2021	3/15/2022	9/15/2022
Acetone	ug/L	1400	ND U	3.5 J	ND U	ND U	3.3 J	3.5 J	ND	ND
Acrylonitrile	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Bromochloromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Bromomethane	ug/L	0.75	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Chloromethane	ug/L	19	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Dibromomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
2-Hexanone	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Iodomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND

Location ID: GWM-10										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	3/12/2019	10/1/2019	3/18/2020	9/24/2020	3/17/2021	9/9/2021	3/15/2022	9/15/2022
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Trichlorofluoromethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,2,3-Trichloropropane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Vinyl acetate	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
o-Xylene	ug/L	10000	-	-	ND U	ND U	ND U	ND U	ND	ND
mp-Xylene	ug/L	10000	-	-	ND U	ND U	ND U	ND U	ND	ND
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Chloroform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND

Location ID: GWM-10										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	3/15/2023							
Acetone	ug/L	1400	ND							
Acrylonitrile	ug/L	-	ND							
Benzene	ug/L	5	ND							
Bromochloromethane	ug/L	-	ND							
Bromomethane	ug/L	0.75	ND							
2-Butanone	ug/L	700	12.8							
Carbon disulfide	ug/L	81	ND							
Carbon Tetrachloride	ug/L	5	ND							
Chlorobenzene	ug/L	100	ND							
Chloroethane	ug/L	2100	ND							
Chloromethane	ug/L	19	ND							
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND							
1,2-Dibromoethane	ug/L	0.05	ND							
Dibromomethane	ug/L	-	ND							
1,2-Dichlorobenzene	ug/L	600	ND							
1,4-Dichlorobenzene	ug/L	75	ND							
trans-1,4-dichloro-2-butene	ug/L	-	ND							
1,1-Dichloroethane	ug/L	2.8	ND							
1,2-Dichloroethane	ug/L	5	ND							

Location ID: GWM-10

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/15/2023
1,1-Dichloroethene	ug/L	7	ND
cis-1,2-Dichloroethene	ug/L	70	ND
trans-1,2-Dichloroethene	ug/L	100	ND
Methylene Chloride	ug/L	5	ND
Methyl t-Butyl Ether	ug/L	20	ND
1,2-Dichloropropane	ug/L	5	ND
trans-1,3-Dichloropropene	ug/L	–	ND
cis-1,3-Dichloropropene	ug/L	–	ND
Ethylbenzene	ug/L	700	ND
2-Hexanone	ug/L	–	ND
Iodomethane	ug/L	–	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND
Styrene	ug/L	100	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND
Tetrachloroethene	ug/L	5	ND
Toluene	ug/L	1000	ND
1,1,1-Trichloroethane	ug/L	200	ND
1,1,2-Trichloroethane	ug/L	5	ND
Trichloroethene	ug/L	5	ND
Trichlorofluoromethane	ug/L	–	ND
1,2,3-Trichloropropane	ug/L	–	ND
Vinyl acetate	ug/L	–	ND
Vinyl chloride	ug/L	2	ND
Total Xylenes	ug/L	10000	ND
o-Xylene	ug/L	10000	ND
mp-Xylene	ug/L	10000	ND
Bromodichloromethane	ug/L	80	ND
Chlorodibromomethane	ug/L	80	ND
Bromoform	ug/L	80	ND
Chloroform	ug/L	80	ND

## Historical Well Data Table II

Name: Eastern Sanitary Landfill

Location ID: GWM-10											
Number of Sampling Dates: 49											
Parameter Name	Units	Compliance Limit	10/28/1999	3/30/2000	10/19/2000	3/28/2001	9/19/2001	4/4/2002	9/27/2002	4/9/2003	
Antimony, Total	mg/L	0.006	--	ND	ND	ND	ND	ND	ND	ND	
Arsenic, Total	mg/L	0.01	--	ND	ND	ND	ND	ND	ND	ND	
Barium, Total	mg/L	2	ND	ND	0.028	0.037	0.04	0.069	0.078	0.065	
Beryllium, Total	mg/L	0.004	--	ND	ND	ND	ND	ND	ND	ND	
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	
Calcium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	
Cobalt, Total	mg/L	--	--	ND	0.026	ND	0.026	0.028	0.022	0.024	
Copper, Total	mg/L	1.3	--	ND	0.016	0.047	0.01	0.025	0.052	0.021	
Iron, Total	mg/L	0.3	2.38	4.43	2.67	3.812	4.748	7.8	4.176	1.75	
Lead, Total	mg/L	0.015	ND	ND	0.005	ND	0.004	0.003	0.002	ND	
Magnesium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Manganese, Total	mg/L	0.043	0.149	0.14	0.168	0.2	0.131	0.129	0.137	0.121	
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND	
Nickel, Total	mg/L	0.039	--	ND	ND	0.056	0.052	0.043	0.073	0.059	
Potassium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Selenium, Total	mg/L	0.05	--	ND	ND	ND	ND	ND	ND	ND	
Silver, Total	mg/L	0.0094	--	ND	ND	ND	ND	ND	ND	ND	
Sodium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Thallium, Total	mg/L	0.002	--	ND	ND	ND	ND	ND	ND	ND	
Vanadium, Total	mg/L	0.0086	--	ND	ND	ND	ND	ND	ND	ND	
Zinc, Total	mg/L	0.6	ND	ND	0.111	0.036	0.042	0.079	0.067	0.049	
Alkalinity, Total	mg/L	--	--	14	10	11.25	17	16	10	6	
Ammonia-N	mg/L	--	0.2	0.2	ND	ND	ND	ND	ND	ND	
Chemical Oxygen Demand (COD)	mg/L	--	10	10	ND	11	15	ND	ND	ND	
Chloride	mg/L	250	10	10	0.84	0.67	1.23	0.88	0.79	1.31	
Hardness	mg/L	--	--	8	8	8.34	8.52	10.51	8.99	6.66	
Nitrate-N	mg/L	10	0.2	0.2	ND	ND	ND	ND	ND	ND	
pH	SU	8.5	--	--	5.21	5.7	5.7	5.41	4.71	4.96	
Specific Conductance	umhos/cm	--	--	81	ND	ND	71	80	65.5	71	
Sulfate	mg/L	250	24.8	20.8	22	17	22	15.68	14.34	24.6	
Total Dissolved Solids	mg/L	500	48	60	63	42	70	61	ND	151	
Turbidity	NTU	5	--	21	71	24.7	24	77.2	15.3	60.7	

Location ID: GWM-10											
Number of Sampling Dates: 49											
Parameter Name	Units	Compliance Limit	12/10/2003	3/30/2004	11/10/2004	6/14/2005	11/1/2005	3/29/2006	9/26/2006	4/19/2007	
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND	
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	
Barium, Total	mg/L	2	0.066	0.06	0.041	0.045	0.049	0.046	0.049	0.045	
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND	
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	
Calcium, Total	mg/L	--	--	--	--	--	--	--	--	0.72	



Location ID: GWM-10

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	12/10/2003	3/30/2004	11/10/2004	6/14/2005	11/1/2005	3/29/2006	9/26/2006	4/19/2007
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	--	0.033	0.024	0.042	0.035	0.027	ND	0.033	0.025
Copper, Total	mg/L	1.3	ND	ND	0.011	0.017	ND	0.028	0.016	ND
Iron, Total	mg/L	0.3	1.694	4.77	0.437	1.626	3.3	3.17	2.056	3.044
Lead, Total	mg/L	0.015	ND	ND	ND	0.003	0.002	ND	ND	ND
Magnesium, Total	mg/L	--	--	--	--	--	--	--	--	0.76
Manganese, Total	mg/L	0.043	0.068	0.151	0.112	0.138	0.121	0.215	0.139	0.119
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	0.047	0.049	0.07	0.056	0.099	0.052	0.072	0.06
Potassium, Total	mg/L	--	--	--	--	--	--	--	--	10.45
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	--	--	--	--	--	--	--	--	30
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	0.045	0.024	0.143	0.116	0.093	0.054	0.126	0.08
Alkalinity, Total	mg/L	--	8	4	6	5.4	12.05	10.25	7.2	4.85
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	--	ND	ND	10	ND	ND	ND	ND	ND
Chloride	mg/L	250	0.89	0.95	0.92	0.92	1.11	0.91	0.9	0.81
Hardness	mg/L	--	11.57	4.55	10.83	8.19	18.95	7.76	27.27	4.94
Nitrate-N	mg/L	10	ND	ND	ND	ND	ND	ND	ND	ND
pH	SU	8.5	4.92	5.09	4.34	4.28	4.75	4.92	4.71	4.52
Specific Conductance	umhos/cm	--	69.4	76	65.5	73.8	68.1	74.6	65.4	64.1
Sulfate	mg/L	250	17.1	14.28	18.72	18.56	19.25	16.15	15.14	15.02
Total Dissolved Solids	mg/L	500	55	26	ND	282	52	65	274	22
Turbidity	NTU	5	95.9	15	54.6	17.7	48.7	35.2	44	16.3

Location ID: GWM-10

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	11/20/2007	4/3/2008	10/16/2008	4/2/2009	10/6/2009	5/4/2010	9/1/2010	3/22/2011
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total	mg/L	2	0.041	0.046	0.038	0.035	0.033	0.039	0.042	0.036
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND
Calcium, Total	mg/L	--	1.17	1.35	8.13	0.035	0.44	ND	1.05	0.06
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	0.011	ND	ND	ND
Cobalt, Total	mg/L	--	0.03	0.025	ND	0.025	0.05	0.027	0.043	0.023
Copper, Total	mg/L	1.3	0.034	ND	0.027	ND	ND	0.033	ND	ND
Iron, Total	mg/L	0.3	2.282	4.616	0.094	2.034	0.653	5.43	2.823	0.564
Lead, Total	mg/L	0.015	ND	ND	ND	ND	ND	ND	ND	0.003
Magnesium, Total	mg/L	--	1.256	1.52	3.179	1.2	0.98	1.1	1.02	1.009
Manganese, Total	mg/L	0.043	0.14	0.176	0.052	0.106	0.106	0.16	0.114	0.161
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	0.047	0.059	ND	0.049	0.081	0.053	0.064	0.079

Location ID: GWM-10  
Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	11/20/2007	4/3/2008	10/16/2008	4/2/2009	10/6/2009	5/4/2010	9/1/2010	3/22/2011
Potassium, Total	mg/L	--	2.15	2.26	2.15	2.4	2.4	1.88	1.88	1.96
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	--	5.2	13.4	42.6	4.9	3.7	6.5	11.6	12.3
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	0.038	0.045	ND	0.045	0.063	0.058	0.045	0.034
Alkalinity, Total	mg/L	--	5.7	11.2	2.2	5.6	ND	3.4	ND	ND
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	--	ND	ND	14	ND	ND	ND	ND	ND
Chloride	mg/L	250	0.93	0.75	0.81	1.51	0.97	0.87	0.84	1
Hardness	mg/L	--	8.11	9.63	33.4	5.82	5.13	4.63	6.82	4.37
Nitrate-N	mg/L	10	ND	ND	ND	ND	ND	ND	ND	ND
pH	SU	8.5	5.03	4.88	4.58	5.38	4.59	5.21	4.91	4.8
Specific Conductance	umhos/cm	--	57.6	78.3	64.6	68.7	62.1	68	52	66.8
Sulfate	mg/L	250	22.48	12.85	16.13	25.3	16.61	18.92	16.17	20.04
Total Dissolved Solids	mg/L	500	64	146	174	50	36	68	74	28
Turbidity	NTU	5	30.5	47.8	20	19	16	27	29	15

Location ID: GWM-10  
Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/12/2011	3/6/2012	9/13/2012	3/19/2013	9/25/2013	3/18/2014	9/16/2014	3/18/2015
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	0.0011 J	0.00089 J	ND U
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND U	ND U	ND U
Barium, Total	mg/L	2	0.035	0.031	0.039	0.041	0.03	0.035	0.031	0.035
Beryllium, Total	mg/L	0.004	ND	0.002	ND	ND	ND	0.00042 J	0.00046 J	0.00033 J
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	0.0027	0.0028	0.0035
Calcium, Total	mg/L	--	1.8	0.71	1.51	1.01	0.32	1.9	1.6	2.4
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	0.004	0.0027	0.0032
Cobalt, Total	mg/L	--	0.028	0.029	0.025	0.029	0.03	0.037	0.031	0.029
Copper, Total	mg/L	1.3	ND	ND	ND	ND	ND	0.0061	0.003 J	0.0041 J
Iron, Total	mg/L	0.3	1.2	1.067	1.115	1.747	0.033	0.41	0.38	0.063
Lead, Total	mg/L	0.015	ND	ND	ND	ND	ND	ND U	ND U	ND U
Magnesium, Total	mg/L	--	1.1	0.124	1.269	1.259	1.177	1.4	1.2	1.2
Manganese, Total	mg/L	0.043	0.12	0.121	0.097	0.117	0.09	0.13	0.12	0.11
Mercury, Total	mg/L	0.002	ND	ND	--	ND	ND	ND U	ND U	ND U
Nickel, Total	mg/L	0.039	0.054	0.054	0.05	0.054	0.054	0.073	0.062	0.056
Potassium, Total	mg/L	--	1.6	1.7	1.62	1.67	1.82	2.4	2	2.6
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND U	ND U	ND U
Silver, Total	mg/L	0.0094	ND	ND	0.077	ND	0.01	ND U	ND U	ND U
Sodium, Total	mg/L	--	2.6	0.3	2.8	2.9	2.76	3.4	3.2	3.3
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND U	ND U	ND U
Zinc, Total	mg/L	0.6	0.052	0.052	0.044	0.046	0.05	0.048	0.039	0.04
Alkalinity, Total	mg/L	--	4	1.6	1.69	3.17	2.35	3 J	4 J	3 J
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	0.137	0.105	ND U

Location ID: GWM-10  
Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/12/2011	3/6/2012	9/13/2012	3/19/2013	9/25/2013	3/18/2014	9/16/2014	3/18/2015
Chemical Oxygen Demand (COD)	mg/L	--	13	ND	ND	14	ND	3 J	ND U	ND U
Chloride	mg/L	250	0.61	0.76	0.8	1.11	1.12	2.4 J	2.7	1.3 J
Hardness	mg/L	--	12	23.01	8.99	7.7	5.7	16	10	50
Nitrate-N	mg/L	10	ND	ND	ND	ND	ND	ND U	ND U	0.1 J
pH	SU	8.5	4.64	4.36	4.63	4.55	4.49	5.03	4.92	4.67
Specific Conductance	umhos/cm	--	64.8	57.8	67.4	59.8	63	44.5	45.4	44.7
Sulfate	mg/L	250	9.5	15.71	16	16.38	17.05	19.3	18.4	17.4
Total Dissolved Solids	mg/L	500	48	74	76	12	34	63	36	85
Turbidity	NTU	5	22.5	26.2	22.1	8.9	ND	0.35	0.94	0.49

Location ID: GWM-10  
Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	9/15/2015	10/8/2015	3/16/2016	9/22/2016	3/28/2017	9/21/2017	3/28/2018	9/20/2018
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Arsenic, Total	mg/L	0.01	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Barium, Total	mg/L	2	0.033	0.033	0.036	0.043	0.035	0.032	0.031	0.032
Beryllium, Total	mg/L	0.004	0.00035 J	0.00035 J	0.0004 J	0.00044 J	0.00038 J	0.00041 J	0.00048 J	0.00044 J
Cadmium, Total	mg/L	0.005	0.0078	0.0073	0.0095	0.012	0.011	0.012	0.011	0.011
Calcium, Total	mg/L	--	2.8	2.9	3.9	3.2	3	2.7	2.8	2.8
Chromium, Total	mg/L	0.1	0.0037	0.0031	0.0023	0.0034	0.0023	0.0027	0.0033	0.0043
Cobalt, Total	mg/L	--	0.066	0.074	0.052	0.053	0.045	0.042	0.038	0.034
Copper, Total	mg/L	1.3	0.022	0.034	0.027	0.036	0.034	0.031	0.024	0.025
Iron, Total	mg/L	0.3	0.052 J	0.028 J	0.027 J	0.02 J	ND U	0.029 J	0.032 J	0.044 J
Lead, Total	mg/L	0.015	ND U	ND U	ND U	ND U	0.0012 J	ND U	ND U	ND U
Magnesium, Total	mg/L	--	1.2	1.2	1.2	1.2	1.1	1.2	1.2	1.1
Manganese, Total	mg/L	0.043	0.12	0.13	0.11	0.12	0.12	0.11	0.11	0.11
Mercury, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Nickel, Total	mg/L	0.039	0.13	0.15	0.1	0.1	0.087	0.081	0.073	0.067
Potassium, Total	mg/L	--	3.4	3.3	2.4	2.7	2.1	2.2	1.9	2.3
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Sodium, Total	mg/L	--	4	4	3.5	3.7	3.3	3.4	3.3	3.5
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Zinc, Total	mg/L	0.6	0.055	0.056	0.06	0.054	0.054	0.052	0.048	0.05
Alkalinity, Total	mg/L	--	4 J	3 J	2 J	ND U	2 J	1 J	1 J	2 J
Ammonia-N	mg/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	0.091 J
Chemical Oxygen Demand (COD)	mg/L	--	1 J	ND U	ND U	ND U	ND U	6 J	ND U	ND U
Chloride	mg/L	250	2.4	1.6 J	1.8 J	1.7 J	1.8 J	2	1.3 J	1.8 J
Hardness	mg/L	--	16	22	15	14	26	11.7	11.9	11.7
Nitrate-N	mg/L	10	ND U	0.04 J	0.08 J	0.06 J	0.06 J	0.08 J	ND U	0.1 J
pH	SU	8.5	4.75	4.5	5.01	4.7	4.5	4.9	4.48	4.72
Specific Conductance	umhos/cm	--	52	52.6	55	57.4	54.1	48.5	49.3	50.7
Sulfate	mg/L	250	23.4	23.8	26.8	23.8	25.3	24.4	23.6	22.6
Total Dissolved Solids	mg/L	500	51	32	67	60	52	50	30	13
Turbidity	NTU	5	0.39	0.2	0.16	1.1	0.13	0.79	0.68	0.48

Location ID: GWM-10

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/12/2019	10/1/2019	3/18/2020	9/24/2020	3/17/2021	9/9/2021	3/15/2022	9/15/2022
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	0.00076 JR	ND U	ND	ND
Arsenic, Total	mg/L	0.01	ND U	ND U	ND U	ND U	ND U	0.00019 J	ND	ND
Barium, Total	mg/L	2	0.035	0.032	0.029	0.027	0.044 R	0.028	0.029	0.027
Beryllium, Total	mg/L	0.004	0.00042 J	0.00038 J	0.00043 J	0.00044 J	0.00052 J	0.00042 J	0.0004 J	0.00051 J
Cadmium, Total	mg/L	0.005	0.01	0.0095	0.0089	0.0085	0.0011 UR	ND U	0.0067	0.0067
Calcium, Total	mg/L	--	3.6	2.5	2.2	2.4	51.8 R	2.3	2.3	2
Chromium, Total	mg/L	0.1	0.0041	0.0029	0.0016 J	0.0017 J	0.001 J	0.0015 J	0.0018 J	0.0015 J
Cobalt, Total	mg/L	--	0.039	0.034	0.033	0.032	0.0056 UR	0.031	0.028	0.03
Copper, Total	mg/L	1.3	0.027	0.027	0.029	0.027	0.0056 UR	0.041	0.057	0.053
Iron, Total	mg/L	0.3	0.032 J	0.039 J	0.04 J	0.031 J	0.028 J	ND U	ND	0.023 J
Lead, Total	mg/L	0.015	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Magnesium, Total	mg/L	--	1	1.1	1.1	1.1	12.2 R	1	1.1	1.1
Manganese, Total	mg/L	0.043	0.11	0.11	0.11	0.11	0.0056 UR	0.098	0.1	0.1
Mercury, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Nickel, Total	mg/L	0.039	0.073	0.066	0.063	0.059	0.0056 UR	0.059	0.057	0.057
Potassium, Total	mg/L	--	2	2.5	2	1.7	0.56 R	2.1	2	1.6
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Sodium, Total	mg/L	--	3.2	3.7	3.3	3	1.2 R	3.3	3.3	2.9
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	0.00039 J	ND U	ND	ND
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Zinc, Total	mg/L	0.6	0.054	0.049	0.053	0.048	0.0076 R	0.047	0.047	0.049
Alkalinity, Total	mg/L	--	2 J	1 J	ND U	ND U	ND U	ND U	ND	ND
Ammonia-N	mg/L	--	0.131	0.214	0.118	0.05 J	0.083 J	ND U	0.103	ND
Chemical Oxygen Demand (COD)	mg/L	--	14 J	ND U	ND U	11 J	13 J	5 J	ND	39
Chloride	mg/L	250	1.5 J	1.5 J	1.3 J	1.6 J	1.9 J	1.6 J	1.5 J	1.3 J
Hardness	mg/L	--	13.3	11	10	10.9	10.2	10.2	9.7	9.5
Nitrate-N	mg/L	10	0.12 J	0.1 J	ND U	0.08 J	0.1 J	0.12 J	0.33 J	ND
pH	SU	8.5	4.38	4.93	4.7	4.03	4.59	4.6	4.28	4.79
Specific Conductance	umhos/cm	--	48.9	39.1	43.1	38.6	40.6	34.4	43.7	38.7
Sulfate	mg/L	250	21.8	21.7	20.5	20.2	21	20.5	15.1	14.4
Total Dissolved Solids	mg/L	500	56	42	ND U	42	51	52	45	33
Turbidity	NTU	5	0.3	0.27	0.27	0.17	0.25	0.22	0.53	2.62

Location ID: GWM-10

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/15/2023							
Antimony, Total	mg/L	0.006	ND							
Arsenic, Total	mg/L	0.01	ND							
Barium, Total	mg/L	2	0.028							
Beryllium, Total	mg/L	0.004	ND							
Cadmium, Total	mg/L	0.005	0.0052							
Calcium, Total	mg/L	--	2.3							
Chromium, Total	mg/L	0.1	0.0036							

Location ID: GWM-10  
 Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/15/2023
Cobalt, Total	mg/L	--	0.033
Copper, Total	mg/L	1.3	0.046
Iron, Total	mg/L	0.3	0.078
Lead, Total	mg/L	0.015	ND
Magnesium, Total	mg/L	--	1.1
Manganese, Total	mg/L	0.043	0.11
Mercury, Total	mg/L	0.002	ND
Nickel, Total	mg/L	0.039	0.06
Potassium, Total	mg/L	--	1.6
Selenium, Total	mg/L	0.05	ND
Silver, Total	mg/L	0.0094	ND
Sodium, Total	mg/L	--	3
Thallium, Total	mg/L	0.002	ND
Vanadium, Total	mg/L	0.0086	ND
Zinc, Total	mg/L	0.6	0.049
Alkalinity, Total	mg/L	--	ND
Ammonia-N	mg/L	--	0.156
Chemical Oxygen Demand (COD)	mg/L	--	8 J
Chloride	mg/L	250	ND
Hardness	mg/L	--	9.5
Nitrate-N	mg/L	10	ND
pH	SU	8.5	4.55
Specific Conductance	umhos/cm	--	42.44
Sulfate	mg/L	250	16.8
Total Dissolved Solids	mg/L	500	42
Turbidity	NTU	5	0.41

# Historical Well Data Table I

Name: Eastern Sanitary Landfill

Location ID: GWM-11											
Number of Sampling Dates: 47											
Parameter Name	Units	Compliance Limit	10/28/1999	3/30/2000	10/19/2000	3/28/2001	9/19/2001	7/23/2002	9/25/2002	3/27/2003	
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND	
Acrylonitrile	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
Bromochloromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND	
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND	
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND	
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND	
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND	
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND	
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND	
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND	
Dibromomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND	
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND	
trans-1,4-dichloro-2-butene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND	
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND	
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND	
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND	
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	2	2	ND	4	ND	
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND	
2-Hexanone	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
Iodomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND	
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND	
1,1,1,2-Tetrachloroethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND	
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND	
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND	
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
Trichlorofluoromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	

Location ID: GWM-11

Number of Sampling Dates: 47

Parameter Name	Units	Compliance Limit	10/28/1999	3/30/2000	10/19/2000	3/28/2001	9/19/2001	7/23/2002	9/25/2002	3/27/2003
1,2,3-Trichloropropane	ug/L	-	ND	ND	ND	ND	ND	-	-	-
Vinyl acetate	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-11

Number of Sampling Dates: 47

Parameter Name	Units	Compliance Limit	11/19/2003	3/25/2004	10/22/2004	6/7/2005	11/1/2005	3/15/2006	9/21/2006	4/12/2007
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	1	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	2	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-11

Number of Sampling Dates: 47

Parameter Name	Units	Compliance Limit	11/19/2003	3/25/2004	10/22/2004	6/7/2005	11/1/2005	3/15/2006	9/21/2006	4/12/2007
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	–	–	–	–	–	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-11

Number of Sampling Dates: 47

Parameter Name	Units	Compliance Limit	10/25/2007	3/26/2008	9/23/2008	3/31/2009	10/14/2009	4/15/2010	9/1/2010	3/22/2011
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	2	ND	ND	1	1	ND



Location ID: GWM-11		Number of Sampling Dates: 47								
Parameter Name	Units	Compliance Limit	10/25/2007	3/26/2008	9/23/2008	3/31/2009	10/14/2009	4/15/2010	9/1/2010	3/22/2011
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	-	-	-	-	-	-	-	-	-
Vinyl acetate	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromofom	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorofom	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-11		Number of Sampling Dates: 47								
Parameter Name	Units	Compliance Limit	10/4/2011	3/6/2012	8/30/2012	3/5/2013	9/17/2013	3/20/2014	9/9/2014	3/16/2015
Acetone	ug/L	1400	ND	ND	ND	ND	ND	5 J	3.6 J	ND U
Acrylonitrile	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Benzene	ug/L	5	ND	ND	ND	ND	1	0.28 J	1.1	1.1
Bromochloromethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	0.45 J	0.57 J	0.47 JB
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND U	0.52 J	ND U

Location ID: GWM-11

Number of Sampling Dates: 47

Parameter Name	Units	Compliance Limit	10/4/2011	3/6/2012	8/30/2012	3/5/2013	9/17/2013	3/20/2014	9/9/2014	3/16/2015
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND U	0.3 J	0.26 J
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND U	ND U	ND U
Dibromomethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	5	1.5	4.5	4.2
trans-1,4-dichloro-2-butene	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND U	0.32 J	0.33 J
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND U	0.36 J	0.32 J
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	2	2.8	3.5	3.4
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND U	ND U	ND U
2-Hexanone	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Iodomethane	ug/L	-	ND	ND	ND	ND	ND	ND U	0.69 J	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND U	ND U	ND U
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND U	ND U	0.61 JB
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vinyl acetate	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND U	ND U	ND U
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND U	ND U	ND U
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U

Location ID: GWM-11

Number of Sampling Dates: 47

Parameter Name	Units	Compliance Limit	9/9/2015	3/18/2016	9/20/2016	3/23/2017	9/19/2017	3/15/2018	9/17/2018	3/5/2019
Acetone	ug/L	1400	ND U	ND U	ND U	5.7 JB	ND U	ND U	ND U	ND U
Acrylonitrile	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Benzene	ug/L	5	0.91 J	1	0.92 J	1	0.94 J	0.75 J	0.73 J	0.72 J
Bromochloromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromomethane	ug/L	0.75	ND U	ND U	ND U	ND U	0.55 JB	ND U	ND U	ND U
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorobenzene	ug/L	100	0.21 J	0.27 J	0.3 J	0.33 J	0.36 J	0.26 J	0.32 J	0.28 J
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloromethane	ug/L	19	ND U	0.33 J	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Dibromomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	4.6	4.4	5	4.9	6	3.9	4.4	3.8
trans-1,4-dichloro-2-butene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	0.32 J	ND U	0.32 J	ND U	0.38 J	0.34 J
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	2.6	2.9	2.2	2.2	2.1	1.6	1.7	1.6
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
2-Hexanone	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Iodomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl acetate	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-11										
Number of Sampling Dates: 47										
Parameter Name	Units	Compliance Limit	9/9/2015	3/18/2016	9/20/2016	3/23/2017	9/19/2017	3/15/2018	9/17/2018	3/5/2019
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-11										
Number of Sampling Dates: 47										
Parameter Name	Units	Compliance Limit	9/24/2019	3/16/2020	9/22/2020	3/16/2021	9/14/2021	3/22/2022	3/14/2023	
Acetone	ug/L	1400	5 J	ND U	3.1 J	ND U	ND U	ND	ND	
Acrylonitrile	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	
Benzene	ug/L	5	0.68 J	ND U	0.56 J	0.51 J	0.48 J	0.55 J	0.5 J	
Bromochloromethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	
Bromomethane	ug/L	0.75	ND U	ND U	0.49 J	ND U	ND U	ND	0.59 J	
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND	ND	
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND	ND	
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	
Chlorobenzene	ug/L	100	0.26 J	ND U	0.2 J	ND U	ND U	0.2 J	ND	
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND	ND	
Chloromethane	ug/L	19	ND U	ND U	0.48 J	ND U	ND U	ND	ND	
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND	ND	
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND	ND	
Dibromomethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND	ND	
1,4-Dichlorobenzene	ug/L	75	3.8	1.8	3.1	2.7	2.9	2.7	2.4	
trans-1,4-dichloro-2-butene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND	ND	
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND	ND	
cis-1,2-Dichloroethene	ug/L	70	0.33 J	0.37 J	ND U	ND U	ND U	0.32 J	0.4 J	
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	
Methyl t-Butyl Ether	ug/L	20	1.5	1.3	1.4	1.3	1.3	1.2	1.4	
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	
trans-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	
cis-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND	ND	
2-Hexanone	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	
Iodomethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	0.64 J	
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND	ND	
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	

Location ID: GWM-11

Number of Sampling Dates: 47

Parameter Name	Units	Compliance Limit	9/24/2019	3/16/2020	9/22/2020	3/16/2021	9/14/2021	3/22/2022	3/14/2023
1,1,1,2-Tetrachloroethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND	ND
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND
Trichlorofluoromethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND
1,2,3-Trichloropropane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND
Vinyl acetate	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND	ND
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND	ND
o-Xylene	ug/L	10000	-	ND U	ND U	ND U	ND U	ND	ND
mp-Xylene	ug/L	10000	-	ND U	ND U	ND U	ND U	ND	ND
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND
Chloroform	ug/L	80	ND U	ND U	ND U	0.41 J	ND U	ND	ND

## Historical Well Data Table II

Name: Eastern Sanitary Landfill

Location ID: GWM-11											
Number of Sampling Dates: 48											
Parameter Name	Units	Compliance Limit	10/28/1999	3/30/2000	10/19/2000	3/28/2001	9/19/2001	7/23/2002	9/25/2002	3/27/2003	
Antimony, Total	mg/L	0.006	--	ND	ND	ND	ND	ND	ND	ND	
Arsenic, Total	mg/L	0.01	--	ND	ND	ND	ND	ND	ND	ND	
Barium, Total	mg/L	2	ND	ND	ND	0.032	0.031	0.03	0.044	0.046	
Beryllium, Total	mg/L	0.004	--	ND	ND	ND	ND	ND	ND	ND	
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	
Calcium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	
Cobalt, Total	mg/L	--	--	ND	ND	ND	ND	ND	ND	ND	
Copper, Total	mg/L	1.3	--	ND	0.028	0.016	0.03	ND	0.037	0.041	
Iron, Total	mg/L	0.3	ND	0.37	0.136	0.059	0.087	0.256	0.095	0.05	
Lead, Total	mg/L	0.015	ND	ND	0.013	ND	0.008	0.009	0.003	ND	
Magnesium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Manganese, Total	mg/L	0.043	ND	ND	0.049	0.049	0.046	ND	0.024	ND	
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND	
Nickel, Total	mg/L	0.039	--	ND	ND	ND	ND	ND	ND	ND	
Potassium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Selenium, Total	mg/L	0.05	--	ND	ND	ND	ND	ND	ND	ND	
Silver, Total	mg/L	0.0094	--	ND	ND	ND	ND	ND	ND	ND	
Sodium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Thallium, Total	mg/L	0.002	--	ND	ND	ND	ND	ND	ND	ND	
Vanadium, Total	mg/L	0.0086	--	ND	ND	ND	0.012	ND	ND	ND	
Zinc, Total	mg/L	0.6	ND	ND	0.069	ND	0.06	0.058	0.057	0.026	
Alkalinity, Total	mg/L	--	--	54	80	53	100	80	90	50	
Ammonia-N	mg/L	--	0.2	0.2	ND	ND	ND	ND	ND	ND	
Chemical Oxygen Demand (COD)	mg/L	--	10	10	ND	12	21	12	ND	ND	
Chloride	mg/L	250	10	10	1.43	3	9.75	2.14	5.36	5.78	
Hardness	mg/L	--	--	68	84	59.46	95.67	95.04	102.12	113.13	
Nitrate-N	mg/L	10	0.6	0.9	0.73	0.43	0.85	0.26	0.44	2.72	
pH	SU	8.5	--	--	6.54	6.6	6.8	6.72	6.43	6.13	
Specific Conductance	umhos/cm	--	--	191	ND	ND	317	266	326	244	
Sulfate	mg/L	250	25.6	26.7	24	23	32	25.62	26.02	22.2	
Total Dissolved Solids	mg/L	500	137	122	134	129	205	161	167	126	
Turbidity	NTU	5	--	4	4	5.6	11	10.12	2.88	3.6	

Location ID: GWM-11											
Number of Sampling Dates: 48											
Parameter Name	Units	Compliance Limit	11/19/2003	3/25/2004	10/22/2004	6/7/2005	11/1/2005	3/15/2006	9/21/2006	4/12/2007	
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND	
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	
Barium, Total	mg/L	2	0.04	0.041	0.046	0.047	0.05	0.048	0.055	0.057	
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND	
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	

Location ID: GWM-11

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	11/19/2003	3/25/2004	10/22/2004	6/7/2005	11/1/2005	3/15/2006	9/21/2006	4/12/2007
Calcium, Total	mg/L	--	--	--	--	--	--	--	--	53.55
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	--	ND	ND	ND	ND	ND	ND	0.012	ND
Copper, Total	mg/L	1.3	0.041	ND	ND	0.011	ND	0.014	0.025	0.017
Iron, Total	mg/L	0.3	0.168	0.042	0.074	0.199	0.088	0.063	0.402	0.245
Lead, Total	mg/L	0.015	0.004	ND	0.002	ND	ND	ND	0.002	0.004
Magnesium, Total	mg/L	--	--	--	--	--	--	--	--	3.205
Manganese, Total	mg/L	0.043	ND	0.043	0.253	0.068	0.076	0.115	0.275	0.118
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	ND	ND	0.013	0.013	ND	ND	ND	ND
Potassium, Total	mg/L	--	--	--	--	--	--	--	--	29.2
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	--	--	--	--	--	--	--	--	34.6
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	ND	ND	0.094	0.081	0.051	0.031	0.071	0.059
Alkalinity, Total	mg/L	--	104	123	150.2	105.45	130.1	83	143	105.2
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	--	ND	ND	17	ND	11	ND	ND	ND
Chloride	mg/L	250	5.84	11.9	60.29	7.43	8.21	3.34	8.84	3.97
Hardness	mg/L	--	81.22	83.72	158.26	83.59	129.36	87.25	156.55	147.09
Nitrate-N	mg/L	10	2.41	2.36	1.12	0.69	0.55	0.2	0.41	0.31
pH	SU	8.5	7.31	6.27	5.51	6.59	6.72	6.49	6.82	6.89
Specific Conductance	umhos/cm	--	375	403	481	352	371	268	408	330
Sulfate	mg/L	250	29.48	33.31	48.59	43.29	38.53	29.81	29.56	33.64
Total Dissolved Solids	mg/L	500	222	230	133	328	206	896	234	17
Turbidity	NTU	5	15	5.39	5.5	2.47	3.73	2.8	5.87	2.33

Location ID: GWM-11

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/25/2007	3/26/2008	9/23/2008	3/31/2009	10/14/2009	4/15/2010	9/1/2010	3/22/2011
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total	mg/L	2	0.054	0.059	0.079	0.096	0.098	0.095	0.086	0.071
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND
Calcium, Total	mg/L	--	20.1	16.75	33.97	28.35	27.32	33.88	34.79	24.66
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	--	ND	ND	0.014	ND	0.026	0.022	0.012	ND
Copper, Total	mg/L	1.3	0.13	0.055	0.022	ND	ND	ND	ND	0.024
Iron, Total	mg/L	0.3	0.281	ND	0.6	0.56	1.159	2.155	1.147	0.893
Lead, Total	mg/L	0.015	ND	ND	ND	ND	ND	ND	ND	ND
Magnesium, Total	mg/L	--	2.86	6.4	3.222	7.9	12.3	12.65	2.761	2.107
Manganese, Total	mg/L	0.043	0.139	0.07	0.182	0.034	0.198	0.421	0.121	0.129
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-11

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/25/2007	3/26/2008	9/23/2008	3/31/2009	10/14/2009	4/15/2010	9/1/2010	3/22/2011
Nickel, Total	mg/L	0.039	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total	mg/L	--	44.45	11.17	12.59	35	12	50.9	47.7	1.49
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	--	23.2	24.1	51.4	25.6	25.1	46.4	62.2	11
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	0.023	0.011	ND	0.011	0.016	ND	0.011	ND
Alkalinity, Total	mg/L	--	149.3	130	164	148.6	176	181.2	194.4	44.7
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	--	15	11	ND	15	ND	ND	ND	ND
Chloride	mg/L	250	12.78	7.93	14.01	18.34	21.73	30.26	39.3	4.66
Hardness	mg/L	--	61.97	68.18	98.09	103.32	118.87	136.69	98.24	70.25
Nitrate-N	mg/L	10	0.71	0.41	0.53	0.67	0.58	0.66	0.66	1.02
pH	SU	8.5	6.99	6.74	7.38	6.85	6.93	6.4	6.82	6.28
Specific Conductance	umhos/cm	--	407	464	529	427	461	541	494	197
Sulfate	mg/L	250	35.2	35.18	29.85	43.39	31.09	33.41	31.11	24.67
Total Dissolved Solids	mg/L	500	384	256	432	214	274	282	348	96
Turbidity	NTU	5	1.61	2.62	2.45	5.42	4.8	11	8.9	13

Location ID: GWM-11

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/4/2011	3/6/2012	8/30/2012	3/5/2013	9/17/2013	3/20/2014	9/9/2014	3/16/2015
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND U	ND U	ND U
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	0.002	0.0011 J	0.0015 J	0.0017 J
Barium, Total	mg/L	2	0.064	0.087	0.065	0.058	0.25	0.15	0.2	0.21
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND U	ND U	ND U
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND U	ND U	ND U
Calcium, Total	mg/L	--	25	3.88	22.09	43.98	38.71	44.2	33.9	33.4
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	0.0034	0.0019 J	0.0018 J
Cobalt, Total	mg/L	--	0.035	0.02	0.014	0.016	0.31	0.11	0.33	0.34
Copper, Total	mg/L	1.3	ND	ND	ND	ND	ND	0.0057	0.0019 J	0.0024 J
Iron, Total	mg/L	0.3	1.8	1.655	1.292	2.141	84.15	4.3	70.4	68.1
Lead, Total	mg/L	0.015	ND	ND	ND	ND	ND	ND U	ND U	ND U
Magnesium, Total	mg/L	--	4.4	0.581	6.268	4.822	21.85	12.7	19.8	19.3
Manganese, Total	mg/L	0.043	0.43	0.236	0.161	0.174	2.91	1	3.1	3.1
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND U	ND U	ND U
Nickel, Total	mg/L	0.039	ND	ND	ND	ND	0.021	0.014	0.022	0.023
Potassium, Total	mg/L	--	15	21.52	35.63	8.31	5.79	5.7	4.8	4.3
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND U	ND U	ND U
Silver, Total	mg/L	0.0094	ND	ND	0.107	ND	ND	ND U	ND U	ND U
Sodium, Total	mg/L	--	14	1.6	23.6	9.5	63.75	59	48.4	47.8
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND U	ND U	ND U
Zinc, Total	mg/L	0.6	0.01	ND	ND	ND	ND	0.0094	0.0083	0.0048 J
Alkalinity, Total	mg/L	--	88	116.9	142.75	99.05	30.59	164	236	187



Location ID: GWM-11  
Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/4/2011	3/6/2012	8/30/2012	3/5/2013	9/17/2013	3/20/2014	9/9/2014	3/16/2015
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	1.48	0.531	0.734
Chemical Oxygen Demand (COD)	mg/L	--	ND	ND	ND	ND	19	ND U	8	4 J
Chloride	mg/L	250	13	13.15	16	9.56	90.26	98.8	92.1	84
Hardness	mg/L	--	80	120.9	80.97	129.7	183.6	202	169	212
Nitrate-N	mg/L	10	1.2	0.91	1.2	0.42	ND	0.54	ND U	ND U
pH	SU	8.5	6.74	6.61	6.93	6.88	5.57	6.34	6.23	6.22
Specific Conductance	umhos/cm	--	313	345	449	227	0.92	613	677	653
Sulfate	mg/L	250	15	21.63	26	27.23	33.28	29.6	34.1	31.3
Total Dissolved Solids	mg/L	500	150	216	260	140	441	418	390	472
Turbidity	NTU	5	11.3	9.17	6.88	16	ND	7.5	0.15	0.18

Location ID: GWM-11  
Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/9/2015	3/18/2016	9/20/2016	3/23/2017	9/19/2017	3/15/2018	9/17/2018	3/5/2019
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND U	ND U	ND U	0.0029
Arsenic, Total	mg/L	0.01	0.0012 J	0.0014 J	ND U	0.0015 J	0.0014 J	ND U	0.0013 J	0.0013 J
Barium, Total	mg/L	2	0.21	0.25	0.22	0.22	0.22	0.22	0.27	0.27
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Cadmium, Total	mg/L	0.005	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Calcium, Total	mg/L	--	33.6	42.7	36.6	35.6	37.2	40.2	40.6	54.2
Chromium, Total	mg/L	0.1	0.0016 J	0.0011 J	0.0031	0.0028	0.0016 J	0.0012 J	ND U	0.00077 J
Cobalt, Total	mg/L	--	0.31	0.36	0.31	0.31	0.31	0.27	0.27	0.27
Copper, Total	mg/L	1.3	0.0049 J	0.0038 J	0.0086	0.0061	0.0076	0.0058	0.0097	0.0074
Iron, Total	mg/L	0.3	73.7	89.5	78.8	84.5	94.2	80.7	94	98.3
Lead, Total	mg/L	0.015	ND U	ND U	ND U	0.0014 J	0.00088 J	0.00095 J	0.0011 J	0.0015 J
Magnesium, Total	mg/L	--	18.5	23.2	20.3	22.6	21.3	21.6	23.2	27.5
Manganese, Total	mg/L	0.043	3.1	3.5	3.1	3.1	3	2.9	3	3.1
Mercury, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Nickel, Total	mg/L	0.039	0.021	0.024	0.021	0.02	0.02	0.019	0.018	0.017
Potassium, Total	mg/L	--	4.5	5.5	4.8	4.9	4.8	4.9	5	6.1
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Sodium, Total	mg/L	--	48.3	55.8	56.2	58.8	59.5	63.4	71.6	79.7
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Zinc, Total	mg/L	0.6	0.006	0.0069	0.0048 J	0.0091	0.0046 J	0.0029 J	0.0057	0.0081
Alkalinity, Total	mg/L	--	224	201	228	243	216	219	192	144
Ammonia-N	mg/L	--	0.605	0.704	0.738	0.751	0.67	0.612	0.965	1.24
Chemical Oxygen Demand (COD)	mg/L	--	6	15	20	20	28	21	30	33
Chloride	mg/L	250	88.6	93.5	105	96.3	127	144	191	186
Hardness	mg/L	--	168	175	159	190	180	189	197	249
Nitrate-N	mg/L	10	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
pH	SU	8.5	6.19	6.26	6.26	6.37	6.32	6.36	6.31	6.42
Specific Conductance	umhos/cm	--	650	693	742	769	829	764	999	954
Sulfate	mg/L	250	31.6	30.7	31.5	27.4	27	27.1	30.8	30.9
Total Dissolved Solids	mg/L	500	439	410	431	434	427	399	519	607

Location ID: GWM-11											
Number of Sampling Dates: 48											
Parameter Name	Units	Compliance Limit	9/9/2015	3/18/2016	9/20/2016	3/23/2017	9/19/2017	3/15/2018	9/17/2018	3/5/2019	
Turbidity	NTU	5	0.33	0.26	1.2	0.09	0.34	0.95	0.57	0.25	

Location ID: GWM-11											
Number of Sampling Dates: 48											
Parameter Name	Units	Compliance Limit	9/24/2019	3/16/2020	9/22/2020	3/16/2021	9/14/2021	3/22/2022	9/13/2022	3/14/2023	
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND U	ND	ND	ND	
Arsenic, Total	mg/L	0.01	0.0013 J	ND U	ND U	ND U	0.0012 J	ND	ND	ND	
Barium, Total	mg/L	2	0.28	0.16	0.23	0.26	0.26	0.25	0.25	0.22	
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	ND U	ND	ND	ND	
Cadmium, Total	mg/L	0.005	ND U	ND U	ND U	ND U	ND U	ND	0.0022	ND	
Calcium, Total	mg/L	--	43.5	56.9	53.8	53.4	53	53.2	45.7	43.8	
Chromium, Total	mg/L	0.1	ND U	0.00098 J	ND U	ND U	ND U	ND	ND	0.0016 J	
Cobalt, Total	mg/L	--	0.25	0.025	0.25	0.25	0.24	0.23	0.22	0.19	
Copper, Total	mg/L	1.3	0.0055 J	0.0051 J	0.017	0.021	0.0098	0.02	0.01	0.013	
Iron, Total	mg/L	0.3	93.1	3.2	0.2	92.4	82	83.4	75.5	69.2	
Lead, Total	mg/L	0.015	0.0012 J	ND U	0.0025	0.0023	0.001 J	0.00081 J	ND	ND	
Magnesium, Total	mg/L	--	24.2	15.1	26.8	24.8	23	22.5	21.4	19.4	
Manganese, Total	mg/L	0.043	3	0.46	3.3	3	3	2.9	2.8	2.5	
Mercury, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND	ND	ND	
Nickel, Total	mg/L	0.039	0.016	0.0092	0.014	0.015	0.014	0.014	0.013	0.011	
Potassium, Total	mg/L	--	5.9	13	8.3	8.3	7.9	8.2	8.2	7.8	
Selenium, Total	mg/L	0.05	0.002 J	0.0056	ND U	ND U	0.00078 J	ND	ND	ND	
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND	ND	ND	
Sodium, Total	mg/L	--	77	66.9	89.7	82.3	79	72.9	73.4	66.7	
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND	ND	ND	
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	ND U	ND	ND	ND	
Zinc, Total	mg/L	0.6	0.0051 J	0.0083	0.0052 J	0.0056 J	0.0052 J	0.0038 J	0.0037 J	0.0033 J	
Alkalinity, Total	mg/L	--	154	171	163	195	181	197	167	155	
Ammonia-N	mg/L	--	1.17	0.91	0.74	1.15	0.811	0.901	0.717	0.758	
Chemical Oxygen Demand (COD)	mg/L	--	21	ND U	18	30	24	19	20	21	
Chloride	mg/L	250	200	115	199	171	170	153	138	134	
Hardness	mg/L	--	208	208	238	216	210	205	210	191	
Nitrate-N	mg/L	10	ND U	0.86	ND U	0.04 J	0.14 J	ND	ND	ND	
pH	SU	8.5	6.41	6.68	6.22	6.04	6.24	6.3	5.93	6.09	
Specific Conductance	umhos/cm	--	1015	962	946	911	955	872	922	967.56	
Sulfate	mg/L	250	33.1	30.7	36.3	36.6	33.3	10.1	23.1	21.9	
Total Dissolved Solids	mg/L	500	630	358	592	588	676	524	528	474	
Turbidity	NTU	5	0.26	2.83	0.43	0.29	0.61	0.81	1.84	0.03	

# Historical Well Data Assessment Monitoring, Organochloride Pesticides

Name: Eastern Sanitary Landfill

Location ID: GWM-11										
Number of Sampling Dates: 14										
Parameter Name	Units	Compliance Limit	9/9/2014	3/16/2015	9/9/2015	3/18/2016	9/20/2016	3/23/2017	9/19/2017	3/15/2018
4,4'-DDD	ug/L	0.0063	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4,4'-DDE	ug/L	0.046	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4,4'-DDT	ug/L	0.23	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Aldrin	ug/L	0.00092	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
alpha-HCH (alpha-BHC)	ug/L	0.0072	ND U	ND U	0.0043 J	ND U	ND U	ND U	ND U	ND U
beta-BHC	ug/L	0.025	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlordane	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
delta-BHC	ug/L	0.2	ND U	ND U	0.0038 J	ND U	ND U	ND U	ND U	ND U
Dieldrin	ug/L	0.0018	0.015 J	0.0098 J	0.011 J	0.0047 J	0.0096 J	0.0075 J	0.0072 J	0.0051
Endosulfan I	ug/L	10	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Endosulfan II	ug/L	10	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Endosulfan Sulfate	ug/L	10	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Endrin	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Endrin Aldehyde	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
gamma-BHC	ug/L	0.2	ND U	ND U	0.0054 J	ND U	ND U	ND U	ND U	ND U
Heptachlor	ug/L	0.4	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Heptachlor Epoxide	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methoxychlor	ug/L	40	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Toxaphene	ug/L	3	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-11										
Number of Sampling Dates: 14										
Parameter Name	Units	Compliance Limit	9/17/2018	3/5/2019	9/24/2019	4/7/2020	9/22/2020	3/16/2021		
4,4'-DDD	ug/L	0.0063	ND U	ND U	ND U	ND U	ND U	ND U		
4,4'-DDE	ug/L	0.046	ND U	ND U	ND U	ND U	ND U	ND U		
4,4'-DDT	ug/L	0.23	ND U	ND U	ND U	ND U	ND U	ND U		
Aldrin	ug/L	0.00092	ND U	ND U	ND U	ND U	ND U	ND U		
alpha-HCH (alpha-BHC)	ug/L	0.0072	ND U	ND U	ND U	ND U	ND U	ND U		
beta-BHC	ug/L	0.025	ND U	ND U	ND U	ND U	ND U	ND U		
Chlordane	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U		
delta-BHC	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U		
Dieldrin	ug/L	0.0018	0.0059	0.0036 J	ND U	0.011	0.011	0.009		
Endosulfan I	ug/L	10	ND U	ND U	ND U	ND U	ND U	ND U		
Endosulfan II	ug/L	10	ND U	ND U	ND U	ND U	ND U	ND U		
Endosulfan Sulfate	ug/L	10	ND U	ND U	ND U	ND U	ND U	ND U		
Endrin	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U		
Endrin Aldehyde	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U		

Location ID: GWM-11  
 Number of Sampling Dates: 14

Parameter Name	Units	Compliance Limit	9/17/2018	3/5/2019	9/24/2019	4/7/2020	9/22/2020	3/16/2021		
gamma-BHC	ug/L	0.2	0.0052	ND U	ND U	ND U	ND U	ND U		
Heptachlor	ug/L	0.4	ND U	ND U	ND U	ND U	ND U	ND U		
Heptachlor Epoxide	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U		
Methoxychlor	ug/L	40	ND U	ND U	ND U	ND U	ND U	ND U		
Toxaphene	ug/L	3	ND U	ND U	ND U	ND U	ND U	ND U		

# Historical Well Data Table I

Name: Eastern Sanitary Landfill

Location ID: GWM-12											
Number of Sampling Dates: 49											
Parameter Name	Units	Compliance Limit	10/28/1999	3/30/2000	10/19/2000	3/30/2001	10/25/2001	3/29/2002	9/25/2002	4/9/2003	
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND	
Acrylonitrile	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
Bromochloromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND	
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND	
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND	
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND	
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND	
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND	
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND	
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND	
Dibromomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND	
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND	
trans-1,4-dichloro-2-butene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND	
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND	
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND	
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND	
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	2	ND	ND	8	ND	
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND	
2-Hexanone	ug/L	-	ND	ND	ND	1	ND	ND	ND	ND	
Iodomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND	
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND	
1,1,1,2-Tetrachloroethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND	
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND	
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND	
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
Trichlorofluoromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND	

Location ID: GWM-12

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/28/1999	3/30/2000	10/19/2000	3/30/2001	10/25/2001	3/29/2002	9/25/2002	4/9/2003
1,2,3-Trichloropropane	ug/L	–	ND	ND	ND	ND	ND	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-12

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	11/19/2003	3/25/2004	10/27/2004	5/19/2005	10/27/2005	3/29/2006	9/21/2006	3/22/2007
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	7	7	3
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-12

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	11/19/2003	3/25/2004	10/27/2004	5/19/2005	10/27/2005	3/29/2006	9/21/2006	3/22/2007
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	2	1
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	–	–	–	–	–	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromofom	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	2	ND

Location ID: GWM-12

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/18/2007	3/26/2008	9/23/2008	3/31/2009	10/14/2009	4/15/2010	9/21/2010	3/8/2011
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	2	ND	1	ND	ND

Location ID: GWM-12										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	10/18/2007	3/26/2008	9/23/2008	3/31/2009	10/14/2009	4/15/2010	9/21/2010	3/8/2011
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	2	2	4	6	ND	4	3	4.9
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	1	ND	2	ND	7	7	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	-	-	-	-	-	-	-	-	-
Vinyl acetate	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromofom	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorofom	ug/L	80	ND	2	ND	2	ND	ND	ND	ND

Location ID: GWM-12										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	10/7/2011	3/7/2012	8/30/2012	3/5/2013	9/19/2013	3/20/2014	4/21/2014	9/4/2014
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND U	ND U	ND U
Acrylonitrile	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromochloromethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	0.47 J	ND U	ND U
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND U	3.3 J	ND U
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND U	ND U	ND U



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Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/7/2011	3/7/2012	8/30/2012	3/5/2013	9/19/2013	3/20/2014	4/21/2014	9/4/2014
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND U	-	ND U
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND U	-	ND U
Dibromomethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND	1	ND	ND	ND	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND U	ND U	0.36 J
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	3.4	ND	ND	1	4	5.2	4.3	5.2
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND U	ND U	ND U
2-Hexanone	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Iodomethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND U	ND U	ND U
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,1-Trichloroethane	ug/L	200	ND	7	ND	ND	ND	ND U	ND U	0.26 J
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vinyl acetate	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND U	ND U	ND U
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND U	ND U	ND U
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U

Location ID: GWM-12

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/19/2015	9/11/2015	3/17/2016	9/23/2016	3/29/2017	9/19/2017	3/16/2018	9/19/2018
Acetone	ug/L	1400	ND U	ND U	3.7 J	ND U	ND U	ND U	4.6 JB	ND U
Acrylonitrile	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromochloromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromomethane	ug/L	0.75	ND U	ND U	ND U	ND U	ND U	0.51 JB	ND U	ND U
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloromethane	ug/L	19	0.32 J	ND U	0.41 J	ND U	ND U	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	0.012 J	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Dibromomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	0.3 J	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	0.35 J	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	5.5	4.3	4.8	4.3	5.1	3.7	3.9	3.4
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
2-Hexanone	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Iodomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl acetate	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-12		Number of Sampling Dates: 49								
Parameter Name	Units	Compliance Limit	3/19/2015	9/11/2015	3/17/2016	9/23/2016	3/29/2017	9/19/2017	3/16/2018	9/19/2018
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-12		Number of Sampling Dates: 49								
Parameter Name	Units	Compliance Limit	3/13/2019	9/24/2019	3/19/2020	9/25/2020	3/19/2021	9/15/2021	3/18/2022	9/14/2022
Acetone	ug/L	1400	ND U	4.6 J	ND U	ND U	ND U	ND U	ND	ND
Acrylonitrile	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Bromochloromethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Bromomethane	ug/L	0.75	0.87 JB	ND U	ND U	ND U	ND U	0.68 JB	ND	ND
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Chloromethane	ug/L	19	ND U	ND U	ND U	0.46 J	ND U	ND U	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Dibromomethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
trans-1,4-dichloro-2-butene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,2-Dichloroethane	ug/L	5	0.35 J	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Methyl t-Butyl Ether	ug/L	20	4.3	3.4	3.1	3.3	2.8	2.7	2.6	2.6
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
trans-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
cis-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
2-Hexanone	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Iodomethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND

Location ID: GWM-12

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/13/2019	9/24/2019	3/19/2020	9/25/2020	3/19/2021	9/15/2021	3/18/2022	9/14/2022
1,1,1,2-Tetrachloroethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Trichlorofluoromethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
1,2,3-Trichloropropane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Vinyl acetate	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
o-Xylene	ug/L	10000	-	-	ND U	ND U	ND U	ND U	ND	ND
mp-Xylene	ug/L	10000	-	-	ND U	ND U	ND U	ND U	ND	ND
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Chloroform	ug/L	80	ND U	ND U	ND U	0.23 J	ND U	ND U	ND	ND

Location ID: GWM-12

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/17/2023						
Acetone	ug/L	1400	ND						
Acrylonitrile	ug/L	-	ND						
Benzene	ug/L	5	ND						
Bromochloromethane	ug/L	-	ND						
Bromomethane	ug/L	0.75	ND						
2-Butanone	ug/L	700	ND						
Carbon disulfide	ug/L	81	ND						
Carbon Tetrachloride	ug/L	5	ND						
Chlorobenzene	ug/L	100	ND						
Chloroethane	ug/L	2100	ND						
Chloromethane	ug/L	19	ND						
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND						
1,2-Dibromoethane	ug/L	0.05	ND						
Dibromomethane	ug/L	-	ND						
1,2-Dichlorobenzene	ug/L	600	ND						
1,4-Dichlorobenzene	ug/L	75	ND						
trans-1,4-dichloro-2-butene	ug/L	-	ND						
1,1-Dichloroethane	ug/L	2.8	ND						
1,2-Dichloroethane	ug/L	5	ND						
1,1-Dichloroethene	ug/L	7	ND						
cis-1,2-Dichloroethene	ug/L	70	ND						

Location ID: GWM-12

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/17/2023
trans-1,2-Dichloroethene	ug/L	100	ND
Methylene Chloride	ug/L	5	ND
Methyl t-Butyl Ether	ug/L	20	2.3
1,2-Dichloropropane	ug/L	5	ND
trans-1,3-Dichloropropene	ug/L	-	ND
cis-1,3-Dichloropropene	ug/L	-	ND
Ethylbenzene	ug/L	700	ND
2-Hexanone	ug/L	-	ND
Iodomethane	ug/L	-	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND
Styrene	ug/L	100	ND
1,1,1,2-Tetrachloroethane	ug/L	-	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND
Tetrachloroethene	ug/L	5	ND
Toluene	ug/L	1000	ND
1,1,1-Trichloroethane	ug/L	200	ND
1,1,2-Trichloroethane	ug/L	5	ND
Trichloroethene	ug/L	5	ND
Trichlorofluoromethane	ug/L	-	ND
1,2,3-Trichloropropane	ug/L	-	ND
Vinyl acetate	ug/L	-	ND
Vinyl chloride	ug/L	2	ND
Total Xylenes	ug/L	10000	ND
o-Xylene	ug/L	10000	ND
mp-Xylene	ug/L	10000	ND
Bromodichloromethane	ug/L	80	ND
Chlorodibromomethane	ug/L	80	ND
Bromoform	ug/L	80	ND
Chloroform	ug/L	80	0.22 J

## Historical Well Data Table II

Name: Eastern Sanitary Landfill

Location ID: GWM-12											
Number of Sampling Dates: 49											
Parameter Name	Units	Compliance Limit	10/28/1999	3/30/2000	10/19/2000	3/30/2001	10/25/2001	3/29/2002	9/25/2002	4/9/2003	
Antimony, Total	mg/L	0.006	--	ND	ND	ND	ND	ND	ND	ND	
Arsenic, Total	mg/L	0.01	--	ND	ND	ND	ND	ND	ND	ND	
Barium, Total	mg/L	2	ND	ND	0.017	0.045	0.05	0.061	0.033	0.035	
Beryllium, Total	mg/L	0.004	--	ND	ND	ND	ND	ND	ND	ND	
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	
Calcium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	
Cobalt, Total	mg/L	--	--	ND	ND	ND	ND	ND	ND	ND	
Copper, Total	mg/L	1.3	--	ND	0.016	0.025	0.024	0.014	0.044	0.01	
Iron, Total	mg/L	0.3	ND	0.28	0.14	ND	0.068	0.325	0.078	0.057	
Lead, Total	mg/L	0.015	ND	ND	0.008	ND	0.006	0.005	0.002	0.003	
Magnesium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Manganese, Total	mg/L	0.043	ND	ND	0.043	0.051	ND	ND	0.01	ND	
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND	
Nickel, Total	mg/L	0.039	--	ND	ND	ND	ND	ND	ND	ND	
Potassium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Selenium, Total	mg/L	0.05	--	ND	ND	ND	ND	ND	ND	ND	
Silver, Total	mg/L	0.0094	--	ND	ND	ND	ND	ND	ND	ND	
Sodium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Thallium, Total	mg/L	0.002	--	ND	ND	ND	ND	ND	ND	ND	
Vanadium, Total	mg/L	0.0086	--	ND	ND	ND	ND	ND	0.016	ND	
Zinc, Total	mg/L	0.6	ND	ND	0.146	0.03	0.039	0.131	0.04	0.042	
Alkalinity, Total	mg/L	--	--	11	85	9	10	10	10	10	
Ammonia-N	mg/L	--	0.2	0.2	ND	ND	ND	ND	ND	ND	
Chemical Oxygen Demand (COD)	mg/L	--	10	10	ND	ND	5	0	ND	ND	
Chloride	mg/L	250	10	10	4.81	5.23	6.72	6.37	7.32	13.87	
Hardness	mg/L	--	--	21	169	17.58	16.18	21.19	21.62	25.77	
Nitrate-N	mg/L	10	2	2.3	2.15	2.15	1.53	1.48	1.5	2.7	
pH	SU	8.5	--	--	6.01	5.6	5.4	5.5	5.27	4.89	
Specific Conductance	umhos/cm	--	--	68	ND	ND	72.1	73.4	87	80	
Sulfate	mg/L	250	10	10	1	ND	5	7.18	ND	0.96	
Total Dissolved Solids	mg/L	500	43	47	53	50	40	49	44	62	
Turbidity	NTU	5	--	5	9	6.9	6.5	13.8	3.15	6.91	

Location ID: GWM-12											
Number of Sampling Dates: 49											
Parameter Name	Units	Compliance Limit	11/19/2003	3/25/2004	10/27/2004	5/19/2005	10/27/2005	3/29/2006	9/21/2006	3/22/2007	
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND	
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	
Barium, Total	mg/L	2	0.033	0.032	0.034	0.04	0.041	0.035	0.04	0.035	
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND	
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	

Location ID: GWM-12

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	11/19/2003	3/25/2004	10/27/2004	5/19/2005	10/27/2005	3/29/2006	9/21/2006	3/22/2007
Calcium, Total	mg/L	--	--	--	--	--	--	--	--	9.4
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	mg/L	1.3	ND	ND	ND	ND	ND	0.025	0.022	0.011
Iron, Total	mg/L	0.3	0.042	ND	0.032	0.096	0.085	0.057	0.19	ND
Lead, Total	mg/L	0.015	0.003	ND	ND	0.0002	ND	ND	ND	ND
Magnesium, Total	mg/L	--	--	--	--	--	--	--	--	2
Manganese, Total	mg/L	0.043	ND	ND	ND	0.012	0.017	0.017	0.028	ND
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	ND	0.026	ND	ND	ND	0.017	0.012	ND
Potassium, Total	mg/L	--	--	--	--	--	--	--	--	1.79
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	--	--	--	--	--	--	--	--	8.6
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	ND	ND	0.035	0.056	0.029	0.032	0.094	0.036
Alkalinity, Total	mg/L	--	12	8	13.6	10	8.8	8.85	9.85	13.6
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	--	ND	ND	11	ND	ND	ND	ND	ND
Chloride	mg/L	250	10.51	14.69	9.15	12.69	17.66	18.01	16.85	8.87
Hardness	mg/L	--	26.32	24	25.14	28.33	39.34	9.15	48.2	31.71
Nitrate-N	mg/L	10	1.91	2.44	1.55	1.34	2.04	2.01	1.89	1.28
pH	SU	8.5	4.92	4.73	4.78	4.78	4.55	4.6	4.49	4.99
Specific Conductance	umhos/cm	--	87.7	96.3	89.6	106	111	131	114	99.3
Sulfate	mg/L	250	ND	0.41	0.55	10.05	0.84	ND	ND	ND
Total Dissolved Solids	mg/L	500	65	49	48	58	384	80	80	--
Turbidity	NTU	5	9.3	3.32	3.1	4.95	7.97	2.07	6.6	--

Location ID: GWM-12

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/18/2007	3/26/2008	9/23/2008	3/31/2009	10/14/2009	4/15/2010	9/21/2010	3/8/2011
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total	mg/L	2	0.038	0.04	0.044	0.028	0.025	0.03	0.033	0.03
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND
Calcium, Total	mg/L	--	6.72	7.55	8.91	6.19	5.75	6.27	7.9	5.23
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	--	ND	ND	0.023	ND	ND	ND	ND	ND
Copper, Total	mg/L	1.3	0.044	ND	0.031	ND	ND	0.071	ND	ND
Iron, Total	mg/L	0.3	0.112	ND	0.053	ND	ND	0.055	0.083	0.051
Lead, Total	mg/L	0.015	ND	ND	ND	0.003	ND	ND	ND	0.002
Magnesium, Total	mg/L	--	1.12	1.85	1.907	2.95	1.758	2.3	1.603	1.751
Manganese, Total	mg/L	0.043	0.079	0.012	0.066	ND	ND	0.058	0.03	0.02
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-12

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/18/2007	3/26/2008	9/23/2008	3/31/2009	10/14/2009	4/15/2010	9/21/2010	3/8/2011
Nickel, Total	mg/L	0.039	ND	ND	ND	0.013	0.012	0.011	0.019	0.012
Potassium, Total	mg/L	--	1.83	2.73	1.93	1.74	1.99	2.95	2.93	2.36
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	--	5.3	18.6	8.8	12	6.5	13	24.4	9.8
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	0.046	0.076	ND	0.036	ND	0.023	ND	0.026
Alkalinity, Total	mg/L	--	14.6	15.2	11.1	10.2	14.5	9.7	6.3	ND
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	--	11	10	ND	11	ND	ND	ND	--
Chloride	mg/L	250	8.47	12.39	12.05	22.97	13.34	15.99	18.12	14.03
Hardness	mg/L	--	21.39	26.47	30.11	27.6	21.71	25.13	26.32	20.28
Nitrate-N	mg/L	10	1.24	1.62	1.39	2.55	1.48	2.07	2.23	1.93
pH	SU	8.5	5.03	4.8	5.28	5.02	5.11	5.36	5.25	5.2
Specific Conductance	umhos/cm	--	94.7	130	110	118	92.3	125	117	108
Sulfate	mg/L	250	ND	1.42	ND	ND	ND	ND	ND	ND
Total Dissolved Solids	mg/L	500	84	98	206	42	72	74	72	44
Turbidity	NTU	5	2.19	3.04	1.81	2.63	3.2	2.8	5	3.4

Location ID: GWM-12

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	10/7/2011	3/7/2012	8/30/2012	3/5/2013	9/19/2013	3/20/2014	4/21/2014	9/4/2014
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND U	ND U	ND U
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND U	ND U	ND U
Barium, Total	mg/L	2	0.065	0.063	0.069	0.082	0.08	0.071	0.072	0.072
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	0.0004 J	ND U	ND U
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND U	ND U	ND U
Calcium, Total	mg/L	--	5.8	1.24	4.32	10.83	6.1	6.9	6.8	7.7
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	0.0044	0.0034	0.0043
Cobalt, Total	mg/L	--	ND	ND	ND	ND	ND	0.0058	0.006	0.0055 J
Copper, Total	mg/L	1.3	ND	ND	ND	ND	ND	0.0066	0.007	0.0068
Iron, Total	mg/L	0.3	18	0.036	0.03	0.038	0.045	0.023 J	ND U	0.029 J
Lead, Total	mg/L	0.015	0.002	ND	ND	ND	ND	0.0023	0.00086 J	0.001 J
Magnesium, Total	mg/L	--	0.59	0.196	1.883	1.896	4.152	3.7	3.7	3.8
Manganese, Total	mg/L	0.043	0.081	0.016	0.012	0.015	0.02	0.019	0.019	0.019
Mercury, Total	mg/L	0.002	0.0004	ND	ND	ND	0.00191	0.0038	0.0038	0.0042
Nickel, Total	mg/L	0.039	0.013	0.011	ND	0.011	0.021	0.022	0.021	0.021
Potassium, Total	mg/L	--	2.6	2.37	2.82	2.22	1.88	1.7	1.7	1.7
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND U	ND U	ND U
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND U	ND U	ND U
Sodium, Total	mg/L	--	5.4	0.6	6.5	6	15.4	15.3	15.4	14.6
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND U	ND U	ND U
Zinc, Total	mg/L	0.6	0.37	0.03	0.025	0.028	0.03	0.024	0.029	0.028
Alkalinity, Total	mg/L	--	14	12	22.75	11.56	3.69	7	7	6



Location ID: GWM-12										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	10/7/2011	3/7/2012	8/30/2012	3/5/2013	9/19/2013	3/20/2014	4/21/2014	9/4/2014
Ammonia-N	mg/L	--	0.3	ND	ND	ND	ND	0.14	0.106	0.157
Chemical Oxygen Demand (COD)	mg/L	--	17	ND	ND	ND	ND	ND U	6	7
Chloride	mg/L	250	13	11.95	--	13.46	39.84	38.3	38.9	38.9
Hardness	mg/L	--	24	39.14	18.54	34.9	32.3	39	25	36
Nitrate-N	mg/L	10	2.3	1.65	--	2.05	3.26	3.5	3.4	3.7
pH	SU	8.5	5.38	5.04	4.93	5.29	4.44	4.93	4.8	4.75
Specific Conductance	umhos/cm	--	108	118	121	93.9	203	145.3	168	150.7
Sulfate	mg/L	250	ND	ND	--	ND	2.15	1.3 J	1.3 J	1.4 J
Total Dissolved Solids	mg/L	500	21	96	116	58	81	121	110	133
Turbidity	NTU	5	3.48	2.83	2.04	2.5	ND	0.05	0.27	5.51

Location ID: GWM-12										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	3/19/2015	9/11/2015	3/17/2016	9/23/2016	3/29/2017	9/19/2017	3/16/2018	9/19/2018
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Arsenic, Total	mg/L	0.01	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Barium, Total	mg/L	2	0.075	0.078	0.081	0.078	0.077	0.076	0.074	0.083
Beryllium, Total	mg/L	0.004	ND U	0.00031 J	0.00034 J	ND U	ND U	ND U	ND U	ND U
Cadmium, Total	mg/L	0.005	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Calcium, Total	mg/L	--	7.3	8.3	8.7	7.9	8.2	7.9	7.7	7.8
Chromium, Total	mg/L	0.1	0.0054	0.0025	0.003	0.0042	0.0038	0.0025	0.0019 J	0.0027
Cobalt, Total	mg/L	--	0.0057	0.0066	0.0058	0.0061	0.0062	0.0064	0.0062	0.006
Copper, Total	mg/L	1.3	0.012	0.0076	0.0082	0.007	0.0082	0.0077	0.0069	0.0072
Iron, Total	mg/L	0.3	0.3	ND U	0.053 J	0.02 J	0.023 J	ND U	ND U	0.032 J
Lead, Total	mg/L	0.015	0.0014 J	ND U	0.0012 J	ND U	0.0011 J	ND U	ND U	ND U
Magnesium, Total	mg/L	--	3.8	4	4.2	3.9	4.5	3.9	4	3.4
Manganese, Total	mg/L	0.043	0.022	0.022	0.02	0.02	0.021	0.02	0.021	0.021
Mercury, Total	mg/L	0.002	0.0041	0.0041	0.0041	0.004	0.0037	0.0039	0.0038	0.0031
Nickel, Total	mg/L	0.039	0.023	0.022	0.022	0.022	0.023	0.021	0.02	0.022
Potassium, Total	mg/L	--	1.9	1.9	1.9	1.8	1.9	1.8	1.9	1.6
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Sodium, Total	mg/L	--	15.9	16.7	16.4	16.8	17.6	17.3	18.1	15.7
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Zinc, Total	mg/L	0.6	0.036	0.024	0.026	0.022	0.025	0.024	0.023	0.022
Alkalinity, Total	mg/L	--	7	11	13	7	7	9	40	11
Ammonia-N	mg/L	--	ND U	ND U	ND U	0.066 J	ND U	ND U	0.188	0.053 J
Chemical Oxygen Demand (COD)	mg/L	--	ND U	ND U	2 J	ND U	ND U	7	ND U	ND U
Chloride	mg/L	250	41.1	42.2	43.8	46.6	47.9	45.3	47.5	45.9
Hardness	mg/L	--	70	39	38	36	40	35.7	36	33.5
Nitrate-N	mg/L	10	3.2	3.2	3.2	3.3	3.1	3	3	2.5
pH	SU	8.5	4.87	4.92	4.84	4.79	4.87	4.87	4.75	4.85
Specific Conductance	umhos/cm	--	143.4	145.3	150.4	156	158	159.8	152.5	165.7
Sulfate	mg/L	250	1.4 J	1.3 J	0.94 J	0.94 J	1 J	1.2 J	1 J	0.86 J
Total Dissolved Solids	mg/L	500	142	132	117	113	121	104	91	131

Location ID: GWM-12										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	3/19/2015	9/11/2015	3/17/2016	9/23/2016	3/29/2017	9/19/2017	3/16/2018	9/19/2018
Turbidity	NTU	5	0.15	0.16	0.28	1.1	0.58	0.35	0.43	0.25

Location ID: GWM-12										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	3/13/2019	9/24/2019	3/19/2020	9/25/2020	3/19/2021	9/15/2021	3/18/2022	9/14/2022
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Arsenic, Total	mg/L	0.01	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Barium, Total	mg/L	2	0.082	0.087	0.083	0.082	0.084	0.089	0.088	0.094
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	0.00044 J	ND U	0.00037 J	0.00042 J	0.00042 J
Cadmium, Total	mg/L	0.005	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Calcium, Total	mg/L	--	8.8	7.9	9	8.4	9.3	9.7	9.5	9.4
Chromium, Total	mg/L	0.1	0.0029	0.0013 J	0.0027	0.0033	0.01	0.002 J	0.0026	ND
Cobalt, Total	mg/L	--	0.007	0.0066	0.0065	0.0064	0.0066	0.0075	0.0069	0.0076
Copper, Total	mg/L	1.3	0.0093	0.0088	0.0071	0.008	0.0083	0.0083	0.013	0.0084
Iron, Total	mg/L	0.3	ND U	0.063	ND U	0.039 J	0.027 J	ND U	0.026 J	ND
Lead, Total	mg/L	0.015	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Magnesium, Total	mg/L	--	4	4.3	4.5	4.4	4.9	4.8	4.5	4.8
Manganese, Total	mg/L	0.043	0.024	0.023	0.023	0.023	0.024	0.024	0.033	0.026
Mercury, Total	mg/L	0.002	0.0034	0.0043	0.0024	0.0026	0.0031	0.0029	0.0029	0.0027
Nickel, Total	mg/L	0.039	0.023	0.021	0.023	0.022	0.024	0.025	0.026	0.025
Potassium, Total	mg/L	--	1.7	1.9	2	2	2	2	2	2
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Sodium, Total	mg/L	--	18.5	20.9	20.6	21.3	22.3	23	22.9	23.5
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	ND U	ND U	ND	ND
Zinc, Total	mg/L	0.6	0.03	0.031	0.025	0.028	0.029	0.037	0.032	0.03
Alkalinity, Total	mg/L	--	11	9	38	7	10	12	11	10
Ammonia-N	mg/L	--	0.066 J	0.09 J	0.038 J	0.031 J	0.212	ND U	0.159	0.165
Chemical Oxygen Demand (COD)	mg/L	--	ND U	ND U	ND U	12 J	ND U	ND U	ND	ND
Chloride	mg/L	250	50	48.4	50	52	53.6	56.6	57.3	53.1
Hardness	mg/L	--	38.5	37.5	40.4	40.9	40.6	39.6	40.4	45
Nitrate-N	mg/L	10	2.6	2.4	2.4	2.5	2.6	2.6	2.2	2.1
pH	SU	8.5	4.95	4.71	4.95	4.61	5	4.5	4.53	4.38
Specific Conductance	umhos/cm	--	162.1	167.5	160.5	160	169.1	189.1	188	166.7
Sulfate	mg/L	250	1.1 J	1.2 J	1 J	ND U	1.3 J	1.2 J	ND	ND
Total Dissolved Solids	mg/L	500	145	150	128	104	102	160	158	138
Turbidity	NTU	5	0.25	0.46	0.66	0.43	0.39	0.43	0.46	4.77

Location ID: GWM-12										
Number of Sampling Dates: 49										
Parameter Name	Units	Compliance Limit	3/17/2023							
Antimony, Total	mg/L	0.006	ND							
Arsenic, Total	mg/L	0.01	ND							
Barium, Total	mg/L	2	0.094							

Location ID: GWM-12

Number of Sampling Dates: 49

Parameter Name	Units	Compliance Limit	3/17/2023
Beryllium, Total	mg/L	0.004	ND
Cadmium, Total	mg/L	0.005	ND
Calcium, Total	mg/L	--	9.5
Chromium, Total	mg/L	0.1	0.001 J
Cobalt, Total	mg/L	--	0.0078
Copper, Total	mg/L	1.3	0.0096
Iron, Total	mg/L	0.3	ND
Lead, Total	mg/L	0.015	ND
Magnesium, Total	mg/L	--	4.8
Manganese, Total	mg/L	0.043	0.027
Mercury, Total	mg/L	0.002	0.0026
Nickel, Total	mg/L	0.039	0.025
Potassium, Total	mg/L	--	2
Selenium, Total	mg/L	0.05	ND
Silver, Total	mg/L	0.0094	ND
Sodium, Total	mg/L	--	23.9
Thallium, Total	mg/L	0.002	ND
Vanadium, Total	mg/L	0.0086	ND
Zinc, Total	mg/L	0.6	0.031
Alkalinity, Total	mg/L	--	10
Ammonia-N	mg/L	--	0.095 J
Chemical Oxygen Demand (COD)	mg/L	--	13 J
Chloride	mg/L	250	55.6
Hardness	mg/L	--	44.9
Nitrate-N	mg/L	10	2.1
pH	SU	8.5	4.71
Specific Conductance	umhos/cm	--	204.82
Sulfate	mg/L	250	ND
Total Dissolved Solids	mg/L	500	162
Turbidity	NTU	5	0.2

# Historical Well Data Table I

Name: Eastern Sanitary Landfill

Location ID: GWM-14										
Number of Sampling Dates: 48										
Parameter Name	Units	Compliance Limit	10/28/1999	3/30/2000	10/19/2000	3/26/2001	9/17/2001	3/12/2002	9/9/2002	3/25/2003
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-14

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/28/1999	3/30/2000	10/19/2000	3/26/2001	9/17/2001	3/12/2002	9/9/2002	3/25/2003
1,2,3-Trichloropropane	ug/L	–	ND	ND	ND	ND	ND	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-14

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/24/2003	3/23/2004	9/27/2004	3/15/2005	9/28/2005	3/15/2006	9/19/2006	4/10/2007
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	2	2
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-14

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/24/2003	3/23/2004	9/27/2004	3/15/2005	9/28/2005	3/15/2006	9/19/2006	4/10/2007
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	–	–	–	–	–	–	–	–
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromofom	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-14

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/25/2007	4/16/2008	9/24/2008	3/17/2009	9/22/2009	4/13/2010	8/24/2010	3/3/2011
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	2	ND	ND	ND	ND
Bromochloromethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-14

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/25/2007	4/16/2008	9/24/2008	3/17/2009	9/22/2009	4/13/2010	8/24/2010	3/3/2011
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	-	-	-	-	-	-	-	-	-
Vinyl acetate	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: GWM-14

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/4/2011	2/28/2012	8/28/2012	2/26/2013	9/24/2013	3/21/2014	9/8/2014	3/19/2015
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND U	ND U	ND U
Acrylonitrile	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromochloromethane	ug/L	-	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND U	ND U	ND U
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND U	ND U	ND U

Location ID: GWM-14

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/4/2011	2/28/2012	8/28/2012	2/26/2013	9/24/2013	3/21/2014	9/8/2014	3/19/2015
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND U	0.37 J	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND U	ND U	ND U
Dibromomethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND U	ND U	ND U
2-Hexanone	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Iodomethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND U	ND U	ND U
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vinyl acetate	ug/L	–	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND U	ND U	ND U
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND U	ND U	ND U
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND U	ND U	ND U



Location ID: GWM-14  
 Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/14/2015	3/21/2016	9/23/2016	3/27/2017	9/20/2017	3/16/2018	9/20/2018	3/5/2019
Acetone	ug/L	1400	ND U	4 J	ND U	3.3 JB	ND U	4.1 JB	ND U	ND U
Acrylonitrile	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromochloromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromomethane	ug/L	0.75	ND U	ND U	ND U	ND U	0.54 J	ND U	ND U	ND U
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloromethane	ug/L	19	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Dibromomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
2-Hexanone	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Iodomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-14

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/14/2015	3/21/2016	9/23/2016	3/27/2017	9/20/2017	3/16/2018	9/20/2018	3/5/2019
Vinyl acetate	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
o-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
mp-Xylene	ug/L	10000	–	–	–	–	–	–	–	–
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: GWM-14

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/25/2019	3/25/2020	9/28/2020	3/18/2021	9/15/2021	3/22/2022	9/14/2022	3/16/2023
Acetone	ug/L	1400	9.9 JB	ND U	ND U	ND U	3.7 JB	ND	ND	ND
Acrylonitrile	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromochloromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromomethane	ug/L	0.75	ND U	ND U	ND U	ND U	0.53 JB	ND	ND	ND
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloromethane	ug/L	19	ND U	ND U	0.34 J	ND U	ND U	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Dibromomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
2-Hexanone	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Iodomethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND

Location ID: GWM-14

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/25/2019	3/25/2020	9/28/2020	3/18/2021	9/15/2021	3/22/2022	9/14/2022	3/16/2023
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Trichlorofluoromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl acetate	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
o-Xylene	ug/L	10000	–	ND U	ND U	ND U	ND U	ND	ND	ND
mp-Xylene	ug/L	10000	–	ND U	ND U	ND U	ND U	ND	ND	ND
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloroform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND

## Historical Well Data Table II

Name: Eastern Sanitary Landfill

Location ID: GWM-14											
Number of Sampling Dates: 48											
Parameter Name	Units	Compliance Limit	10/28/1999	3/30/2000	10/19/2000	3/26/2001	9/17/2001	3/12/2002	9/9/2002	3/25/2003	
Antimony, Total	mg/L	0.006	--	ND	ND	ND	ND	ND	ND	ND	
Arsenic, Total	mg/L	0.01	--	ND	ND	ND	ND	ND	ND	ND	
Barium, Total	mg/L	2	ND	ND	0.062	0.012	0.021	0.04	0.045	0.046	
Beryllium, Total	mg/L	0.004	--	ND	ND	ND	ND	ND	ND	ND	
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	
Calcium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Chromium, Total	mg/L	0.1	ND	ND	0.045	ND	ND	ND	ND	ND	
Cobalt, Total	mg/L	--	--	ND	0.035	ND	0.036	0.073	0.117	0.205	
Copper, Total	mg/L	1.3	--	ND	0.046	0.033	0.012	0.011	0.039	0.05	
Iron, Total	mg/L	0.3	1.3	4.67	20.34	0.683	1.591	4.914	1.694	0.253	
Lead, Total	mg/L	0.015	ND	ND	0.012	ND	ND	ND	0.002	ND	
Magnesium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Manganese, Total	mg/L	0.043	6.71	7.45	7	7.85	8.505	9.6	8.11	12.26	
Mercury, Total	mg/L	0.002	ND	ND	0.0003	ND	ND	ND	ND	ND	
Nickel, Total	mg/L	0.039	--	ND	0.011	ND	ND	ND	ND	ND	
Potassium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Selenium, Total	mg/L	0.05	--	ND	ND	ND	ND	ND	ND	ND	
Silver, Total	mg/L	0.0094	--	ND	ND	ND	ND	ND	ND	ND	
Sodium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Thallium, Total	mg/L	0.002	--	ND	ND	0.002	0.002	ND	ND	ND	
Vanadium, Total	mg/L	0.0086	--	ND	ND	ND	ND	ND	ND	ND	
Zinc, Total	mg/L	0.6	ND	ND	0.116	0.022	0.132	0.096	0.032	ND	
Alkalinity, Total	mg/L	--	--	59	65	60	55	70	78	110	
Ammonia-N	mg/L	--	0.2	0.3	ND	ND	ND	ND	ND	ND	
Chemical Oxygen Demand (COD)	mg/L	--	--	10	14	12	9	15	29	ND	
Chloride	mg/L	250	13	11	24.51	23.84	15.81	15.12	10.83	19.6	
Hardness	mg/L	--	--	94	69	60.34	66.44	100.99	102.75	131.67	
Nitrate-N	mg/L	10	--	0.4	0.07	ND	0.06	ND	ND	ND	
pH	SU	8.5	--	--	5.47	5.4	5.3	5.56	5.32	5.34	
Specific Conductance	umhos/cm	--	--	247	--	ND	245	339	313	429	
Sulfate	mg/L	250	41.7	35.8	42	38	45	42.37	40.2	36.07	
Total Dissolved Solids	mg/L	500	126	146	182	159	148	154	--	179	
Turbidity	NTU	5	--	80	885	57.2	28.9	55.6	55	5.77	

Location ID: GWM-14											
Number of Sampling Dates: 48											
Parameter Name	Units	Compliance Limit	9/24/2003	3/23/2004	9/27/2004	3/15/2005	9/28/2005	3/15/2006	9/19/2006	4/10/2007	
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND	
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	
Barium, Total	mg/L	2	0.05	0.05	0.061	0.061	0.078	0.074	0.08	0.075	
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND	
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	
Calcium, Total	mg/L	--	--	--	--	--	--	--	--	27.7	

Location ID: GWM-14

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/24/2003	3/23/2004	9/27/2004	3/15/2005	9/28/2005	3/15/2006	9/19/2006	4/10/2007
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	--	0.179	0.224	0.213	0.251	0.27	0.175	0.56	1.031
Copper, Total	mg/L	1.3	ND	ND	0.017	ND	ND	ND	0.025	0.019
Iron, Total	mg/L	0.3	0.859	0.459	0.656	0.979	0.519	3.512	5.84	20.7
Lead, Total	mg/L	0.015	ND	ND	0.003	ND	ND	0.002	0.002	ND
Magnesium, Total	mg/L	--	--	--	--	--	--	--	--	30.95
Manganese, Total	mg/L	0.043	9.75	10.39	16.19	20.44	18.54	21.04	24.45	19.47
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	ND	ND	ND	ND	ND	ND	ND	0.011
Potassium, Total	mg/L	--	--	--	--	--	--	--	--	4.75
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	--	--	--	--	--	--	--	--	37.3
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	0.045	ND	0.165	0.136	0.055	0.039	0.06	0.082
Alkalinity, Total	mg/L	--	130	105	166.1	165.9	166.8	165.2	167.65	172.6
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	--	ND	13	ND	ND	12	10	ND	ND
Chloride	mg/L	250	19.98	18.37	20.65	18.5	18.51	21.52	15.46	14.91
Hardness	mg/L	--	131.8	139.24	145.88	153.16	201.58	67.28	181.4	143.19
Nitrate-N	mg/L	10	ND	ND	ND	ND	ND	ND	ND	ND
pH	SU	8.5	5.38	5.3	5.38	5.43	5.47	5.39	5.58	5.49
Specific Conductance	umhos/cm	--	375	364	481	426	447	444	417	415
Sulfate	mg/L	250	30.92	28.11	29	23.06	27.41	25.64	17.79	15.08
Total Dissolved Solids	mg/L	500	194	168	237	377	362	450	252	844
Turbidity	NTU	5	70	7.5	50	66.7	9.58	36	72.9	14.8

Location ID: GWM-14

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/25/2007	4/16/2008	9/24/2008	3/17/2009	9/22/2009	4/13/2010	8/24/2010	3/3/2011
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total	mg/L	2	0.07	0.062	0.052	0.055	0.058	0.07	0.061	0.058
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND
Calcium, Total	mg/L	--	19.35	13.6	16.28	7.18	6.93	5.24	7.92	7.46
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	--	0.68	0.855	1.24	0.9	1.571	0.895	0.785	0.954
Copper, Total	mg/L	1.3	0.013	ND	0.031	ND	0.064	0.027	0.025	ND
Iron, Total	mg/L	0.3	17.1	20.99	30.57	41.2	38.55	88.5	45.58	60.01
Lead, Total	mg/L	0.015	ND	ND	ND	ND	ND	ND	ND	ND
Magnesium, Total	mg/L	--	41.4	97.5	3.428	23	24.1	22.6	2.839	20
Manganese, Total	mg/L	0.043	12.44	22.05	14.69	11.526	13.35	11.05	8.724	8.14
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	ND	ND	ND	ND	ND	ND	0.019	ND

Location ID: GWM-14

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/25/2007	4/16/2008	9/24/2008	3/17/2009	9/22/2009	4/13/2010	8/24/2010	3/3/2011
Potassium, Total	mg/L	--	ND	0.064	ND	ND	ND	ND	ND	0.33
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	--	18.9	16.5	14.8	29.6	10.3	17.8	13.2	12.8
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	0.02	0.046	ND	0.019	ND	0.027	ND	0.029
Alkalinity, Total	mg/L	--	166.4	148	163	182.8	141.8	149.5	35.4	121.3
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	--	17	15	ND	31	ND	20	14	19
Chloride	mg/L	250	13.31	11.89	12.14	16.19	12.94	15.6	76.1	13.18
Hardness	mg/L	--	218.8	124.79	54.77	112.65	116.55	106.14	31.47	26.86
Nitrate-N	mg/L	10	ND	ND	ND	ND	ND	ND	0.15	ND
pH	SU	8.5	5.47	5.45	6.1	6.02	5.75	5.58	5.85	5.65
Specific Conductance	umhos/cm	--	422	399	437	423	412	368	447	450
Sulfate	mg/L	250	13.23	10.67	13.45	14.34	17.16	14.41	19.37	17.1
Total Dissolved Solids	mg/L	500	396	278	240	258	188	200	210	258
Turbidity	NTU	5	0.11	55	13.8	9.6	7.6	6.8	15	20

Location ID: GWM-14

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/4/2011	2/28/2012	8/28/2012	2/26/2013	9/24/2013	3/21/2014	9/8/2014	3/19/2015
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND U	ND U	ND U
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND U	0.0013 J	ND U
Barium, Total	mg/L	2	0.034	0.047	0.042	0.07	0.06	0.048	0.049	0.047
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND U	ND U	ND U
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND U	ND U	ND U
Calcium, Total	mg/L	--	13	1.99	9.23	22.03	9.5	11.6	13.5	12.4
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	0.00095 J	0.0012 J	0.0016 J
Cobalt, Total	mg/L	--	0.65	0.598	0.392	0.509	0.42	0.45	0.41	0.39
Copper, Total	mg/L	1.3	ND	ND	ND	ND	ND	ND U	ND U	0.0074
Iron, Total	mg/L	0.3	38	56.05	52.13	69.2	91.07	82.1	77.2	68.7
Lead, Total	mg/L	0.015	ND	ND	ND	ND	ND	ND U	ND U	ND U
Magnesium, Total	mg/L	--	16	1.974	17.21	18.94	16.45	16.2	17	16.9
Manganese, Total	mg/L	0.043	7.4	6.447	5.028	6.001	4.77	4.3	4	4.1
Mercury, Total	mg/L	0.002	0.0003	0.0007	ND	ND	ND	ND U	ND U	ND U
Nickel, Total	mg/L	0.039	ND	ND	ND	ND	ND	0.0066	0.0066	0.0091
Potassium, Total	mg/L	--	0.51	0.51	0.51	0.62	0.52	0.5	0.55	0.52
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND U	ND U	ND U
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND U	ND U	ND U
Sodium, Total	mg/L	--	13	1.1	11.2	12.9	16.1	14.3	17.3	16.7
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND U	ND U	ND U
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND U	ND U	ND U
Zinc, Total	mg/L	0.6	0.023	0.026	0.015	0.015	0.01	0.011	0.01	0.02
Alkalinity, Total	mg/L	--	160	136.95	114.43	155.33	178.19	209	199	128
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	0.119	0.087 J	0.059 J

Location ID: GWM-14  
Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	10/4/2011	2/28/2012	8/28/2012	2/26/2013	9/24/2013	3/21/2014	9/8/2014	3/19/2015
Chemical Oxygen Demand (COD)	mg/L	--	53	18	16	20	29	13	11	ND U
Chloride	mg/L	250	17	14.92	14	25.82	25.7	24.6	27	25.9
Hardness	mg/L	--	140	131	93.93	133	91.5	116	104	118
Nitrate-N	mg/L	10	ND	ND	ND	ND	ND	ND U	ND U	ND U
pH	SU	8.5	5.46	5.84	5.56	5.65	6.08	6.1	6.18	6.31
Specific Conductance	umhos/cm	--	411	470	507	493	561	422	438	385
Sulfate	mg/L	250	19	20.81	21	19.67	20.56	21.5	22.7	27.9
Total Dissolved Solids	mg/L	500	170	294	246	300	277	269	291	314
Turbidity	NTU	5	37	72.9	6.9	85.6	ND	5.3	3.47	9.38

Location ID: GWM-14  
Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/14/2015	3/21/2016	9/23/2016	3/27/2017	9/20/2017	3/16/2018	9/20/2018	3/5/2019
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	0.0014 J	ND U	ND U	ND U	ND U
Arsenic, Total	mg/L	0.01	0.0011 J	ND U	0.0011 J	0.0013 J	0.0012 J	ND U	0.0015 J	0.0011 J
Barium, Total	mg/L	2	0.048	0.048	0.048	0.049	0.045	0.042	0.044	0.048
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Cadmium, Total	mg/L	0.005	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Calcium, Total	mg/L	--	13	14.6	12.7	12.4	11.5	11.1	10.9	12.3
Chromium, Total	mg/L	0.1	0.0021 J	0.0012 J	0.0014 J	0.0013 J	0.0019 J	ND U	0.00094 J	ND U
Cobalt, Total	mg/L	--	0.41	0.39	0.38	0.33	0.35	0.29	0.28	0.28
Copper, Total	mg/L	1.3	0.0022 J	0.0035 J	ND U	0.0024 J	0.0031 J	0.0025 J	0.0022 J	ND U
Iron, Total	mg/L	0.3	71.8	69.6	66.4	72.7	67	67.1	54.8	67.4
Lead, Total	mg/L	0.015	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Magnesium, Total	mg/L	--	16.8	18.5	16.4	15.8	15.5	15	14.8	17.1
Manganese, Total	mg/L	0.043	4.4	4.1	4	3.8	3.7	3.3	3.2	3.3
Mercury, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Nickel, Total	mg/L	0.039	0.0089	0.0082	0.0076	0.0077	0.0075	0.0078	0.0077	0.0078
Potassium, Total	mg/L	--	0.53	0.55	0.55	0.56	0.57	0.48	0.58	0.52
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Sodium, Total	mg/L	--	18.9	15.5	17.3	17.2	22.2	22.5	20.8	20.2
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Zinc, Total	mg/L	0.6	0.011	0.012	0.01	0.0097	0.011	0.012	0.013	0.012
Alkalinity, Total	mg/L	--	204	178	163	175	149	142	140	154
Ammonia-N	mg/L	--	0.054 J	ND U	0.178	0.085 J	0.104	0.209	0.1	ND U
Chemical Oxygen Demand (COD)	mg/L	--	12	16	7 J	20	24	13	19	27
Chloride	mg/L	250	26.1	24.8	27.7	26.4	34.8	32.9	34.2	30
Hardness	mg/L	--	130	110	114	114	92.5	89.3	88.2	101
Nitrate-N	mg/L	10	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
pH	SU	8.5	5.88	6.22	6.13	6.1	6.2	6.31	6.19	6.43
Specific Conductance	umhos/cm	--	395	391	405	404	410	387	378	346
Sulfate	mg/L	250	25.2	29.1	29.2	28.6	25	30.2	24.5	12.2
Total Dissolved Solids	mg/L	500	278	239	283	266	236	251	172	311
Turbidity	NTU	5	4.6	11.76	6	6.86	4.58	7.72	0.5	7.78

Location ID: GWM-14

Number of Sampling Dates: 48

Parameter Name	Units	Compliance Limit	9/25/2019	3/25/2020	9/28/2020	3/18/2021	9/15/2021	3/22/2022	9/14/2022	3/16/2023
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Arsenic, Total	mg/L	0.01	0.0063	0.0012 J	0.0016 J	ND U	0.0016 J	0.0012 J	0.0014 J	ND
Barium, Total	mg/L	2	0.045	0.044	0.043	0.11 R	0.048	0.05	0.053	0.052
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	0.00077 JR	ND U	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Calcium, Total	mg/L	--	10.4	12.1	11.2	4.4 R	12	11.8	11.1	11.2
Chromium, Total	mg/L	0.1	ND U	0.00085 J	ND U	ND U	ND U	ND	ND	ND
Cobalt, Total	mg/L	--	0.24	0.25	0.27	0.0024 JR	0.25	0.26	0.25	0.23
Copper, Total	mg/L	1.3	ND U	ND U	ND U	0.0066 R	ND U	ND	ND	ND
Iron, Total	mg/L	0.3	62.3	69.4	69.3	0.11 R	62	62.9	54.7	55.6
Lead, Total	mg/L	0.015	ND U	ND U	ND U	0.0011 JR	ND U	ND	ND	ND
Magnesium, Total	mg/L	--	14.7	15.4	15.2	2.9 R	16	15.1	15.2	15.4
Manganese, Total	mg/L	0.043	3	3.3	3.3	0.033 R	3.2	3.1	3	2.9
Mercury, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Nickel, Total	mg/L	0.039	0.0067	0.0088	0.0068	0.0047 JR	0.0088	0.01	0.0086	0.0092
Potassium, Total	mg/L	--	0.5	0.49	0.64	2 R	0.62	0.62	0.85	0.59
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Sodium, Total	mg/L	--	16.6	19.2	22.6	17.2 R	25	28.2	28.7	29.9
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vanadium, Total	mg/L	0.0086	0.0039	ND U	ND U	ND U	ND U	ND	ND	ND
Zinc, Total	mg/L	0.6	0.014	0.013	0.012	0.013 R	0.015	0.014	0.013	0.012
Alkalinity, Total	mg/L	--	150	106	158	148	161	116	126	125
Ammonia-N	mg/L	--	0.165	0.092 J	0.189	0.254	0.137	ND	0.241	0.132
Chemical Oxygen Demand (COD)	mg/L	--	21	17	23	33	20	18	21	28
Chloride	mg/L	250	24.5	28.6	36.7	34.7	36.9	40.2	40.9	43.9
Hardness	mg/L	--	86.5	97.3	96.1	90.7	86.2	89	91.6	90.2
Nitrate-N	mg/L	10	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
pH	SU	8.5	6.26	6.1	6.1	6.18	6.09	6.09	5.78	6.04
Specific Conductance	umhos/cm	--	373	352	358	375	419	388	360.8	535.45
Sulfate	mg/L	250	24.8	22.8	21.4	25.6	23.7	20.9	18.3	19.7
Total Dissolved Solids	mg/L	500	214	198	284	276	264	258	220	300
Turbidity	NTU	5	0.43	4.02	3.28	5.37	1.74	5.19	6.29	7.59



## Historical Well Data Table I

Name: Eastern Sanitary Landfill

Location ID: GWM-15D										
Number of Sampling Dates: 15										
Parameter Name	Units	Compliance Limit	3/21/2016	9/23/2016	3/28/2017	9/21/2017	3/16/2018	9/19/2018	3/5/2019	10/3/2019
Acetone	ug/L	1400	ND U	ND U	4.9 JB	ND U	3.9 JB	ND U	ND U	ND U
Acrylonitrile	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromochloromethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromomethane	ug/L	0.75	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloromethane	ug/L	19	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Dibromomethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
2-Hexanone	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Iodomethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID:		GWM-15D								
Number of Sampling Dates:		15								
Parameter Name	Units	Compliance Limit	3/21/2016	9/23/2016	3/28/2017	9/21/2017	3/16/2018	9/19/2018	3/5/2019	10/3/2019
Trichlorofluoromethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl acetate	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromofom	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorofom	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID:		GWM-15D								
Number of Sampling Dates:		15								
Parameter Name	Units	Compliance Limit	3/25/2020	9/28/2020	3/19/2021	9/15/2021	3/22/2022	9/14/2022	3/16/2023	
Acetone	ug/L	1400	ND U	ND U	ND U	3.3 JB	ND	ND	ND	
Acrylonitrile	ug/L	-	ND U	ND U	ND U	ND U	ND	ND	ND	
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND	ND	ND	
Bromochloromethane	ug/L	-	ND U	ND U	ND U	ND U	ND	ND	ND	
Bromomethane	ug/L	0.75	ND U	ND U	ND U	0.95 JB	ND	ND	ND	
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND	ND	ND	
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND	ND	ND	
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND	ND	ND	
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND	ND	ND	
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND	ND	ND	
Chloromethane	ug/L	19	ND U	0.44 J	ND U	ND U	ND	ND	ND	
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND	ND	ND	
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND	ND	ND	
Dibromomethane	ug/L	-	ND U	ND U	ND U	ND U	ND	ND	ND	
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND	ND	ND	
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND	ND	ND	
trans-1,4-dichloro-2-butene	ug/L	-	ND U	ND U	ND U	ND U	ND	ND	ND	
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND	ND	ND	
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND	ND	ND	
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND	ND	ND	
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND	ND	ND	
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND	ND	ND	
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND	ND	ND	
Methyl t-Butyl Ether	ug/L	20	ND U	ND U	ND U	ND U	ND	ND	ND	
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND	ND	ND	
trans-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND	ND	ND	
cis-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND	ND	ND	

Location ID: GWM-15D

Number of Sampling Dates: 15

Parameter Name	Units	Compliance Limit	3/25/2020	9/28/2020	3/19/2021	9/15/2021	3/22/2022	9/14/2022	3/16/2023
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND	ND	ND
2-Hexanone	ug/L	-	ND U	ND U	ND U	ND U	ND	ND	ND
Iodomethane	ug/L	-	ND U	ND U	ND U	ND U	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND	ND	ND
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	-	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND	ND	ND
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND	ND	ND
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND	ND	ND
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND	ND	ND
Trichlorofluoromethane	ug/L	-	ND U	ND U	ND U	ND U	ND	ND	ND
1,2,3-Trichloropropane	ug/L	-	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl acetate	ug/L	-	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND	ND	ND
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND	ND	ND
o-Xylene	ug/L	10000	ND U	ND U	ND U	ND U	ND	ND	ND
mp-Xylene	ug/L	10000	ND U	ND U	ND U	ND U	ND	ND	ND
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND	ND	ND
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND	ND	ND
Chloroform	ug/L	80	ND U	ND U	ND U	ND U	ND	ND	ND

## Historical Well Data Table II

Name: Eastern Sanitary Landfill

Location ID: GWM-15D											
Number of Sampling Dates: 15											
Parameter Name	Units	Compliance Limit	3/21/2016	9/23/2016	3/28/2017	9/21/2017	3/16/2018	9/19/2018	3/5/2019	10/3/2019	
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Arsenic, Total	mg/L	0.01	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Barium, Total	mg/L	2	0.19	0.14	0.13	0.11	0.11	0.1	0.11	0.096	
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Cadmium, Total	mg/L	0.005	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Calcium, Total	mg/L	--	18.2	14.8	14.1	13.5	13.8	14.5	16.2	15.9	
Chromium, Total	mg/L	0.1	0.0031	0.004	0.004	0.0029	0.0015 J	0.0017 J	0.0019 J	0.00096 J	
Cobalt, Total	mg/L	--	0.041	0.021	0.017	0.016	0.015	0.016	0.016	0.015	
Copper, Total	mg/L	1.3	0.0044 J	0.0047 J	0.0049 J	0.0047 J	0.0041 J	0.0038 J	0.0032 J	0.0039 J	
Iron, Total	mg/L	0.3	0.51	0.055 J	0.067	0.049 J	0.046 J	0.043 J	0.16	0.019 J	
Lead, Total	mg/L	0.015	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Magnesium, Total	mg/L	--	17.1	15.2	14.4	14.2	14.5	15	18.3	17.2	
Manganese, Total	mg/L	0.043	0.69	0.39	0.38	0.35	0.38	0.44	0.5	0.54	
Mercury, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Nickel, Total	mg/L	0.039	0.016	0.014	0.013	0.011	0.01	0.011	0.0011	0.01	
Potassium, Total	mg/L	--	2.4	2.3	2.3	2	2.1	2.1	2.3	2.3	
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Sodium, Total	mg/L	--	28.6	27.4	26.1	24.9	26.4	26.8	30.6	30.4	
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Vanadium, Total	mg/L	0.0086	0.0015 J	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Zinc, Total	mg/L	0.6	0.023	0.011	0.01	0.0092	0.0093	0.0096	0.009	0.0096	
Alkalinity, Total	mg/L	--	30	23	24	23	32	39	27	39	
Ammonia-N	mg/L	--	ND U	0.033 J	ND U	ND U	ND U	0.128	ND U	0.189	
Chemical Oxygen Demand (COD)	mg/L	--	13	ND U	ND U	11	ND U	ND U	17	11 J	
Chloride	mg/L	250	65.8	66.9	68	58.5	93.9	58.3	57	62.4	
Hardness	mg/L	--	115	114	93	92.2	57.9	98	116	110	
Nitrate-N	mg/L	10	0.18 J	0.1 J	0.08 J	ND U	ND U	0.08 J	ND U	0.1 J	
pH	SU	8.5	4.99	5.05	4.87	4.8	5.27	5.06	5.29	4.94	
Specific Conductance	umhos/cm	--	315	308	295	283	280	283	272	302	
Sulfate	mg/L	250	61.9	63	60.3	55	54.1	53.3	55.2	58	
Total Dissolved Solids	mg/L	500	196	260	208	191	199	213	268	260	
Turbidity	NTU	5	14.3	1.6	0.77	1.79	1.68	3	3.44	1.26	

Location ID: GWM-15D										
Number of Sampling Dates: 15										
Parameter Name	Units	Compliance Limit	3/25/2020	9/28/2020	3/19/2021	9/15/2021	3/22/2022	9/14/2022	3/16/2023	
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND	ND	ND	
Arsenic, Total	mg/L	0.01	ND U	ND U	ND U	0.00031 J	ND	ND	ND	
Barium, Total	mg/L	2	0.091	0.088	0.09	0.086	0.087	0.082	0.081	
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	ND	ND	ND	

Location ID: GWM-15D

Number of Sampling Dates: 15

Parameter Name	Units	Compliance Limit	3/25/2020	9/28/2020	3/19/2021	9/15/2021	3/22/2022	9/14/2022	3/16/2023
Cadmium, Total	mg/L	0.005	ND U	ND U	ND U	0.00016 J	ND	ND	ND
Calcium, Total	mg/L	--	16	17.3	18	19	20.2	18.7	20.3
Chromium, Total	mg/L	0.1	0.002 J	ND U	0.001 J	0.0019 J	0.00087 J	ND	0.0017 J
Cobalt, Total	mg/L	--	0.015	0.016	0.017	0.019	0.022	0.022	0.025
Copper, Total	mg/L	1.3	0.0031 J	0.0027 J	0.0033 J	0.0023 J	0.0023 J	ND	0.0023 J
Iron, Total	mg/L	0.3	0.085	0.078	0.047 J	0.072 J	0.037 J	0.039 J	0.05 J
Lead, Total	mg/L	0.015	ND U	ND U	ND U	ND U	ND	ND	ND
Magnesium, Total	mg/L	--	17	17.4	20.4	20	20.3	20.2	20.4
Manganese, Total	mg/L	0.043	0.58	0.66	0.68	0.72	0.91	0.92	0.98
Mercury, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND	ND	ND
Nickel, Total	mg/L	0.039	0.0098	0.011	0.0099	0.01	0.01	0.009	0.0097
Potassium, Total	mg/L	--	2.3	2.4	2.5	2.6	2.7	2.8	2.8
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	ND	ND	ND
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND	ND	ND
Sodium, Total	mg/L	--	30.9	30.7	35.2	35	35.8	35.6	35.1
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	0.0011 J	ND	ND	ND
Zinc, Total	mg/L	0.6	0.0088	0.015	0.01	0.011	0.0099	0.0083	0.0092
Alkalinity, Total	mg/L	--	32	27	35	37	72	42	42
Ammonia-N	mg/L	--	0.029 J	0.029 J	ND U	0.065 J	0.106	ND	0.085 J
Chemical Oxygen Demand (COD)	mg/L	--	ND U	12 J	10 J	6 J	ND	5 J	14 J
Chloride	mg/L	250	61.7	67.6	74.8	76.7	82.5	73.2	79.6
Hardness	mg/L	--	112	122	125	117	126	136	127
Nitrate-N	mg/L	10	ND U	0.12 J	0.1 J	0.1 J	ND	ND	ND
pH	SU	8.5	4.87	5.11	4.94	5.05	5.03	5	5.2
Specific Conductance	umhos/cm	--	292	303	329	378	355	331	302.52
Sulfate	mg/L	250	56.4	60.9	64	61.8	61.9	58.9	61.7
Total Dissolved Solids	mg/L	500	222	280	252	256	258	182	288
Turbidity	NTU	5	3.35	2.33	2.85	3.13	1.6	2.54	15.85

# Historical Well Data Table I

Name: Eastern Sanitary Landfill

Location ID: GWM-16D										
Number of Sampling Dates: 8										
Parameter Name	Units	Compliance Limit	11/15/2019	4/2/2020	9/30/2020	3/22/2021	9/8/2021	3/14/2022	9/12/2022	3/13/2023
Acetone	ug/L	1400	4.7 J	ND U	ND U	ND U	3.1 JB	3.2 J	ND	ND
Acrylonitrile	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromochloromethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromomethane	ug/L	0.75	ND U	ND U	ND U	ND U	ND U	ND	ND	0.85 J
2-Butanone	ug/L	700	4.9 J	ND U	ND U	ND U	ND U	ND	ND	ND
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloromethane	ug/L	19	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Dibromomethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	0.6 J	0.52 J	0.53 J	0.42 J	0.46 J	ND	ND	0.41 J
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
2-Hexanone	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Iodomethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	0.42 J	0.75 J
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND

Location ID: GWM-16D

Number of Sampling Dates: 8

Parameter Name	Units	Compliance Limit	11/15/2019	4/2/2020	9/30/2020	3/22/2021	9/8/2021	3/14/2022	9/12/2022	3/13/2023
Trichlorofluoromethane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2,3-Trichloropropane	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl acetate	ug/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
o-Xylene	ug/L	10000	–	ND U	ND U	ND U	ND U	ND	ND	ND
mp-Xylene	ug/L	10000	–	ND U	ND U	ND U	ND U	ND	ND	ND
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloroform	ug/L	80	0.24 J	ND U	0.24 J	ND U	0.24 J	0.21 JB	ND	0.3 J

## Historical Well Data Table II

Name: Eastern Sanitary Landfill

Location ID: GWM-16D										
Number of Sampling Dates: 8										
Parameter Name	Units	Compliance Limit	11/15/2019	4/2/2020	9/30/2020	3/22/2021	9/8/2021	3/14/2022	9/12/2022	3/13/2023
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Barium, Total	mg/L	2	0.14	0.14	0.14	0.054 R	0.14	0.13	0.14	0.14
Beryllium, Total	mg/L	0.004	ND U	0.00048 J	0.00073 J	0.00056 J	0.00062 J	0.00047 J	0.0004 J	ND
Cadmium, Total	mg/L	0.005	ND U	ND U	ND U	ND U	0.00018 J	ND	ND	ND
Calcium, Total	mg/L	-	14.4	14.9	14.7	7.1 R	13.5	13.4	13.2	13.3
Chromium, Total	mg/L	0.1	0.012	0.0067	0.00099 J	0.00088 J	ND U	0.0031	0.0014 J	0.012
Cobalt, Total	mg/L	-	0.0065	0.0093	0.0062	0.0054 J	0.0055	0.006	0.0046 J	0.0069
Copper, Total	mg/L	1.3	0.0074	0.01	0.012	0.0056 UR	0.013	0.015	0.0094	0.013
Iron, Total	mg/L	0.3	0.076	0.071	ND U	0.29 R	ND U	0.11	0.058	0.074
Lead, Total	mg/L	0.015	0.009	0.003	0.0016 J	0.0022 UR	0.0011 J	0.00099 J	ND	0.00082 J
Magnesium, Total	mg/L	-	8	8.2	7.9	2.7 R	7.7	8	7.7	7.7
Manganese, Total	mg/L	0.043	0.042	0.046	0.037	0.072 R	0.035	0.041	0.034	0.038
Mercury, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Nickel, Total	mg/L	0.039	0.023	0.031	0.021	0.0067 R	0.02	0.022	0.019	0.025
Potassium, Total	mg/L	-	3.4	8.1	4.4	1.4 R	6.3	4	4.1	3.4
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	0.0022 J	0.0019 J	ND	ND	ND
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Sodium, Total	mg/L	-	30.5	37.2	32.2	0.97 R	35	34.4	32.6	32.6
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Zinc, Total	mg/L	0.6	0.031	0.04	0.046	0.028 R	0.036	0.038	0.034	0.032
Alkalinity, Total	mg/L	-	13	46	21	26	42	14	14	15
Ammonia-N	mg/L	-	ND U	ND U	0.243	0.136	0.125	0.07 J	ND	0.13
Chemical Oxygen Demand (COD)	mg/L	-	ND U	9 J	ND U	ND U	ND U	ND	ND	ND
Chloride	mg/L	250	73.9	66.6	73.4	74.1	79.1	72.6	73.3	74.7
Hardness	mg/L	-	68.7	77.1	72.9	65.2	62.1	62.2	70	65.4
Nitrate-N	mg/L	10	3.2	3.1	3.2	3.4	3.4	2.8	2.8	2.9
pH	SU	8.5	5.17	6.14	5.61	5.85	5.95	5.4	5.16	5.15
Specific Conductance	umhos/cm	-	278	239	256	276	254	145.1	289	329.77
Sulfate	mg/L	250	20.4	14.9	15.8	20.4	20.3	15.2	15.8	16
Total Dissolved Solids	mg/L	500	184	322	172	204	226	158	194	176
Turbidity	NTU	5	4.94	3.01	0.44	0.45	0.54	0.41	7.74	16.23



# Historical Well Data Assessment Monitoring, Organochloride Pesticides

Name: Eastern Sanitary Landfill

Location ID:		GWM-16D				
Number of Sampling Dates:		4				
Parameter Name	Units	Compliance Limit	9/8/2021	3/14/2022	9/12/2022	3/13/2023
4,4'-DDD	ug/L	0.0063	ND U	ND	ND	ND
4,4'-DDE	ug/L	0.046	ND U	ND	ND	ND
4,4'-DDT	ug/L	0.23	ND U	ND	ND	ND
Aldrin	ug/L	0.00092	ND U	ND	ND	ND
alpha-HCH (alpha-BHC)	ug/L	0.0072	ND U	ND	ND	ND
beta-BHC	ug/L	0.025	ND U	ND	ND	ND
Chlordane	ug/L	2	ND U	ND	0.0098 J	ND
delta-BHC	ug/L	0.2	ND U	ND	ND	ND
Dieldrin	ug/L	0.0018	ND U	ND	ND	ND
Endosulfan I	ug/L	10	ND U	ND	ND	ND
Endosulfan II	ug/L	10	ND U	ND	ND	ND
Endosulfan Sulfate	ug/L	10	ND U	ND	ND	ND
Endrin	ug/L	2	ND U	ND	ND	ND
Endrin Aldehyde	ug/L	2	ND U	ND	ND	ND
gamma-BHC	ug/L	0.2	ND U	ND	ND	ND
Heptachlor	ug/L	0.4	ND U	ND	ND	ND
Heptachlor Epoxide	ug/L	0.2	ND U	ND	ND	ND
Methoxychlor	ug/L	40	ND U	ND	ND	ND
Toxaphene	ug/L	3	ND U	ND	ND	ND

## Historical Well Data Table I

Name: Eastern Sanitary Landfill

Location ID: GWM-17D										
Number of Sampling Dates: 8										
Parameter Name	Units	Compliance Limit	11/14/2019	3/26/2020	9/29/2020	3/16/2021	9/14/2021	3/18/2022	9/13/2022	3/14/2023
Acetone	ug/L	1400	ND U	ND U	3.2 JB	ND U	ND U	ND	ND	ND
Acrylonitrile	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Benzene	ug/L	5	0.97 J	0.83 J	0.97 J	0.76 J	0.78 J	0.69 J	0.68 J	ND
Bromochloromethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromomethane	ug/L	0.75	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Carbon disulfide	ug/L	81	ND U	0.28 JB	ND U	ND U	ND U	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloromethane	ug/L	19	ND U	ND U	0.42 J	ND U	ND U	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Dibromomethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	2.6	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	1.8	1.9	2	1.8	1.8	1.7	ND	1.4
trans-1,4-dichloro-2-butene	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	0.35 J	0.29 J	0.31 J	ND U	ND U	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	0.34 J	ND U	0.32 J	ND U	ND U	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	1	0.9 J	0.92 J	0.88 J	0.87 J	0.72 J	0.74 J	0.74 J
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
2-Hexanone	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Iodomethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND

Location ID: GWM-17D

Number of Sampling Dates: 8

Parameter Name	Units	Compliance Limit	11/14/2019	3/26/2020	9/29/2020	3/16/2021	9/14/2021	3/18/2022	9/13/2022	3/14/2023
Trichlorofluoromethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2,3-Trichloropropane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl acetate	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
o-Xylene	ug/L	10000	--	ND U	ND U	ND U	ND U	ND	ND	ND
mp-Xylene	ug/L	10000	--	ND U	ND U	ND U	ND U	ND	ND	ND
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloroform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND

## Historical Well Data Table II

Name: Eastern Sanitary Landfill

Location ID: GWM-17D										
Number of Sampling Dates: 8										
Parameter Name	Units	Compliance Limit	11/14/2019	3/26/2020	9/29/2020	3/16/2021	9/14/2021	3/18/2022	9/13/2022	3/14/2023
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND U	ND U	ND U	ND U	0.00034 J	ND	ND	ND
Barium, Total	mg/L	2	0.27	0.25	0.24	0.29	0.29	0.28	0.29	0.29
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Calcium, Total	mg/L	-	40.3	38.7	38.4	41.3	45	41.7	42.5	43.2
Chromium, Total	mg/L	0.1	ND U	0.0018 J	0.00095 J	ND U	ND U	0.0013 J	0.0018 J	0.0019 J
Cobalt, Total	mg/L	-	0.14	0.16	0.19	0.23	0.24	0.25	0.3	0.33
Copper, Total	mg/L	1.3	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Iron, Total	mg/L	0.3	0.18	0.13	0.076	0.049 J	0.056 J	0.031 J	0.032 J	0.18
Lead, Total	mg/L	0.015	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Magnesium, Total	mg/L	-	24.3	21.8	23	24.8	24	22.7	23.8	23.6
Manganese, Total	mg/L	0.043	2	2	2.3	2.6	2.8	2.9	3.2	3.4
Mercury, Total	mg/L	0.002	0.00045 J	0.00038 J	0.00029 J	0.00049 J	0.00085	0.001	0.0009	0.00039 J
Nickel, Total	mg/L	0.039	0.056	0.056	0.055	0.064	0.063	0.063	0.067	0.065
Potassium, Total	mg/L	-	4.2	5.3	5	4.2	4	4.5	5.4	4.1
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	0.00085 J	ND	ND	ND
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Sodium, Total	mg/L	-	34.4	33.9	35.4	37.6	38	39.1	42.1	41.4
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vanadium, Total	mg/L	0.0086	0.0012 J	ND U	0.0013 J	0.0011 J	0.0015 J	0.0011 J	0.0011 J	0.0013 J
Zinc, Total	mg/L	0.6	0.031	0.028	0.036	0.036	0.036	0.035	0.028	0.032
Alkalinity, Total	mg/L	-	214	191	169	175	155	154	157	150
Ammonia-N	mg/L	-	0.159	0.106	0.135	0.263	0.186	0.253	ND	0.287
Chemical Oxygen Demand (COD)	mg/L	-	9 J	ND U	8 J	12 J	ND U	ND	6 J	12 J
Chloride	mg/L	250	67.8	65.1	76.3	78.2	87.2	92.5	92.7	99.7
Hardness	mg/L	-	201	196	201	184	190	190	208	227
Nitrate-N	mg/L	10	0.12 J	ND U	0.06 J	ND U	ND U	ND	ND	ND
pH	SU	8.5	6	5.87	5.86	5.71	5.65	5.87	5.47	5.85
Specific Conductance	umhos/cm	-	373	401	429	448	491	487	534	651.76
Sulfate	mg/L	250	17.5	16.7	21.8	20.1	21.3	19.1	17.3	18.9
Total Dissolved Solids	mg/L	500	506	268	354	352	410	320	312	344
Turbidity	NTU	5	10.36	5.37	5.44	3.15	5.68	13.48	21.85	3.48

# Historical Well Data Assessment Monitoring, Organochloride Pesticides

Name: Eastern Sanitary Landfill

Location ID: GWM-17D							
Number of Sampling Dates: 5							
Parameter Name	Units	Compliance Limit	3/16/2021	9/14/2021	3/18/2022	9/13/2022	3/14/2023
4,4'-DDD	ug/L	0.0063	ND U	ND U	ND	ND	ND
4,4'-DDE	ug/L	0.046	ND U	ND U	ND	ND	ND
4,4'-DDT	ug/L	0.23	ND U	0.0031 J	ND	ND	ND
Aldrin	ug/L	0.00092	ND U	ND U	ND	ND	ND
alpha-HCH (alpha-BHC)	ug/L	0.0072	ND U	ND U	ND	ND	ND
beta-BHC	ug/L	0.025	ND U	ND U	ND	ND	ND
Chlordane	ug/L	2	ND U	ND U	ND	ND	ND
delta-BHC	ug/L	0.2	ND U	ND U	ND	ND	ND
Dieldrin	ug/L	0.0018	0.0072	0.0072	ND	0.0035	0.00488
Endosulfan I	ug/L	10	ND U	ND U	ND	ND	ND
Endosulfan II	ug/L	10	ND U	ND U	ND	ND	ND
Endosulfan Sulfate	ug/L	10	ND U	ND U	ND	ND	ND
Endrin	ug/L	2	ND U	ND U	ND	ND	ND
Endrin Aldehyde	ug/L	2	ND U	ND U	ND	ND	ND
gamma-BHC	ug/L	0.2	ND U	ND U	ND	ND	ND
Heptachlor	ug/L	0.4	ND U	ND U	ND	ND	ND
Heptachlor Epoxide	ug/L	0.2	ND U	ND U	ND	ND	ND
Methoxychlor	ug/L	40	ND U	ND U	ND	0.00091 J	ND
Toxaphene	ug/L	3	ND U	ND U	ND	ND	ND

# Historical Well Data Table I

Name: Eastern Sanitary Landfill

Location ID: GWM-17S										
Number of Sampling Dates: 8										
Parameter Name	Units	Compliance Limit	11/14/2019	3/26/2020	9/29/2020	3/16/2021	9/14/2021	3/18/2022	9/13/2022	3/14/2023
Acetone	ug/L	1400	4.1 J	3.5 J	5.2 JB	ND U	ND U	3.4 J	ND	ND
Acrylonitrile	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Benzene	ug/L	5	0.93 J	1.1	1 J	0.81 J	0.86 J	0.69 J	0.68 J	ND
Bromochloromethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromomethane	ug/L	0.75	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Carbon disulfide	ug/L	81	ND U	0.29 JB	ND U	ND U	ND U	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorobenzene	ug/L	100	ND U	0.22 J	ND U	ND U	ND U	ND	ND	0.22 J
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloromethane	ug/L	19	ND U	ND U	0.57 J	ND U	ND U	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Dibromomethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	1.8	2.4	1.9	1.8	1.7	1.6	ND	1.9
trans-1,4-dichloro-2-butene	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	0.29 J	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	0.36 J	0.53 J	0.41 J	ND U	ND U	0.36 J	ND	0.35 J
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Methylene Chloride	ug/L	5	ND U	ND U	0.46 J	ND U	ND U	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	0.76 J	0.85 J	0.77 J	0.76 J	0.7 J	0.66 J	0.63 J	0.82 J
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
2-Hexanone	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Iodomethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND

Location ID: GWM-17S

Number of Sampling Dates: 8

Parameter Name	Units	Compliance Limit	11/14/2019	3/26/2020	9/29/2020	3/16/2021	9/14/2021	3/18/2022	9/13/2022	3/14/2023
Trichlorofluoromethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2,3-Trichloropropane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl acetate	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
o-Xylene	ug/L	10000	--	ND U	ND U	ND U	ND U	ND	ND	ND
mp-Xylene	ug/L	10000	--	ND U	ND U	ND U	ND U	ND	ND	ND
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloroform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND

## Historical Well Data Table II

Name: Eastern Sanitary Landfill

Location ID: GWM-17S										
Number of Sampling Dates: 8										
Parameter Name	Units	Compliance Limit	11/14/2019	3/26/2020	9/29/2020	3/16/2021	9/14/2021	3/18/2022	9/13/2022	3/14/2023
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Arsenic, Total	mg/L	0.01	0.0012 J	ND U	0.0013 J	ND U	0.001 J	ND	0.0014 J	0.0012 J
Barium, Total	mg/L	2	0.23	0.23	0.21	0.25	0.26	0.23	0.24	0.28
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Calcium, Total	mg/L	-	38.6	39	35.4	34.9	38	35.7	36.1	39.1
Chromium, Total	mg/L	0.1	ND U	0.0016 J	0.00081 J	ND U	ND U	0.0015 J	ND	0.0018 J
Cobalt, Total	mg/L	-	0.46	0.57	0.42	0.43	0.41	0.43	0.47	0.64
Copper, Total	mg/L	1.3	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Iron, Total	mg/L	0.3	84.1	85.2	101	107	100	85.1	83.2	102
Lead, Total	mg/L	0.015	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Magnesium, Total	mg/L	-	22.4	21.6	22	21.7	21	20.4	21.6	24
Manganese, Total	mg/L	0.043	4.1	6.8	3.6	3.9	4	4.6	4.3	7.6
Mercury, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Nickel, Total	mg/L	0.039	0.028	0.026	0.026	0.026	0.025	0.027	0.031	0.024
Potassium, Total	mg/L	-	3.4	3.1	3.2	3.4	3.5	3.2	3.3	3.5
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	0.00064 J	ND	ND	ND
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	0.00094 J	ND U	ND	ND	ND
Sodium, Total	mg/L	-	40.5	39.5	44	45.4	47	45.1	45.9	49.1
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	0.00024 J	ND	ND	0.00046 J
Vanadium, Total	mg/L	0.0086	0.00086 J	ND U	ND U	ND U	ND U	ND	ND	0.00078 J
Zinc, Total	mg/L	0.6	0.011	0.008	0.0083	0.01	0.015	0.01	0.009	0.009
Alkalinity, Total	mg/L	-	201	188	183	192	180	152	146	176
Ammonia-N	mg/L	-	0.185	0.139	0.203	0.427	0.362	0.429	ND	0.548
Chemical Oxygen Demand (COD)	mg/L	-	17	18	20	24	22	18	17	26
Chloride	mg/L	250	87.6	98.9	92.8	101	105	110	104	110
Hardness	mg/L	-	189	186	189	177	160	169	182	216
Nitrate-N	mg/L	10	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
pH	SU	8.5	6.41	6.08	6.26	6.35	6.22	6.26	5.96	6.07
Specific Conductance	umhos/cm	-	545	6.23	641	672	742	673	709	992.44
Sulfate	mg/L	250	20.7	23.1	24.2	22.5	23.1	21.9	21.1	16.7
Total Dissolved Solids	mg/L	500	556	314	436	402	490	408	394	492
Turbidity	NTU	5	5.82	4.77	3.1	2.78	3.78	3.81	4.66	4.49



# Historical Well Data Assessment Monitoring, Organochloride Pesticides

Name: Eastern Sanitary Landfill

Location ID: GWM-17S							
Number of Sampling Dates: 5							
Parameter Name	Units	Compliance Limit	3/16/2021	9/14/2021	3/18/2022	9/13/2022	3/14/2023
4,4'-DDD	ug/L	0.0063	ND U	ND U	ND	ND	ND
4,4'-DDE	ug/L	0.046	ND U	ND U	ND	ND	ND
4,4'-DDT	ug/L	0.23	ND U	ND U	ND	ND	ND
Aldrin	ug/L	0.00092	ND U	ND U	ND	ND	ND
alpha-HCH (alpha-BHC)	ug/L	0.0072	ND U	ND U	ND	ND	ND
beta-BHC	ug/L	0.025	ND U	ND U	ND	ND	ND
Chlordane	ug/L	2	ND U	ND U	ND	ND	ND
delta-BHC	ug/L	0.2	ND U	ND U	ND	ND	ND
Dieldrin	ug/L	0.0018	0.0075	0.0085	ND	0.004	0.00408
Endosulfan I	ug/L	10	ND U	ND U	ND	ND	ND
Endosulfan II	ug/L	10	ND U	ND U	ND	ND	ND
Endosulfan Sulfate	ug/L	10	ND U	ND U	ND	ND	ND
Endrin	ug/L	2	ND U	ND U	ND	ND	ND
Endrin Aldehyde	ug/L	2	ND U	ND U	ND	ND	ND
gamma-BHC	ug/L	0.2	ND U	ND U	ND	ND	ND
Heptachlor	ug/L	0.4	ND U	ND U	ND	ND	ND
Heptachlor Epoxide	ug/L	0.2	ND U	ND U	ND	ND	ND
Methoxychlor	ug/L	40	ND U	ND U	ND	ND	ND
Toxaphene	ug/L	3	ND U	ND U	ND	ND	ND

## Historical Well Data Table I

Name: Eastern Sanitary Landfill

Location ID: GWM-19D										
Number of Sampling Dates: 8										
Parameter Name	Units	Compliance Limit	11/14/2019	3/25/2020	9/29/2020	3/22/2021	9/15/2021	3/24/2022	9/15/2022	3/16/2023
Acetone	ug/L	1400	3.6 J	3.6 J	4.9 JB	ND U	3.2 JB	ND	ND	ND
Acrylonitrile	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromochloromethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromomethane	ug/L	0.75	ND U	ND U	ND U	ND U	0.67 JB	ND	ND	ND
2-Butanone	ug/L	700	ND U	3.1 J	ND U	ND U	ND U	ND	ND	ND
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloromethane	ug/L	19	ND U	ND U	0.91 J	ND U	ND U	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Dibromomethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	0.5 J	ND U	0.34 J	ND U	ND U	0.44 J	ND	0.36 J
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
2-Hexanone	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Iodomethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	0.67 J	ND	ND	ND

Location ID: GWM-19D

Number of Sampling Dates: 8

Parameter Name	Units	Compliance Limit	11/14/2019	3/25/2020	9/29/2020	3/22/2021	9/15/2021	3/24/2022	9/15/2022	3/16/2023
Trichlorofluoromethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2,3-Trichloropropane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl acetate	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
o-Xylene	ug/L	10000	--	ND U	ND U	ND U	ND U	ND	ND	ND
mp-Xylene	ug/L	10000	--	ND U	ND U	ND U	ND U	ND	ND	ND
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloroform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND

## Historical Well Data Table II

Name: Eastern Sanitary Landfill

Location ID: GWM-19D										
Number of Sampling Dates: 8										
Parameter Name	Units	Compliance Limit	11/14/2019	3/25/2020	9/29/2020	3/22/2021	9/15/2021	3/24/2022	9/15/2022	3/16/2023
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	0.0012 J	ND U	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND U	ND U	ND U	ND U	0.00025 J	ND	ND	ND
Barium, Total	mg/L	2	0.068	0.059	0.049	0.054	0.057	0.06	0.06	0.061
Beryllium, Total	mg/L	0.004	0.00059 J	0.00042 J	0.00039 J	0.0006 J	0.00045 J	0.00045 J	0.00041 J	0.00038 J
Cadmium, Total	mg/L	0.005	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Calcium, Total	mg/L	-	9.9	8.4	7.5	7.7	8.5	8.4	8.1	8.5
Chromium, Total	mg/L	0.1	0.0013 J	0.0024	0.0015 J	0.0018 J	0.0016 J	0.0015 J	0.002 J	0.0021 J
Cobalt, Total	mg/L	-	0.0098	0.0083	0.0074	0.0082	0.0089	0.0089	0.0096	0.012
Copper, Total	mg/L	1.3	0.0098	0.009	0.014	0.021	0.018	0.013	0.014	0.011
Iron, Total	mg/L	0.3	0.094	0.029 J	0.24	0.061	ND U	ND	ND	ND
Lead, Total	mg/L	0.015	0.0091	ND U	ND U	ND U	ND U	0.0014 J	0.0014 J	0.0024
Magnesium, Total	mg/L	-	5.3	5.1	4.4	4.5	4.7	4.8	4.7	4.8
Manganese, Total	mg/L	0.043	0.048	0.043	0.041	0.039	0.041	0.047	0.05	0.058
Mercury, Total	mg/L	0.002	0.0019	0.0019	0.002	0.0023	0.0022	0.0018	0.002	0.0023
Nickel, Total	mg/L	0.039	0.029	0.026	0.021	0.023	0.025	0.025	0.026	0.026
Potassium, Total	mg/L	-	9.1	5.6	2.7	2.7	2.8	2.2	2.3	2.1
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	0.0021 J	0.0015 J	ND	ND	ND
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Sodium, Total	mg/L	-	23.9	18.5	14.1	15	15	15.1	13.9	14.4
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vanadium, Total	mg/L	0.0086	0.0017 J	ND U	ND U	ND U	ND U	ND	ND	ND
Zinc, Total	mg/L	0.6	0.044	0.028	0.026	0.032	0.034	0.034	0.031	0.032
Alkalinity, Total	mg/L	-	72	36	20	16	18	13	13	11
Ammonia-N	mg/L	-	0.028 J	0.197	ND U	0.165	0.059 J	0.064 J	ND	ND
Chemical Oxygen Demand (COD)	mg/L	-	15 J	ND U	ND U	ND U	ND U	6 J	ND	7 J
Chloride	mg/L	250	32.1	32.3	35.5	36.6	36.3	34.9	34.2	35.2
Hardness	mg/L	-	46.4	41.4	39.3	36.5	36.8	37.7	39.5	43
Nitrate-N	mg/L	10	1.6	1.2	1.5	1.9	1.7	1.4	1.5	1.3
pH	SU	8.5	5.66	5.52	4.66	5.02	4.89	4.42	4.91	4.84
Specific Conductance	umhos/cm	-	173.3	166.8	143.1	150.5	164.5	154.5	141.8	193
Sulfate	mg/L	250	3.6	3.1	7	6.2	6.6	7.3	7.6	10.1
Total Dissolved Solids	mg/L	500	270	104	120	109	128	80	94	142
Turbidity	NTU	5	2.97	0.65	0.28	0.43	0.46	0.7	9.98	0.41

# Historical Leachate Data Table I

Name: ESL Leachate

Location ID: L-1										
Number of Sampling Dates: 46										
Parameter Name	Units	TCLP	3/30/2000	10/19/2000	3/26/2001	10/3/2001	3/29/2002	9/11/2002	4/2/2003	10/2/2003
Acetone	ug/L	--	--	ND	35	ND	10	5	11	ND
Acrylonitrile	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	500	--	6	10	10	10	10	8	7
Bromochloromethane	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	200000	--	ND	106	8	150	25	176	15
Carbon disulfide	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	500	--	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100000	--	8	27	60	50	28	31	14
Chloroethane	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	7500	--	ND	22	29	25	32	29	36
trans-1,4-dichloro-2-butene	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/L	500	--	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	700	--	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	--	--	ND	ND	12	ND	15	11	ND
1,2-Dichloropropane	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	--	--	41	30	46	30	22	21	9
2-Hexanone	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	--	--	ND	15	ND	5	ND	ND	ND
Styrene	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	700	--	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	--	--	50	70	7	10	ND	16	9
1,1,1-Trichloroethane	ug/L	--	--	ND	ND	ND	ND	12	ND	ND

Location ID: L-1  
 Number of Sampling Dates: 46

Parameter Name	Units	TCLP	3/30/2000	10/19/2000	3/26/2001	10/3/2001	3/29/2002	9/11/2002	4/2/2003	10/2/2003
1,1,2-Trichloroethane	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	500	--	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	--	--	ND	ND	ND	--	--	--	--
Vinyl acetate	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	200	--	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	--	123	105	114	90	79	65	59
mp-Xylene	ug/L	10000	--	--	--	--	--	--	--	--
o-Xylene	ug/L	10000	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	--	--	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	6000	--	ND	ND	ND	ND	ND	ND	ND

Location ID: L-1  
 Number of Sampling Dates: 46

Parameter Name	Units	TCLP	3/25/2004	10/5/2004	4/18/2005	9/29/2005	3/23/2006	9/28/2006	11/7/2007	4/16/2008
Acetone	ug/L	--	ND	20	65	ND	39	80	431	1073
Acrylonitrile	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	500	10	5	7	ND	11	9	15	8
Bromochloromethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	200000	ND	6	22	5	100	150	736	1428
Carbon disulfide	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	500	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100000	7	3	6	6	ND	3	63	2
Chloroethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	7500	45	26	32	28	23	37	44	79
trans-1,4-dichloro-2-butene	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	--	ND	ND	ND	ND	ND	2	9	ND
1,2-Dichloroethane	ug/L	500	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	--	3	ND	ND	ND	ND	5	7	4
trans-1,2-Dichloroethene	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	--	ND	ND	ND	ND	ND	2	6	ND

Location ID: L-1  
 Number of Sampling Dates: 46

Parameter Name	Units	TCLP	3/25/2004	10/5/2004	4/18/2005	9/29/2005	3/23/2006	9/28/2006	11/7/2007	4/16/2008
Methyl t-Butyl Ether	ug/L	--	4	ND	ND	ND	11	30	8	19
1,2-Dichloropropane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	--	27	9	16	9	ND	15	55	63
2-Hexanone	ug/L	--	6	ND	ND	ND	ND	17	5	13
Iodomethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	--	33	ND	ND	ND	ND	107	35	82
Styrene	ug/L	--	ND	ND	ND	ND	ND	ND	ND	1
1,1,1,2-Tetrachloroethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	--	46	9	14	7	ND	17	ND	49
1,1,1-Trichloroethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	500	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	--	--	--	--	--	--	--	--	--
Vinyl acetate	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	200	2	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	89	36	62	52	37	67	157	181
mp-Xylene	ug/L	10000	--	--	--	--	--	--	--	--
o-Xylene	ug/L	10000	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	6000	ND	ND	ND	ND	ND	2	ND	ND

Location ID: L-1  
 Number of Sampling Dates: 46

Parameter Name	Units	TCLP	10/9/2008	3/18/2009	10/20/2009	5/12/2010	8/26/2010	3/15/2011	10/7/2011	3/20/2012
Acetone	ug/L	--	408	586	275	57	80	68	13.7	5
Acrylonitrile	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	500	6	8	4	4	10	4.7	2.88	5
Bromochloromethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	200000	407	793	424	78	92	86	9.1	88
Carbon disulfide	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	500	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100000	8	28	ND	2	19	12	13.2	26

Location ID: L-1  
 Number of Sampling Dates: 46

Parameter Name	Units	TCLP	10/9/2008	3/18/2009	10/20/2009	5/12/2010	8/26/2010	3/15/2011	10/7/2011	3/20/2012
Chloroethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	--	ND	ND	2	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	7500	42	75	38	13	29	25	12	13
trans-1,4-dichloro-2-butene	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	--	2	2	2	1	2	ND	ND	1
1,2-Dichloroethane	ug/L	500	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	--	1	2	1	ND	2	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	--	ND	ND	ND	ND	2	ND	ND	ND
Methyl t-Butyl Ether	ug/L	--	13	12	ND	8	3	2.7	3.24	3
1,2-Dichloropropane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	--	25	41	28	15	28	8.2	ND	ND
2-Hexanone	ug/L	--	5	5	ND	6	ND	ND	ND	ND
Iodomethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	--	27	43	4	5	9	ND	ND	ND
Styrene	ug/L	--	ND	ND	ND	4	5	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	--	19	36	45	20	36	7.5	ND	2
1,1,1-Trichloroethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	500	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	--	--	--	--	--	--	--	ND	ND
Vinyl acetate	ug/L	--	ND	ND	ND	82	120	ND	ND	18
Vinyl chloride	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	84	147	94	43	79	32.7	7.29	11
mp-Xylene	ug/L	10000	--	--	--	--	--	--	--	--
o-Xylene	ug/L	10000	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND



Location ID: L-1  
 Number of Sampling Dates: 46

Parameter Name	Units	TCLP	10/9/2008	3/18/2009	10/20/2009	5/12/2010	8/26/2010	3/15/2011	10/7/2011	3/20/2012
Chloroform	ug/L	6000	2	ND	ND	ND	ND	ND	ND	ND

Location ID: L-1  
 Number of Sampling Dates: 46

Parameter Name	Units	TCLP	9/27/2012	3/25/2013	9/23/2013	3/20/2014	9/17/2014	3/19/2015	9/8/2015	3/14/2016
Acetone	ug/L	--	37	ND	ND	69.9	216	78.1 B	ND U	108
Acrylonitrile	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Benzene	ug/L	500	4	5	4	2	5	2.9	3	2.9
Bromochloromethane	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Bromomethane	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
2-Butanone	ug/L	200000	ND	ND	48	14.2	180	32	31.1	70
Carbon disulfide	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	0.25 J
Carbon Tetrachloride	ug/L	500	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Chlorobenzene	ug/L	100000	25	ND	20	8.8	18.3	9	10.4	7.9
Chloroethane	ug/L	--	ND	ND	ND	ND U	0.56 J	ND U	ND U	ND U
Chloromethane	ug/L	--	ND	ND	ND	0.51 J	ND U	0.32 J	ND U	0.5 J
1,2-Dibromo-3-chloropropane	ug/L	--	ND	ND	ND	ND U	ND U	0.026	ND U	ND U
1,2-Dibromoethane	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Dibromomethane	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	--	ND	ND	ND	0.79 J	0.83 J	0.65 J	ND U	ND U
1,4-Dichlorobenzene	ug/L	7500	20	29	12	13.4	11.4	8.8	13.9	18.6
trans-1,4-dichloro-2-butene	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	500	ND	ND	ND	ND U	0.39 J	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	700	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	--	ND	ND	ND	0.37 J	0.68 J	0.43 J	ND U	1.1
trans-1,2-Dichloroethene	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Methylene Chloride	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	--	ND	2	2	2.7	5.3	3.7	2.8	3.5
1,2-Dichloropropane	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Ethylbenzene	ug/L	--	10	41	7	7.7	4.8	3.2	7.7	13.7
2-Hexanone	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Iodomethane	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	--	5	ND	ND	ND U	6	2.5 J	ND U	6.9
Styrene	ug/L	--	ND	ND	ND	0.31 J	0.48 J	0.32 J	0.72 J	1.1
1,1,1,2-Tetrachloroethane	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Tetrachloroethene	ug/L	700	ND	ND	ND	ND U	ND U	ND U	ND U	ND U

Location ID: L-1  
 Number of Sampling Dates: 46

Parameter Name	Units	TCLP	9/27/2012	3/25/2013	9/23/2013	3/20/2014	9/17/2014	3/19/2015	9/8/2015	3/14/2016
Toluene	ug/L	--	3	27	4	3.1	5.6	5.2	6.4	15.3
1,1,1-Trichloroethane	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Trichloroethene	ug/L	500	ND	1	ND	ND U	ND U	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Vinyl acetate	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Vinyl chloride	ug/L	200	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Total Xylenes	ug/L	10000	6	53	25	18.7	13.4	10.9	14.8	26.5
mp-Xylene	ug/L	10000	--	--	--	--	--	--	--	--
o-Xylene	ug/L	10000	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Chlorodibromomethane	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Bromoform	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Chloroform	ug/L	6000	ND	ND	ND	ND U	ND U	ND U	ND U	ND U

Location ID: L-1  
 Number of Sampling Dates: 46

Parameter Name	Units	TCLP	9/23/2016	3/30/2017	9/22/2017	3/26/2018	9/20/2018	3/14/2019	10/9/2019	4/3/2020
Acetone	ug/L	--	171	ND U	86.1 B	50.8 B	58.8 B	87.2	323	222 B
Acrylonitrile	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Benzene	ug/L	500	3.4	1.8	ND U	1.6	1.7	3.8	2.3	2.6
Bromochloromethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromomethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
2-Butanone	ug/L	200000	143	ND U	14.8	23.6	33.2	96.8	442	184
Carbon disulfide	ug/L	--	0.36 J	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon Tetrachloride	ug/L	500	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorobenzene	ug/L	100000	13.3	8	2.6	3.7	5.8	6.4	3.1	5.3
Chloroethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	1	ND U	0.7 J
Chloromethane	ug/L	--	ND U	ND U	ND U	ND U	0.33 J	0.31 JB	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Dibromomethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	--	0.58 J	0.41 J	ND U	ND U	0.52 J	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	7500	7	3.6	3.8	11.7	8	14.2	6.2	11.7
trans-1,4-dichloro-2-butene	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	500	ND U	ND U	ND U	ND U	ND U	0.62 J	1.8	0.61 J
1,1-Dichloroethene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	--	ND U	ND U	ND U	3.3	ND U	ND U	0.87 J	ND U

Location ID: L-1  
 Number of Sampling Dates: 46

Parameter Name	Units	TCLP	9/23/2016	3/30/2017	9/22/2017	3/26/2018	9/20/2018	3/14/2019	10/9/2019	4/3/2020
trans-1,2-Dichloroethene	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methylene Chloride	ug/L	--	ND U	ND U	ND U	ND U	10.3	5	2.4	ND U
Methyl t-Butyl Ether	ug/L	--	3.5	2.8	1.4	1.3	3.4	5.6	5.5	4.8
1,2-Dichloropropane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Ethylbenzene	ug/L	--	2.4	ND U	0.82 J	8.7	3.4	11.9	5.9	6.3
2-Hexanone	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	3.6 J	ND U
Iodomethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	--	ND U	ND U	ND U	2.8 J	2.8 J	9.9	12.5	8.9
Styrene	ug/L	--	0.33 J	ND U	ND U	0.72 J	0.25 J	1	0.55 J	0.63 J
1,1,1,2-Tetrachloroethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Tetrachloroethene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Toluene	ug/L	--	3.4	0.27 J	1.1	9.5	3.3	13.3	10.8	7.5
1,1,1-Trichloroethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichloroethene	ug/L	500	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl acetate	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl chloride	ug/L	200	ND U	ND U	ND U	ND U	ND U	0.47 J	ND U	ND U
Total Xylenes	ug/L	10000	6.3	0.75 J	2.1 J	16.2	8.2	28.6	14	17.4
mp-Xylene	ug/L	10000	--	--	--	--	--	--	--	11.3
o-Xylene	ug/L	10000	--	--	--	--	--	--	--	6.1
Bromodichloromethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorodibromomethane	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromoform	ug/L	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroform	ug/L	6000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: L-1  
 Number of Sampling Dates: 46

Parameter Name	Units	TCLP	9/25/2020	3/22/2021	9/16/2021	3/24/2022	9/19/2022	3/17/2023		
Acetone	ug/L	--	61 B	222	144	121	50	48.6 J		
Acrylonitrile	ug/L	--	ND U	ND U	ND U	ND	ND	ND		
Benzene	ug/L	500	1.3	2.9	1.9	2.6 J	2.1 J	3.6 J		
Bromochloromethane	ug/L	--	ND U	ND U	ND U	ND	ND	ND		
Bromomethane	ug/L	--	ND U	ND U	0.48 JB	ND	ND	ND		
2-Butanone	ug/L	200000	28	178	163	70.5	ND	ND		
Carbon disulfide	ug/L	--	ND U	ND U	0.36 JB	ND	ND	ND		

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 Number of Sampling Dates: 46

Parameter Name	Units	TCLP	9/25/2020	3/22/2021	9/16/2021	3/24/2022	9/19/2022	3/17/2023
Carbon Tetrachloride	ug/L	500	ND U	ND U	ND U	ND	ND	ND
Chlorobenzene	ug/L	100000	4.6	6.5	3.4 B	4.5 J	7.1	10.4
Chloroethane	ug/L	--	ND U	0.82 J	0.35 J	ND	ND	ND
Chloromethane	ug/L	--	0.49 J	ND U	ND U	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	--	ND U	ND U	ND U	ND	ND	ND
1,2-Dibromoethane	ug/L	--	ND U	ND U	ND U	ND	ND	ND
Dibromomethane	ug/L	--	ND U	ND U	ND U	ND	ND	ND
1,2-Dichlorobenzene	ug/L	--	ND U	0.44 J	ND U	ND	ND	ND
1,4-Dichlorobenzene	ug/L	7500	3.5	6	5.8	7.2	5.1	7.4
trans-1,4-dichloro-2-butene	ug/L	--	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethane	ug/L	--	ND U	ND U	ND U	ND	ND	ND
1,2-Dichloroethane	ug/L	500	0.35 J	0.53 J	0.5 J	ND	ND	ND
1,1-Dichloroethene	ug/L	700	ND U	ND U	ND U	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	--	3	ND U	5.7	ND	2.6 J	ND
trans-1,2-Dichloroethene	ug/L	--	ND U	ND U	ND U	ND	ND	ND
Methylene Chloride	ug/L	--	0.5 JB	ND U	ND U	2.5 J	ND	ND
Methyl t-Butyl Ether	ug/L	--	4.5	5.9	4.5	5.5	5.5	5.3
1,2-Dichloropropane	ug/L	--	ND U	ND U	ND U	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	--	ND U	ND U	ND U	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	--	ND U	ND U	ND U	ND	ND	ND
Ethylbenzene	ug/L	--	0.69 J	1.7	1.4	4.8 J	ND	2 J
2-Hexanone	ug/L	--	ND U	1.9 J	ND U	ND	ND	ND
Iodomethane	ug/L	--	ND U	ND U	0.55 JB	ND	9.4	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	--	ND U	6	4.9 J	ND	ND	ND
Styrene	ug/L	--	ND U	ND U	ND U	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	--	ND U	ND U	ND U	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	--	ND U	ND U	ND U	ND	ND	ND
Tetrachloroethene	ug/L	700	ND U	ND U	ND U	ND	ND	ND
Toluene	ug/L	--	1.3	3.6	50.6	8.8	ND	2.3 J
1,1,1-Trichloroethane	ug/L	--	ND U	ND U	ND U	ND	ND	ND
1,1,2-Trichloroethane	ug/L	--	ND U	ND U	ND U	ND	ND	ND
Trichloroethene	ug/L	500	ND U	ND U	ND U	ND	ND	ND
Trichlorofluoromethane	ug/L	--	ND U	ND U	ND U	ND	ND	ND
1,2,3-Trichloropropane	ug/L	--	ND U	ND U	ND U	ND	ND	ND
Vinyl acetate	ug/L	--	ND U	ND U	ND U	ND	ND	ND
Vinyl chloride	ug/L	200	ND U	0.34 J	ND U	ND	ND	ND
Total Xylenes	ug/L	10000	3.1	6.9	6.9	11.3 J	4.1 J	6.6 J
mp-Xylene	ug/L	10000	1.8 J	4.5	4.6	7.6 J	4.1 J	4.3 J
o-Xylene	ug/L	10000	1.3	2.4	2.3	3.7 J	ND	2.4 J
Bromodichloromethane	ug/L	--	ND U	ND U	ND U	ND	ND	ND

Location ID: L-1  
 Number of Sampling Dates: 46

Parameter Name	Units	TCLP	9/25/2020	3/22/2021	9/16/2021	3/24/2022	9/19/2022	3/17/2023
Chlorodibromomethane	ug/L	–	ND U	ND U	ND U	ND	ND	ND
Bromoform	ug/L	–	ND U	ND U	ND U	ND	ND	ND
Chloroform	ug/L	6000	ND U	ND U	ND U	ND	3.1 JB	ND

## Historical Leachate Data Table II and Water Quality Parameters

Name: ESL Leachate

Location ID: L-1		Number of Sampling Dates: 46									
Parameter Name	Units	TCLP	3/30/2000	10/19/2000	3/26/2001	10/3/2001	3/29/2002	9/11/2002	4/2/2003	10/2/2003	
Antimony, Total	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
Arsenic, Total	mg/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
Barium, Total	mg/L	100	ND	0.129	0.396	0.4	0.475	0.5	0.394	0.39	
Beryllium, Total	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
Cadmium, Total	mg/L	1	ND	ND	ND	ND	ND	ND	ND	ND	
Calcium, Total	mg/L	-	-	-	-	-	-	-	-	-	
Chromium, Total	mg/L	5	ND	0.017	0.01	0.018	0.018	0.026	0.013	0.016	
Cobalt, Total	mg/L	-	ND	0.016	ND	0.016	0.014	0.016	ND	ND	
Copper, Total	mg/L	-	ND	0.033	0.023	ND	0.01	0.023	ND	0.034	
Iron, Total	mg/L	-	ND	54.9	22.24	28.81	46.77	19.625	21.6	23.27	
Lead, Total	mg/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
Magnesium, Total	mg/L	-	-	-	-	-	-	-	-	-	
Manganese, Total	mg/L	-	ND	0.331	1.09	0.364	0.54	0.299	1.846	1.039	
Mercury, Total	mg/L	0.2	ND	0.0005	ND	ND	ND	0.0002	ND	ND	
Nickel, Total	mg/L	-	ND	0.04	0.038	0.062	0.038	0.131	0.025	0.051	
Potassium, Total	mg/L	-	-	-	-	-	-	-	-	-	
Selenium, Total	mg/L	1	ND	ND	ND	ND	ND	ND	ND	ND	
Silver, Total	mg/L	5	ND	ND	ND	ND	ND	ND	ND	ND	
Sodium, Total	mg/L	-	-	-	-	-	-	-	-	-	
Thallium, Total	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
Vanadium, Total	mg/L	-	ND	ND	ND	ND	0.027	0.013	ND	0.011	
Zinc, Total	mg/L	-	ND	0.151	0.061	0.067	0.032	0.019	0.01	0.068	
Alkalinity, Total	mg/L	-	ND	2200	1560	2000	1900	2320	1225	1025	
Ammonia-N	mg/L	-	ND	254	185.3	278	227.23	293.93	131.37	221.56	
Chemical Oxygen Demand (COD)	mg/L	-	ND	713	472	792	557	907	228	291	
Chloride	mg/L	-	ND	1027	644.67	1322.6	832.95	1411.31	361.95	599.96	
Hardness	mg/L	-	ND	792	542.64	567.16	666.2	800.74	610.95	612.99	
Nitrate-N	mg/L	-	ND	0.12	ND	ND	ND	ND	ND	ND	
pH	SU	-	-	-	6.7	6.8	6.61	6.7	6.4	6.46	
Specific Conductance	umhos/cm	-	ND	7	4.8	8220	6420	9040	6420	5070	
Sulfate	mg/L	-	ND	20	6	13	19.32	13.09	3.36	5.97	
Total Dissolved Solids	mg/L	-	ND	3585	2275	3982	2829	4443	1527	2170	
Turbidity	NTU	-	ND	240	20.7	16	15.5	15	65	8.4	

Location ID: L-1		Number of Sampling Dates: 46									
Parameter Name	Units	TCLP	3/25/2004	10/5/2004	4/18/2005	9/29/2005	3/23/2006	9/28/2006	11/7/2007	4/16/2008	
Antimony, Total	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND	
Arsenic, Total	mg/L	5	ND	ND	ND	ND	ND	ND	ND	ND	

Location ID: L-1  
 Number of Sampling Dates: 46

Parameter Name	Units	TCLP	3/25/2004	10/5/2004	4/18/2005	9/29/2005	3/23/2006	9/28/2006	11/7/2007	4/16/2008
Barium, Total	mg/L	100	0.4	0.629	0.583	0.61	0.55	0.336	0.28	0.3
Beryllium, Total	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	1	ND	ND	ND	ND	ND	ND	ND	ND
Calcium, Total	mg/L	-	-	-	-	-	-	131.5	63.5	146.75
Chromium, Total	mg/L	5	0.021	0.021	0.017	0.044	0.037	0.015	0.018	0.02
Cobalt, Total	mg/L	-	ND	ND	ND	0.018	0.013	0.013	0.019	0.02
Copper, Total	mg/L	-	0.014	0.016	0.03	ND	0.025	0.024	ND	ND
Iron, Total	mg/L	-	29.7	3.94	8.77	6.99	18.71	17.3	18.95	15.96
Lead, Total	mg/L	5	0.007	ND	ND	ND	ND	ND	ND	ND
Magnesium, Total	mg/L	-	-	-	-	-	-	72.5	60.6	97.5
Manganese, Total	mg/L	-	1.733	0.774	0.784	0.401	0.672	0.346	0.218	0.587
Mercury, Total	mg/L	0.2	0.0003	ND	0.0003	0.0002	0.0003	0.0003	0.0004	ND
Nickel, Total	mg/L	-	0.081	0.069	0.076	0.18	0.175	0.04	0.073	0.071
Potassium, Total	mg/L	-	-	-	-	-	-	277.65	274	280
Selenium, Total	mg/L	1	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	-	-	-	-	-	-	350	540	496.8
Thallium, Total	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	-	0.011	ND	0.014	ND	ND	ND	ND	ND
Zinc, Total	mg/L	-	0.012	0.049	0.196	0.084	0.074	0.056	0.033	ND
Alkalinity, Total	mg/L	-	2100	2587	2907	3925	4474.5	2038	1925.5	213.4
Ammonia-N	mg/L	-	232.39	284.93	295.96	377.31	648.51	239.34	263.82	254.32
Chemical Oxygen Demand (COD)	mg/L	-	381	523	5.97	725	727	784	1113	779
Chloride	mg/L	-	856.8	1009.15	1334.48	2774.64	2415.43	1037.9	1088.18	961.21
Hardness	mg/L	-	766.12	405.52	672.74	1305.27	268.14	625.79	408.11	767.94
Nitrate-N	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND
pH	SU	-	6.51	6.56	6.6	7.28	6.91	6.49	6.52	6.42
Specific Conductance	umhos/cm	-	6290	6590	7110	11590	12980	6200	5750	7360
Sulfate	mg/L	-	2.67	ND	ND	2.04	6.12	ND	ND	ND
Total Dissolved Solids	mg/L	-	2838	3103	3897	6066	5522	283	3336	3050
Turbidity	NTU	-	6.23	4.6	22.4	54.8	44	5.63	34	24

Location ID: L-1  
 Number of Sampling Dates: 46

Parameter Name	Units	TCLP	10/9/2008	3/18/2009	10/20/2009	5/12/2010	8/26/2010	3/15/2011	10/7/2011	3/20/2012
Antimony, Total	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	mg/L	5	ND	ND	ND	ND	ND	ND	0.012	0.014
Barium, Total	mg/L	100	0.284	0.328	0.344	0.3	0.328	0.3	0.038	0.565
Beryllium, Total	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	1	ND	ND	ND	ND	ND	ND	ND	ND
Calcium, Total	mg/L	-	140.35	55.57	60.2	149.87	261.2	156.8	110	15.86
Chromium, Total	mg/L	5	0.022	0.021	0.025	0.036	0.034	0.021	0.024	0.029

Location ID: L-1  
 Number of Sampling Dates: 46

Parameter Name	Units	TCLP	10/9/2008	3/18/2009	10/20/2009	5/12/2010	8/26/2010	3/15/2011	10/7/2011	3/20/2012
Cobalt, Total	mg/L	-	0.021	0.017	0.025	0.019	0.018	0.011	0.01	0.013
Copper, Total	mg/L	-	ND	ND	0.016	0.022	0.047	0.064	ND	ND
Iron, Total	mg/L	-	19.04	23.44	68.95	33.41	19.17	28.08	18	15.09
Lead, Total	mg/L	5	0.002	ND	ND	ND	ND	ND	ND	ND
Magnesium, Total	mg/L	-	36.86	222	158.6	90	145.3	95.75	110	12.22
Manganese, Total	mg/L	-	0.215	0.566	0.433	0.538	0.256	1.245	0.73	0.642
Mercury, Total	mg/L	0.2	ND	0.0002	0.0003	ND	ND	ND	ND	ND
Nickel, Total	mg/L	-	0.085	0.079	0.096	0.06	0.077	0.046	0.038	0.049
Potassium, Total	mg/L	-	356	368.8	318	231.3	322.7	186.95	250	281.9
Selenium, Total	mg/L	1	ND	ND	ND	ND	ND	ND	ND	0.191
Silver, Total	mg/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	-	538	1152.4	841.6	233.6	1161.6	707	580	76.4
Thallium, Total	mg/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	-	ND	ND	ND	ND	ND	ND	ND	0.011
Zinc, Total	mg/L	-	ND	0.023	0.076	ND	0.021	0.01	0.02	0.014
Alkalinity, Total	mg/L	-	1527	2302.8	3047	1824.7	2001.1	1747.2	2100	1229.05
Ammonia-N	mg/L	-	334.66	424.68	367.17	350.58	357.41	231.23	300	359.72
Chemical Oxygen Demand (COD)	mg/L	-	761	692	679	986	1072	373	500	640
Chloride	mg/L	-	982.2	141.25	1072.02	1122.48	1578.85	739.6	980	1145.75
Hardness	mg/L	-	502.24	1052.95	803.43	744.84	2150.56	785.82	710	899.24
Nitrate-N	mg/L	-	ND	ND	ND	ND	-	ND	ND	ND
pH	SU	-	6.67	6.76	6.79	6.93	6.96	6.6	7.23	6.7
Specific Conductance	umhos/cm	-	7300	7220	5740	5160	5620	4430	5480	5730
Sulfate	mg/L	-	4.68	13.25	27.41	8.57	2.33	12.96	5.6	4.86
Total Dissolved Solids	mg/L	-	5524	3436	3122	3558	4066	2366	2900	3422
Turbidity	NTU	-	37	66.8	65	14	27	33	38.9	28.4

Location ID: L-1  
 Number of Sampling Dates: 46

Parameter Name	Units	TCLP	9/27/2012	3/25/2013	9/23/2013	3/20/2014	9/17/2014	3/19/2015	9/8/2015	3/14/2016
Antimony, Total	mg/L	-	ND	ND	ND	0.00095 J	0.0024	ND U	0.0013 J	0.00089 J
Arsenic, Total	mg/L	5	ND	ND	0.02	0.012	0.032	0.012	0.019	0.012
Barium, Total	mg/L	100	0.473	0.832	0.65	0.51	0.46	0.45	0.56	0.48
Beryllium, Total	mg/L	-	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Cadmium, Total	mg/L	1	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Calcium, Total	mg/L	-	73.59	142.3	113.4	113	94	121	120	163
Chromium, Total	mg/L	5	0.016	0.025	0.03	0.028	0.032	0.024	0.041	0.027
Cobalt, Total	mg/L	-	0.01	0.012	0.02	0.014	0.016	0.013	0.021	0.016
Copper, Total	mg/L	-	ND	ND	ND	0.009	0.0089	0.0041 J	0.0098	0.0043 J
Iron, Total	mg/L	-	4.792	28.05	15.81	23.8	13.5	17.3	15.6	18
Lead, Total	mg/L	5	ND	ND	ND	0.00076 J	ND U	ND U	0.00081 J	ND U
Magnesium, Total	mg/L	-	135.8	120	168.6	113	123	110	150	160



Location ID: L-1  
 Number of Sampling Dates: 46

Parameter Name	Units	TCLP	9/27/2012	3/25/2013	9/23/2013	3/20/2014	9/17/2014	3/19/2015	9/8/2015	3/14/2016
Manganese, Total	mg/L	-	0.146	1.203	0.23	0.72	0.24	0.49	0.3	0.47
Mercury, Total	mg/L	0.2	-	ND	ND	ND U	ND U	ND U	ND U	ND U
Nickel, Total	mg/L	-	0.035	0.042	0.048	0.047	0.047	0.043	0.055	0.048
Potassium, Total	mg/L	-	284.6	243.2	383.8	216	237	207	294	306
Selenium, Total	mg/L	1	0.151	0.111	0.17	0.0057	ND U	ND U	ND U	ND U
Silver, Total	mg/L	5	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Sodium, Total	mg/L	-	1070	754.4	1239	706	830	679	956	1010
Thallium, Total	mg/L	-	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Vanadium, Total	mg/L	-	ND	0.012	0.01	0.01	0.0095	0.0069	0.011	0.0082
Zinc, Total	mg/L	-	ND	ND	0.01	0.012	0.011	0.0046 J	0.0065	0.0086
Alkalinity, Total	mg/L	-	1319.4	1893.84	1841.9	2290	2580	2380	3110	2440
Ammonia-N	mg/L	-	381.81	343.46	494.01	320	395	379	520	371
Chemical Oxygen Demand (COD)	mg/L	-	658	765	747	753	867	662	928	702
Chloride	mg/L	-	1267.1	866.36	1394.28	1090	1570	1070	1490	991
Hardness	mg/L	-	742.98	849.5	977.5	913	811	847	882	1020
Nitrate-N	mg/L	-	ND	ND	0.72	ND U	ND U	ND U	ND U	ND U
pH	SU	-	6.68	6.49	6.64	6.8	6.79	6.45	7.03	6.66
Specific Conductance	umhos/cm	-	5750	3640	4780	5770	7870	5500	9910	6060
Sulfate	mg/L	-	3.36	10.54	7.91	6.9	2 J	12.2	4.3	14.7
Total Dissolved Solids	mg/L	-	33.68	2940	4188	3210	4160	3360	4730	3590
Turbidity	NTU	-	25.5	11	17.7	183	9.65	15	21.1	9.5

Location ID: L-1  
 Number of Sampling Dates: 46

Parameter Name	Units	TCLP	9/23/2016	3/30/2017	9/22/2017	3/26/2018	9/20/2018	3/14/2019	10/9/2019	4/3/2020
Antimony, Total	mg/L	-	0.0021 J	ND U	ND U	0.0011 J	0.0013 J	ND U	0.00075 J	ND U
Arsenic, Total	mg/L	5	0.023	0.012	0.022 J	0.01	0.013	0.0065	0.019	0.01 J
Barium, Total	mg/L	100	0.49	0.37	0.58	0.5	0.52	0.41	0.49	0.45
Beryllium, Total	mg/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Cadmium, Total	mg/L	1	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Calcium, Total	mg/L	-	105	118	133	140	119	135	101	147
Chromium, Total	mg/L	5	0.035	0.025	0.048	0.023	0.025	0.026	0.032	0.021
Cobalt, Total	mg/L	-	0.026	0.013	0.026 J	0.0092	0.014	0.013	0.019	0.012 J
Copper, Total	mg/L	-	0.0089	0.0076	0.044 J	0.0058	0.0045 J	0.0098 J	0.0056 J	ND U
Iron, Total	mg/L	-	11.8	10.6	9	15.2	16.2	17.4	12.1	25.6
Lead, Total	mg/L	5	0.00077 J	ND U	ND U	ND U	0.0014 J	ND U	ND U	ND U
Magnesium, Total	mg/L	-	149	156	184	110	125	125	142	114
Manganese, Total	mg/L	-	0.24	0.41	0.29	0.53	0.32	0.49	0.18	0.83
Mercury, Total	mg/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Nickel, Total	mg/L	-	0.057	0.048	0.082	0.037	0.045	0.044	0.052	0.041
Potassium, Total	mg/L	-	306	296	375	240	253	234	353	214
Selenium, Total	mg/L	1	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: L-1  
 Number of Sampling Dates: 46

Parameter Name	Units	TCLP	9/23/2016	3/30/2017	9/22/2017	3/26/2018	9/20/2018	3/14/2019	10/9/2019	4/3/2020
Silver, Total	mg/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Sodium, Total	mg/L	-	1020	986	1380	860	838	752	1320	707
Thallium, Total	mg/L	-	ND U	ND U	ND U	ND U	ND U	ND U	0.00081 J	ND U
Vanadium, Total	mg/L	-	0.011	0.0058	0.016 J	0.0081	0.01	0.0083	0.008	0.01 J
Zinc, Total	mg/L	-	0.0075	0.0091	ND U	0.0094	0.017	0.011	0.013	0.021 J
Alkalinity, Total	mg/L	-	ND U	2350	3080	2280	2510	2440	377	2290
Ammonia-N	mg/L	-	652	347	907	337	389	255	427	247
Chemical Oxygen Demand (COD)	mg/L	-	971	706	879	533	751	555	1040	505
Chloride	mg/L	-	1680	1400	1760	1230	1530	978	1610	686
Hardness	mg/L	-	958	797	1090	802	810	851	840	838
Nitrate-N	mg/L	-	ND U	ND U	ND U	ND U	0.14 J	ND U	ND U	ND U
pH	SU	-	6.39	6.95	7.71	6.97	7.03	6.75	7.1	7.18
Specific Conductance	umhos/cm	-	8760	5970	10130	5390	7700	5580	5350	4510
Sulfate	mg/L	-	1.7 J	40.3	4.6	78.3	3.3	2.3	2.4	1.6 J
Total Dissolved Solids	mg/L	-	4350	3550	4630	3290	2640	3390	4730	2990
Turbidity	NTU	-	23	45.2	32.4	25.6	50.1	14.8	37.2	61.8

Location ID: L-1  
 Number of Sampling Dates: 46

Parameter Name	Units	TCLP	9/25/2020	3/22/2021	9/16/2021	3/24/2022	9/19/2022	3/17/2023		
Antimony, Total	mg/L	-	ND U	0.0017 J	ND U	ND	ND	ND		
Arsenic, Total	mg/L	5	0.02	0.022	0.02	0.0068 J	0.0071	0.0068		
Barium, Total	mg/L	100	0.43	0.35	0.5	0.4	0.28	0.41		
Beryllium, Total	mg/L	-	ND U	ND U	ND U	ND	ND	ND		
Cadmium, Total	mg/L	1	ND U	ND U	ND U	ND	ND	ND		
Calcium, Total	mg/L	-	107	114	120	134	59.2	129		
Chromium, Total	mg/L	5	0.033	0.053	0.034	0.023	0.018	0.026		
Cobalt, Total	mg/L	-	0.019	0.025	0.022	0.013 J	0.011	0.015		
Copper, Total	mg/L	-	0.0066	0.013	ND U	ND	0.0031 J	0.0043 J		
Iron, Total	mg/L	-	11.5	12.2	9.2	8.9	2.8	6.2		
Lead, Total	mg/L	5	ND U	0.00097 J	ND U	ND	ND	ND		
Magnesium, Total	mg/L	-	141	260	150	139	79	126		
Manganese, Total	mg/L	-	0.23	1.1	0.21	0.64	0.11	0.47		
Mercury, Total	mg/L	0.2	ND U	ND U	ND U	ND	ND	ND		
Nickel, Total	mg/L	-	0.042	0.19	0.053	0.044	0.03	0.043		
Potassium, Total	mg/L	-	283	357	300	233	143	232		
Selenium, Total	mg/L	1	ND U	0.0029 J	0.0013 J	ND	ND	ND		
Silver, Total	mg/L	5	ND U	ND U	ND U	ND	ND	ND		
Sodium, Total	mg/L	-	1080	1260	1000	812	591	898		
Thallium, Total	mg/L	-	ND U	ND U	ND U	ND	ND	ND		
Vanadium, Total	mg/L	-	0.0074	0.031	0.0086	0.007 J	0.0046	0.0055		
Zinc, Total	mg/L	-	0.01	0.018	0.013	0.05	0.0067	0.014		

Location ID: L-1  
 Number of Sampling Dates: 46

Parameter Name	Units	TCLP	9/25/2020	3/22/2021	9/16/2021	3/24/2022	9/19/2022	3/17/2023
Alkalinity, Total	mg/L	-	2850	2620	3130	2500	2630	2300
Ammonia-N	mg/L	-	413	336	523	31.5	533	391
Chemical Oxygen Demand (COD)	mg/L	-	745	3210	975	570	1190	622
Chloride	mg/L	-	1640	949	1610	1150	1440	923
Hardness	mg/L	-	885	1820	1000	950	900	718
Nitrate-N	mg/L	-	0.92	1.2	ND U	ND	ND	ND
pH	SU	-	7.56	7.12	7.35	7.08	7.26	7.03
Specific Conductance	umhos/cm	-	7740	5410	9090	5910	9410	7295.1
Sulfate	mg/L	-	2.6	3 J	5.9	3.1	ND	ND
Total Dissolved Solids	mg/L	-	4250	3160	4340	3410	4130	3400
Turbidity	NTU	-	33.4	57.7	32.4	85.9	34.1	209.04

# Historical Leachate Data Table I

Name: ESL Leachate

Location ID: L-2									
Number of Sampling Dates: 7									
Parameter Name	Units	TCLP	4/23/2020	9/25/2020	3/22/2021	9/16/2021	3/24/2022	9/19/2022	3/17/2023
Acetone	ug/L	--	48.6 J	127 B	126	1100	1050	82.1	38.1 J
Acrylonitrile	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND
Benzene	ug/L	500	11.8	8.1	8.7	9.1	10.2	9.9	12.1
Bromochloromethane	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND
Bromomethane	ug/L	--	ND U	ND U	ND U	0.54 JB	ND	ND	ND
2-Butanone	ug/L	200000	ND U	87	171	2070	2950	ND	ND
Carbon disulfide	ug/L	--	ND U	ND U	ND U	0.4 JB	ND	ND	ND
Carbon Tetrachloride	ug/L	500	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorobenzene	ug/L	100000	1.5 J	0.6 J	0.46 J	0.76 JB	ND	ND	ND
Chloroethane	ug/L	--	2.2 J	1.7	3.1	ND U	2 J	ND	ND
Chloromethane	ug/L	--	ND U	0.5 J	ND U	ND U	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dibromoethane	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND
Dibromomethane	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichlorobenzene	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND
1,4-Dichlorobenzene	ug/L	7500	2.7 J	1.9	1.1	1.4	1.6 J	1.7 J	1.9 J
trans-1,4-dichloro-2-butene	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethane	ug/L	--	ND U	ND U	0.92 J	ND U	ND	ND	ND
1,2-Dichloroethane	ug/L	500	ND U	1.3	2.5	1.4	5.1	ND	2.3 J
1,1-Dichloroethene	ug/L	700	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	--	ND U	ND U	1.4	6.5	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	--	ND U	1.8	0.86 J	1.5	1.6 J	2.1 J	ND
Methylene Chloride	ug/L	--	ND U	0.74 JB	2.7	ND U	7.1	ND	ND
Methyl t-Butyl Ether	ug/L	--	12	8	12	7.5	7.2	8.9	6.9
1,2-Dichloropropane	ug/L	--	ND U	ND U	0.35 J	ND U	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND
Ethylbenzene	ug/L	--	23.2	17.5	16.1	17.6	19.5	16.6	20
2-Hexanone	ug/L	--	ND U	ND U	ND U	3.3 J	ND	ND	ND
Iodomethane	ug/L	--	ND U	ND U	ND U	0.56 JB	ND	11.9	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	--	ND U	4.2 J	2.5 J	23.8	ND	ND	ND
Styrene	ug/L	--	ND U	0.49 J	0.81 J	0.71 J	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND

Location ID: L-2

Number of Sampling Dates: 7

Parameter Name	Units	TCLP	4/23/2020	9/25/2020	3/22/2021	9/16/2021	3/24/2022	9/19/2022	3/17/2023
1,1,2-Tetrachloroethane	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND
Tetrachloroethene	ug/L	700	ND U	ND U	ND U	ND U	ND	ND	ND
Toluene	ug/L	--	15.4	44	24.9	574	87.1	9.4	12.9
1,1,1-Trichloroethane	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2-Trichloroethane	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND
Trichloroethene	ug/L	500	ND U	ND U	ND U	ND U	ND	ND	ND
Trichlorofluoromethane	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND
1,2,3-Trichloropropane	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl acetate	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl chloride	ug/L	200	ND U	ND U	2.7	1.5	2 J	1.9 J	ND
Total Xylenes	ug/L	10000	55.5	43.4	37.3	39.3	41.3	41.7	44.6
mp-Xylene	ug/L	10000	40.9	30.9	27	27.9	29.5	29.2	31.1
o-Xylene	ug/L	10000	14.6	12.5	10.3	11.4	11.9	12.6	13.4
Bromodichloromethane	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorodibromomethane	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND
Bromoform	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND
Chloroform	ug/L	6000	ND U	ND U	ND U	ND U	ND	ND	ND

## Historical Leachate Data Table II and Water Quality Parameters

Name: ESL Leachate

Location ID: L-2									
Number of Sampling Dates: 7									
Parameter Name	Units	TCLP	4/23/2020	9/25/2020	3/22/2021	9/16/2021	3/24/2022	9/19/2022	3/17/2023
Antimony, Total	mg/L	–	0.0079 J	0.0031	0.0022	0.0031 J	0.0045 J	0.0016 J	0.0021 J
Arsenic, Total	mg/L	5	0.038	0.039	0.0089	0.027	0.018	0.023	0.027
Barium, Total	mg/L	100	0.35	0.38	0.38	0.44	0.22	0.2	0.32
Beryllium, Total	mg/L	–	ND U	ND U	ND U	ND U	ND	ND	ND
Cadmium, Total	mg/L	1	ND U	ND U	ND U	ND U	ND	ND	ND
Calcium, Total	mg/L	–	149	122	131	180	183	85.8	158
Chromium, Total	mg/L	5	0.07	0.089	0.022	0.066	0.06	0.059	0.088
Cobalt, Total	mg/L	–	0.023 J	0.027	0.011	0.018	0.017 J	0.02	0.029
Copper, Total	mg/L	–	0.056	0.01	0.0076	ND U	ND	0.0053 J	0.0081 J
Iron, Total	mg/L	–	12.2	10.1	15.4	27	11.7	6.6	8.5
Lead, Total	mg/L	5	ND U	ND U	ND U	ND U	ND	ND	ND
Magnesium, Total	mg/L	–	347	368	146	190	177	155	206
Manganese, Total	mg/L	–	0.66	0.41	0.56	1.9	1.4	0.3	1.5
Mercury, Total	mg/L	0.2	ND U	ND U	ND U	ND U	ND	ND	ND
Nickel, Total	mg/L	–	0.22	0.21	0.041	0.14	0.15	0.18	0.26
Potassium, Total	mg/L	–	485	538	234	330	318	337	484
Selenium, Total	mg/L	1	ND U	0.003 J	ND U	0.0016 J	ND	ND	ND
Silver, Total	mg/L	5	ND U	ND U	0.0011 J	ND U	ND	ND	ND
Sodium, Total	mg/L	–	1760	1730	820	1000	977	1060	1550
Thallium, Total	mg/L	–	ND U	ND U	ND U	ND U	ND	ND	ND
Vanadium, Total	mg/L	–	0.038	0.051	0.0088	0.051	0.039	0.036	0.043
Zinc, Total	mg/L	–	ND U	0.0089	0.025	0.017	0.027 J	0.0029 J	0.0041 J
Alkalinity, Total	mg/L	–	5370	5850	5330	3650	3270	6580	4800
Ammonia-N	mg/L	–	857	868	623	589	455	1010	831
Chemical Oxygen Demand (COD)	mg/L	–	1090	1360	860	1070	1390	1470	1080
Chloride	mg/L	–	2640	2840	1760	1720	1390	2600	2270
Hardness	mg/L	–	1800	1810	745	1350	1180	1210	1100
Nitrate-N	mg/L	–	ND U	ND U	ND U	ND U	ND	ND	ND
pH	SU	–	7.25	7.31	6.85	6.65	7.31	7.06	7.17
Specific Conductance	umhos/cm	–	7240	13570	9490	10120	7500	14560	15187
Sulfate	mg/L	–	1.8 J	1.6 J	19.1	1.9 J	ND	ND	ND
Total Dissolved Solids	mg/L	–	6320	7560	5610	4850	4520	6880	6280
Turbidity	NTU	–	30.1	36.8	22.4	53.8	15.1	53.8	85.22



# Historical Well Data Table I

Name: Eastern Sanitary Landfill

Location ID: SMW-13										
Number of Sampling Dates: 47										
Parameter Name	Units	Compliance Limit	10/28/1999	3/30/2001	10/2/2001	3/14/2002	9/27/2002	3/27/2003	12/10/2003	4/1/2004
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	--	ND	ND	ND	--	--	--	--	--



Location ID: SMW-13

Number of Sampling Dates: 47

Parameter Name	Units	Compliance Limit	10/28/1999	3/30/2001	10/2/2001	3/14/2002	9/27/2002	3/27/2003	12/10/2003	4/1/2004
Vinyl acetate	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	--	--	--	--	--	--	--	--
mp-Xylene	ug/L	10000	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: SMW-13

Number of Sampling Dates: 47

Parameter Name	Units	Compliance Limit	10/5/2004	6/15/2005	9/29/2005	3/23/2006	9/28/2006	4/26/2007	11/7/2007	4/16/2008
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	2
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	1
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: SMW-13

Number of Sampling Dates: 47

Parameter Name	Units	Compliance Limit	10/5/2004	6/15/2005	9/29/2005	3/23/2006	9/28/2006	4/26/2007	11/7/2007	4/16/2008
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	1
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	1	ND	1	2	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	--	--	--	--	--	--	--	--	--
Vinyl acetate	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	--	--	--	--	--	--	--	--
mp-Xylene	ug/L	10000	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	2	ND	2

Location ID: SMW-13

Number of Sampling Dates: 47

Parameter Name	Units	Compliance Limit	10/9/2008	3/18/2009	10/20/2009	5/14/2010	9/13/2010	3/22/2011	10/18/2011	3/20/2012
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	2	2	ND	1	1	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: SMW-13

Number of Sampling Dates: 47

Parameter Name	Units	Compliance Limit	10/9/2008	3/18/2009	10/20/2009	5/14/2010	9/13/2010	3/22/2011	10/18/2011	3/20/2012
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	1	2	ND	ND	7	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	--	--	--	--	ND	ND	ND	ND	ND
Vinyl acetate	ug/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	--	--	--	--	--	--	--	--
mp-Xylene	ug/L	10000	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	2	2	ND	ND	ND	ND	ND	ND

Location ID: SMW-13

Number of Sampling Dates: 47

Parameter Name	Units	Compliance Limit	9/27/2012	3/25/2013	9/23/2013	3/21/2014	9/8/2014	3/18/2015	9/8/2015	3/14/2016
Acetone	ug/L	1400	ND	ND	ND	ND U	11.2	ND U	ND U	ND U
Acrylonitrile	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Benzene	ug/L	5	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Bromochloromethane	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Bromomethane	ug/L	0.75	ND	ND	ND	ND U	ND U	ND U	0.45 J	ND U
2-Butanone	ug/L	700	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Chloromethane	ug/L	19	ND	ND	ND	ND U	ND U	ND U	ND U	ND U

Location ID: SMW-13

Number of Sampling Dates: 47

Parameter Name	Units	Compliance Limit	9/27/2012	3/25/2013	9/23/2013	3/21/2014	9/8/2014	3/18/2015	9/8/2015	3/14/2016
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Dibromomethane	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	0.43 J	ND U	ND U	ND U	ND U
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
2-Hexanone	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Iodomethane	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Styrene	ug/L	100	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Toluene	ug/L	1000	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Vinyl acetate	ug/L	--	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Total Xylenes	ug/L	10000	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
o-Xylene	ug/L	10000	--	--	--	--	--	--	--	--
mp-Xylene	ug/L	10000	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/L	80	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Bromoform	ug/L	80	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Chloroform	ug/L	80	ND	ND	ND	ND U	ND U	ND U	ND U	ND U

Location ID: SMW-13

Number of Sampling Dates: 47

Parameter Name	Units	Compliance Limit	9/26/2016	10/24/2016	3/30/2017	9/20/2017	3/30/2018	9/21/2018	3/11/2019	10/3/2019
Acetone	ug/L	1400	--	4.1 JB	ND U	ND U	ND U	ND U	ND U	ND U
Acrylonitrile	ug/L	--	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Benzene	ug/L	5	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromochloromethane	ug/L	--	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromomethane	ug/L	0.75	--	ND U	ND U	0.6 J	ND U	ND U	ND U	ND U
2-Butanone	ug/L	700	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon disulfide	ug/L	81	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon Tetrachloride	ug/L	5	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorobenzene	ug/L	100	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroethane	ug/L	2100	--	ND U	ND U	ND U	ND U	ND U	ND U	0.34 J
Chloromethane	ug/L	19	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Dibromomethane	ug/L	--	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	--	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methylene Chloride	ug/L	5	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloropropane	ug/L	5	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	--	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	--	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Ethylbenzene	ug/L	700	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
2-Hexanone	ug/L	--	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Iodomethane	ug/L	--	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Styrene	ug/L	100	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	--	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Toluene	ug/L	1000	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1-Trichloroethane	ug/L	200	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichloroethene	ug/L	5	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	--	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	--	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl acetate	ug/L	--	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl chloride	ug/L	2	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Total Xylenes	ug/L	10000	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: SMW-13										
Number of Sampling Dates: 47										
Parameter Name	Units	Compliance Limit	9/26/2016	10/24/2016	3/30/2017	9/20/2017	3/30/2018	9/21/2018	3/11/2019	10/3/2019
o-Xylene	ug/L	10000	--	--	--	--	--	--	--	--
mp-Xylene	ug/L	10000	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/L	80	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromoform	ug/L	80	--	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroform	ug/L	80	--	ND U	ND U	ND U	0.26 J	0.47 JB	0.31 J	0.31 J

Location ID: SMW-13										
Number of Sampling Dates: 47										
Parameter Name	Units	Compliance Limit	3/23/2020	9/25/2020	3/23/2021	9/16/2021	3/23/2022	9/16/2022	3/17/2023	
Acetone	ug/L	1400	3.4 JB	4.3 JB	4.1 J	ND U	ND	ND	ND	
Acrylonitrile	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND	
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND	ND	ND	
Bromochloromethane	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND	
Bromomethane	ug/L	0.75	0.52 J	ND U	ND U	0.43 JB	ND	ND	ND	
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND	ND	ND	
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND	ND	ND	
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND	ND	ND	
Chlorobenzene	ug/L	100	ND U	ND U	ND U	0.35 JB	ND	ND	ND	
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND	ND	ND	
Chloromethane	ug/L	19	ND U	ND U	ND U	ND U	ND	ND	ND	
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND	ND	ND	
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND	ND	ND	
Dibromomethane	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND	
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND	ND	ND	
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND	ND	ND	
trans-1,4-dichloro-2-butene	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND	
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND	ND	ND	
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND	ND	ND	
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND	ND	ND	
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND	ND	ND	
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND	ND	ND	
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND	ND	ND	
Methyl t-Butyl Ether	ug/L	20	ND U	ND U	ND U	ND U	ND	ND	ND	
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND	ND	ND	
trans-1,3-Dichloropropene	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND	
cis-1,3-Dichloropropene	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND	
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND	ND	ND	
2-Hexanone	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND	
Iodomethane	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND	
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND	ND	ND	
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND	ND	ND	
1,1,1,2-Tetrachloroethane	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND	
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND	ND	ND	

Location ID: SMW-13

Number of Sampling Dates: 47

Parameter Name	Units	Compliance Limit	3/23/2020	9/25/2020	3/23/2021	9/16/2021	3/23/2022	9/16/2022	3/17/2023
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND	ND	ND
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND	ND	ND
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND	ND	ND
Trichlorofluoromethane	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND
1,2,3-Trichloropropane	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl acetate	ug/L	--	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND	ND	ND
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND	ND	ND
o-Xylene	ug/L	10000	ND U	ND U	ND U	ND U	ND	ND	ND
mp-Xylene	ug/L	10000	ND U	ND U	ND U	ND U	ND	ND	ND
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND	ND	ND
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND	ND	ND
Chloroform	ug/L	80	0.38 JB	0.31 J	0.32 J	0.32 J	0.35 JB	ND	0.3 J

## Historical Well Data Table II

Name: Eastern Sanitary Landfill

Location ID: SMW-13											
Number of Sampling Dates: 47											
Parameter Name	Units	Compliance Limit	10/28/1999	3/30/2001	10/2/2001	3/14/2002	9/27/2002	3/27/2003	12/10/2003	4/1/2004	
Antimony, Total	mg/L	0.006	--	ND	ND	ND	ND	ND	ND	ND	
Arsenic, Total	mg/L	0.01	--	ND	ND	ND	ND	ND	ND	ND	
Barium, Total	mg/L	2	ND	0.049	0.054	0.05	0.055	0.054	0.033	0.039	
Beryllium, Total	mg/L	0.004	--	ND	ND	ND	ND	ND	ND	ND	
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	
Calcium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	
Cobalt, Total	mg/L	--	--	ND	ND	ND	ND	ND	ND	ND	
Copper, Total	mg/L	1.3	--	0.109	0.062	0.135	0.122	0.036	0.106	0.082	
Iron, Total	mg/L	0.3	ND	0.195	0.017	0.171	0.044	0.053	0.037	0.031	
Lead, Total	mg/L	0.015	ND	ND	0.011	0.01	0.015	0.032	0.024	0.021	
Magnesium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Manganese, Total	mg/L	0.043	ND	0.062	ND	ND	0.016	ND	ND	ND	
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND	
Nickel, Total	mg/L	0.039	--	0.016	ND	0.015	0.019	0.016	0.021	0.024	
Potassium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Selenium, Total	mg/L	0.05	--	ND	ND	ND	ND	ND	ND	ND	
Silver, Total	mg/L	0.0094	--	ND	ND	ND	ND	ND	ND	ND	
Sodium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Thallium, Total	mg/L	0.002	--	ND	ND	ND	ND	ND	ND	ND	
Vanadium, Total	mg/L	0.0086	--	ND	ND	ND	ND	ND	ND	ND	
Zinc, Total	mg/L	0.6	ND	0.078	0.041	0.116	0.082	0.176	0.061	0.062	
Alkalinity, Total	mg/L	--	--	3.5	2.5	2	ND	2	2	2	
Ammonia-N	mg/L	--	0.2	ND	ND	ND	ND	ND	ND	ND	
Chemical Oxygen Demand (COD)	mg/L	--	10	ND	ND	ND	ND	ND	ND	ND	
Chloride	mg/L	250	19	18.82	21.7	25.4	21.49	23.23	26.86	27.12	
Hardness	mg/L	--	--	27.07	23.08	19.79	29.78	37.21	32.8	33.09	
Nitrate-N	mg/L	10	3.8	3.8	4.03	3.35	2.43	2.53	2.84	2.65	
pH	SU	8.5	--	4.9	4.8	4.47	4.51	4.21	4.31	4.22	
Specific Conductance	umhos/cm	--	--	ND	116	1340	138	148	1390	149	
Sulfate	mg/L	250	10	ND	4	ND	ND	ND	ND	ND	
Total Dissolved Solids	mg/L	500	69	80	67	60	5	83	72	83	
Turbidity	NTU	5	--	2.4	0.23	4.47	0.75	0.1	0.77	0.31	

Location ID: SMW-13											
Number of Sampling Dates: 47											
Parameter Name	Units	Compliance Limit	10/5/2004	6/15/2005	9/29/2005	3/23/2006	9/28/2006	4/26/2007	11/7/2007	4/16/2008	
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND	
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	
Barium, Total	mg/L	2	0.031	0.044	0.036	0.04	0.046	0.033	0.035	0.034	
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND	
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	
Calcium, Total	mg/L	--	--	--	--	--	--	10.7	8.61	9.64	



Location ID: SMW-13

Number of Sampling Dates: 47

Parameter Name	Units	Compliance Limit	10/5/2004	6/15/2005	9/29/2005	3/23/2006	9/28/2006	4/26/2007	11/7/2007	4/16/2008
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total	mg/L	1.3	0.067	0.021	0.019	0.073	0.0397	0.042	0.023	0.055
Iron, Total	mg/L	0.3	0.016	0.23	0.03	0.039	0.039	0.022	0.119	ND
Lead, Total	mg/L	0.015	0.01	0.01	0.015	0.007	0.014	0.005	0.01	0.011
Magnesium, Total	mg/L	--	--	--	--	--	--	6	2.46	5.3
Manganese, Total	mg/L	0.043	0.016	0.039	0.012	0.02	0.033	ND	0.109	0.028
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	0.029	0.024	0.026	0.02	0.028	0.023	0.028	0.031
Potassium, Total	mg/L	--	--	--	--	--	--	1.87	1.71	2.21
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	--	--	--	--	--	--	89.5	19.3	25.4
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	0.057	0.126	0.041	0.072	0.187	0.022	0.082	0.114
Alkalinity, Total	mg/L	--	4.7	3.4	4.8	2.6	3.2	3.6	3.5	7.6
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chloride	mg/L	250	29.67	45.11	35.32	35.34	35.63	47.62	44.02	40.51
Hardness	mg/L	--	27.67	56.37	46.7	62.55	69.41	51.42	31.63	45.9
Nitrate-N	mg/L	10	2.48	3.83	2.96	2.27	2.16	2.95	2.36	2.36
pH	SU	8.5	4.03	4.2	4.39	4.5	4.2	4.22	4.83	4.04
Specific Conductance	umhos/cm	--	158	178	189	178	184	185	184	227
Sulfate	mg/L	250	ND	ND	ND	ND	ND	ND	ND	ND
Total Dissolved Solids	mg/L	500	42	90	120	58	432	69	372	218
Turbidity	NTU	5	0	ND	ND	14.33	2.07	0	ND	ND

Location ID: SMW-13

Number of Sampling Dates: 47

Parameter Name	Units	Compliance Limit	10/9/2008	3/18/2009	10/20/2009	5/14/2010	9/13/2010	3/22/2011	10/18/2011	3/20/2012
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total	mg/L	2	0.03	0.033	0.031	0.034	0.035	0.03	0.073	0.088
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND
Calcium, Total	mg/L	--	11.11	8.66	8.66	12.86	11.93	9.13	8.9	2.94
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	--	ND	ND	0.013	ND	ND	ND	ND	ND
Copper, Total	mg/L	1.3	0.135	0.013	0.076	0.071	0.051	0.06	0.078	0.062
Iron, Total	mg/L	0.3	0.052	0.07	0.038	ND	0.101	ND	0.02	0.019
Lead, Total	mg/L	0.015	0.009	0.006	0.011	0.012	0.006	0.01	0.0095	0.007
Magnesium, Total	mg/L	--	2.942	5.55	5.25	7.2	2.45	2.706	4.6	0.494
Manganese, Total	mg/L	0.043	0.053	0.012	ND	0.024	ND	0.068	0.027	0.03
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	0.0011	ND
Nickel, Total	mg/L	0.039	0.022	0.026	0.051	0.034	0.041	0.037	0.028	0.034

Location ID: SMW-13  
Number of Sampling Dates: 47

Parameter Name	Units	Compliance Limit	10/9/2008	3/18/2009	10/20/2009	5/14/2010	9/13/2010	3/22/2011	10/18/2011	3/20/2012
Potassium, Total	mg/L	--	1.76	1.63	1.76	1.7	1.65	1.6	2	2.34
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	--	16.4	21	6.1	26.8	36.9	33	17	1.2
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	0.039	ND	0.119	0.287	0.079	0.041	0.11	0.107
Alkalinity, Total	mg/L	--	3.8	4.6	3.04	6.5	7.1	ND	4	ND
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chloride	mg/L	250	41.77	59.31	48.43	54.38	63.76	63.6	48	57.49
Hardness	mg/L	--	39.86	44.47	43.24	61.76	39.88	33.95	44	93.86
Nitrate-N	mg/L	10	2.16	3.35	2.42	3.09	3.37	3.2	3.6	2.72
pH	SU	8.5	4.65	4.62	4.58	4.79	4.39	4.5	4.74	4.32
Specific Conductance	umhos/cm	--	235	233	204	171	172	228	232	229
Sulfate	mg/L	250	ND	ND	ND	ND	ND	ND	ND	2.92
Total Dissolved Solids	mg/L	500	3294	158	138	172	152	128	150	156
Turbidity	NTU	5	ND	ND	0.35	ND	ND	0.1	0	0.02

Location ID: SMW-13  
Number of Sampling Dates: 47

Parameter Name	Units	Compliance Limit	9/27/2012	3/25/2013	9/23/2013	3/21/2014	9/8/2014	3/18/2015	9/8/2015	3/14/2016
Antimony, Total	mg/L	0.006	ND	ND	ND	ND U	ND U	ND U	0.0013 J	ND U
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Barium, Total	mg/L	2	0.087	0.117	0.09	0.076	0.08	0.08	0.086	0.084
Beryllium, Total	mg/L	0.004	ND	ND	ND	0.00054 J	0.00065 J	0.0006 J	0.00059 J	0.00059 J
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND U	ND U	ND U	0.0022	ND U
Calcium, Total	mg/L	--	6.229	10.12	7	8.9	10.2	9.7	10.1	10.8
Chromium, Total	mg/L	0.1	ND	ND	ND	0.00075 J	0.001 J	0.0015 J	0.0012 J	0.00094 J
Cobalt, Total	mg/L	--	ND	ND	ND	0.0075	0.0076	0.0078	0.0087	0.0081
Copper, Total	mg/L	1.3	0.032	0.087	0.06	0.062	0.068	0.041	0.47	0.11
Iron, Total	mg/L	0.3	0.024	0.025	0.017	0.025 J	0.061	0.085	0.053 J	0.029 J
Lead, Total	mg/L	0.015	0.003	0.009	0.009	0.0098	0.013	0.0071	0.08	0.025
Magnesium, Total	mg/L	--	4.736	5.396	5.079	4.9	5.4	4.9	5.3	5.5
Manganese, Total	mg/L	0.043	0.022	0.029	0.02	0.028	0.029	0.03	0.035	0.033
Mercury, Total	mg/L	0.002	--	ND	0.00092	0.00094	0.0014	0.0017	0.0011	0.0023
Nickel, Total	mg/L	0.039	0.028	0.037	0.029	0.033	0.032	0.034	0.051	0.037
Potassium, Total	mg/L	--	1.74	1.96	1.71	1.7	1.8	1.8	1.8	1.8
Selenium, Total	mg/L	0.05	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Silver, Total	mg/L	0.0094	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Sodium, Total	mg/L	--	19.2	21.6	20.51	21	22.4	21.2	23.2	23.7
Thallium, Total	mg/L	0.002	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND U	ND U	ND U	ND U	ND U
Zinc, Total	mg/L	0.6	0.029	0.175	0.09	0.11	0.14	0.087	2.8	0.25
Alkalinity, Total	mg/L	--	23.35	ND	ND	3 J	3 J	4 J	6	3 J
Ammonia-N	mg/L	--	ND	ND	ND	ND U	ND U	0.105	ND U	ND U

Location ID: SMW-13		Number of Sampling Dates: 47									
Parameter Name	Units	Compliance Limit	9/27/2012	3/25/2013	9/23/2013	3/21/2014	9/8/2014	3/18/2015	9/8/2015	3/14/2016	
Chemical Oxygen Demand (COD)	mg/L	--	ND	9	ND	ND U	12	ND U	ND U	ND U	
Chloride	mg/L	250	58.28	48.5	60.23	57.6	67.5	61	66	53.8	
Hardness	mg/L	--	35.1	47.5	38.4	62	48	82	60	51	
Nitrate-N	mg/L	10	4.02	2.98	3.71	3.8	3.7	3.7	3.7	3.1	
pH	SU	8.5	4.25	4.59	4.17	4.83	5.96	5.22	6.02	6.5	
Specific Conductance	umhos/cm	--	204	240	260	203	208	204	214	221	
Sulfate	mg/L	250	ND	ND	ND	0.28 J	0.45 J	0.28 J	0.42 J	0.44 J	
Total Dissolved Solids	mg/L	500	166	142	131	127	144	175	185	124	
Turbidity	NTU	5	0.31	ND	17	ND	3.25	0.03	0.96	0.31	

Location ID: SMW-13		Number of Sampling Dates: 47									
Parameter Name	Units	Compliance Limit	9/26/2016	10/24/2016	3/30/2017	9/20/2017	3/30/2018	9/21/2018	3/11/2019	10/3/2019	
Antimony, Total	mg/L	0.006	ND U	--	ND U	ND U	ND U	ND U	ND U	ND U	
Arsenic, Total	mg/L	0.01	ND U	--	ND U	ND U	ND U	ND U	ND U	ND U	
Barium, Total	mg/L	2	0.099	--	0.096	0.091	0.11	0.11	0.11	0.11	
Beryllium, Total	mg/L	0.004	0.00061 J	--	0.00073 J	0.00064 J	0.00078 J	0.00068 J	0.00072 J	0.00077 J	
Cadmium, Total	mg/L	0.005	ND U	--	ND U	ND U	ND U	ND U	ND U	0.0011	
Calcium, Total	mg/L	--	11.2	--	11.9	11.8	13.3	11.6	12.5	13.6	
Chromium, Total	mg/L	0.1	0.0025	--	0.0012 J	0.0013 J	0.0015 J	0.0011 J	0.0012 J	ND U	
Cobalt, Total	mg/L	--	0.0089	--	0.0091	0.0098	0.011	0.0094	0.0099	0.01	
Copper, Total	mg/L	1.3	0.07	--	0.069	0.06	0.059	0.066	0.089	0.058	
Iron, Total	mg/L	0.3	0.06	--	0.029 J	0.025 J	0.043 J	0.02 J	0.024 J	ND U	
Lead, Total	mg/L	0.015	0.017	--	0.02	0.016	0.012	0.015	0.021	0.014	
Magnesium, Total	mg/L	--	5.8	--	6.5	6.2	6.7	6.8	6.8	6.8	
Manganese, Total	mg/L	0.043	0.035	--	0.036	0.036	0.041	0.036	0.036	0.041	
Mercury, Total	mg/L	0.002	0.0024	--	0.0028	0.0027	0.0025	0.0023	0.0023	0.0021	
Nickel, Total	mg/L	0.039	0.04	--	0.041	0.041	0.045	0.041	0.043	0.045	
Potassium, Total	mg/L	--	1.9	--	1.9	1.9	2	2	2	2	
Selenium, Total	mg/L	0.05	ND U	--	ND U	ND U	ND U	ND U	ND U	ND U	
Silver, Total	mg/L	0.0094	ND U	--	ND U	ND U	ND U	ND U	ND U	ND U	
Sodium, Total	mg/L	--	25.4	--	26	28.2	33	31.6	33.5	32.2	
Thallium, Total	mg/L	0.002	ND U	--	ND U	ND U	ND U	ND U	ND U	ND U	
Vanadium, Total	mg/L	0.0086	ND U	--	ND U	ND U	ND U	ND U	ND U	ND U	
Zinc, Total	mg/L	0.6	0.075	--	0.18	0.15	0.095	0.14	0.3	0.22	
Alkalinity, Total	mg/L	--	5 J	--	4 J	3 J	7	5 J	7	6	
Ammonia-N	mg/L	--	0.031 J	--	ND U	ND U	0.062 J	ND U	ND U	0.238	
Chemical Oxygen Demand (COD)	mg/L	--	ND U	--	ND U	4 J	ND U	ND U	ND U	7 J	
Chloride	mg/L	250	68.1	--	80	81.6	87.5	82.3	83	91.4	
Hardness	mg/L	--	52	--	64	55.1	60.9	57	59.1	61.9	
Nitrate-N	mg/L	10	3.5	--	3.7	3.7	3.7	3.3	3.4	3.3	
pH	SU	8.5	5.21	--	6.27	5.12	5.25	4.91	5.71	5.13	
Specific Conductance	umhos/cm	--	238	--	251	259	269	278	280	276	
Sulfate	mg/L	250	0.3 J	--	0.4 J	ND U	ND U	ND U	0.64 J	ND U	
Total Dissolved Solids	mg/L	500	191	--	153	148	164	155	211	166	
Turbidity	NTU	5	1.59	--	0.24	0.16	1.84	0.23	0.2	0.45	

Location ID: SMW-13

Number of Sampling Dates: 47

Parameter Name	Units	Compliance Limit	3/23/2020	9/25/2020	3/23/2021	9/16/2021	3/23/2022	9/16/2022	3/17/2023
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND U	ND U	ND U	0.00022 J	ND	ND	ND
Barium, Total	mg/L	2	0.014	0.11	ND U	0.12	0.12	0.12	0.13
Beryllium, Total	mg/L	0.004	ND U	0.00074 J	ND U	0.00088 J	0.00084 J	0.00097 J	0.00091 J
Cadmium, Total	mg/L	0.005	ND U	ND U	ND U	0.00019 J	ND	ND	ND
Calcium, Total	mg/L	--	12.5	13.6	7.8	15	14.5	14.2	14.7
Chromium, Total	mg/L	0.1	ND U	ND U	ND U	0.0014 J	ND	ND	0.00084 J
Cobalt, Total	mg/L	--	ND U	0.011	ND U	0.011	0.011	0.012	0.012
Copper, Total	mg/L	1.3	ND U	0.16	0.011	0.079	0.074	0.1	0.06
Iron, Total	mg/L	0.3	0.18	0.51	0.02 J	0.2	0.034 J	0.032 J	0.026 J
Lead, Total	mg/L	0.015	ND U	0.028	ND U	0.016	0.015	0.017	0.02
Magnesium, Total	mg/L	--	5	7	4.5	7.2	7.8	8.1	7.8
Manganese, Total	mg/L	0.043	0.0047 J	0.048	ND U	0.042	0.051	0.046	0.046
Mercury, Total	mg/L	0.002	0.002	0.0015	0.0011	0.0016	0.0017	0.0017	0.0018
Nickel, Total	mg/L	0.039	ND U	0.049	ND U	0.048	0.052	0.051	0.051
Potassium, Total	mg/L	--	0.94	2.1	0.19	2.3	2.2	2.2	2.3
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	0.0011 J	ND	ND	ND
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND	ND	ND
Sodium, Total	mg/L	--	11.8	35.6	2.1	36	42.7	41.4	43.2
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND	ND	ND
Vanadium, Total	mg/L	0.0086	0.00083 J	ND U	ND U	ND U	ND	ND	ND
Zinc, Total	mg/L	0.6	0.0025 J	0.65	0.034	0.15	0.35	0.23	0.14
Alkalinity, Total	mg/L	--	2 J	5 J	ND U	5	ND	ND	5
Ammonia-N	mg/L	--	0.038 J	0.107	0.089 J	0.041 J	ND	ND	0.085 J
Chemical Oxygen Demand (COD)	mg/L	--	ND U	8 J	8 J	ND U	6 J	ND	ND
Chloride	mg/L	250	72.7	94.2	106	104	103	105	101
Hardness	mg/L	--	63.1	66.3	64.4	70.4	68.4	70.9	72.5
Nitrate-N	mg/L	10	2.5	3.4	4.3	3.6	ND	3.2	3
pH	SU	8.5	5.01	5.15	4.94	5.35	5.62	4.94	4.74
Specific Conductance	umhos/cm	--	285	289	305	312	335	367	404.12
Sulfate	mg/L	250	ND U	ND U	0.98 J	0.56 J	10.6	ND	ND
Total Dissolved Solids	mg/L	500	222	234	250	266	156	246	262
Turbidity	NTU	5	0.28	0.4	0.26	2.06	1.7	1.11	0.6

## Historical Well Data Table I

Name: Eastern Sanitary Landfill

Location ID: SMW-32										
Number of Sampling Dates: 45										
Parameter Name	Units	Compliance Limit	10/5/2001	3/14/2002	9/11/2002	3/27/2003	10/2/2003	4/1/2004	10/5/2004	4/18/2005
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: SMW-32

Number of Sampling Dates: 45

Parameter Name	Units	Compliance Limit	10/5/2001	3/14/2002	9/11/2002	3/27/2003	10/2/2003	4/1/2004	10/5/2004	4/18/2005
Trichlorofluoromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	-	-	-	-	-	-	-	-	-
Vinyl acetate	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromofom	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorofom	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: SMW-32

Number of Sampling Dates: 45

Parameter Name	Units	Compliance Limit	9/29/2005	3/23/2006	9/28/2006	4/26/2007	11/6/2007	4/3/2008	10/9/2008	3/18/2009
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND	ND	ND	ND	2	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND

Location ID: SMW-32

Number of Sampling Dates: 45

Parameter Name	Units	Compliance Limit	9/29/2005	3/23/2006	9/28/2006	4/26/2007	11/6/2007	4/3/2008	10/9/2008	3/18/2009
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND	ND	ND	1	1	1
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	-	-	-	-	-	-	-	-	-
Vinyl acetate	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	2	2	2	2	2

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Number of Sampling Dates: 45

Parameter Name	Units	Compliance Limit	10/6/2009	5/12/2010	9/13/2010	3/8/2011	10/7/2011	3/13/2012	8/30/2012	3/5/2013
Acetone	ug/L	1400	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ug/L	0.75	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide	ug/L	81	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ug/L	2100	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	ug/L	19	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND	ND	ND	ND	ND	ND

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Number of Sampling Dates: 45

Parameter Name	Units	Compliance Limit	10/6/2009	5/12/2010	9/13/2010	3/8/2011	10/7/2011	3/13/2012	8/30/2012	3/5/2013
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,4-dichloro-2-butene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/L	2.8	ND	1	1	ND	ND	1	1	ND
1,2-Dichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ug/L	7	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	700	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Iodomethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ug/L	100	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND	7	7	ND	ND	ND	7	ND
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ug/L	5	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	ug/L	-	-	ND	ND	ND	ND	ND	ND	ND
Vinyl acetate	ug/L	-	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ug/L	2	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	ug/L	10000	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ug/L	80	ND	ND	ND	ND	ND	ND	ND	ND

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Number of Sampling Dates: 45

Parameter Name	Units	Compliance Limit	9/23/2013	12/5/2013	3/19/2014	9/8/2014	3/18/2015	9/8/2015	3/14/2016	9/20/2016
Acetone	ug/L	1400	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Acrylonitrile	ug/L	-	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Benzene	ug/L	5	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U



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Number of Sampling Dates: 45

Parameter Name	Units	Compliance Limit	9/23/2013	12/5/2013	3/19/2014	9/8/2014	3/18/2015	9/8/2015	3/14/2016	9/20/2016
Bromochloromethane	ug/L	-	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Bromomethane	ug/L	0.75	ND	ND	0.48 J	ND U	ND U	0.49 J	ND U	ND U
2-Butanone	ug/L	700	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Carbon Tetrachloride	ug/L	5	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Chloromethane	ug/L	19	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Dibromomethane	ug/L	-	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	-	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND	ND	ND U	ND U	ND U	ND U	ND U	0.47 J
Methyl t-Butyl Ether	ug/L	20	ND	ND	0.33 J	0.34 J	ND U	ND U	ND U	ND U
1,2-Dichloropropane	ug/L	5	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	-	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	-	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
2-Hexanone	ug/L	-	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Iodomethane	ug/L	-	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Styrene	ug/L	100	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	-	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Toluene	ug/L	1000	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1-Trichloroethane	ug/L	200	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	-	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	-	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl acetate	ug/L	-	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Total Xylenes	ug/L	10000	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
o-Xylene	ug/L	10000	-	-	-	-	-	-	-	-

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Parameter Name	Units	Compliance Limit	9/23/2013	12/5/2013	3/19/2014	9/8/2014	3/18/2015	9/8/2015	3/14/2016	9/20/2016
mp-Xylene	ug/L	10000	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Bromoform	ug/L	80	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Chloroform	ug/L	80	ND	ND	ND U	0.31 J	ND U	ND U	ND U	0.26 J

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Number of Sampling Dates: 45

Parameter Name	Units	Compliance Limit	3/24/2017	9/20/2017	3/27/2018	9/18/2018	3/11/2019	10/3/2019	3/23/2020	9/24/2020
Acetone	ug/L	1400	ND U	ND U	4.8 JB	ND U	ND U	ND U	ND U	3.2 J
Acrylonitrile	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Benzene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromochloromethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromomethane	ug/L	0.75	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
2-Butanone	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon disulfide	ug/L	81	ND U	ND U	ND U	ND U	ND U	ND U	0.27 J	ND U
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorobenzene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroethane	ug/L	2100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloromethane	ug/L	19	ND U	ND U	ND U	ND U	ND U	ND U	0.55 J	0.63 J
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Dibromomethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,4-dichloro-2-butene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methylene Chloride	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	20	0.39 J	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Ethylbenzene	ug/L	700	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
2-Hexanone	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Iodomethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Styrene	ug/L	100	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

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Parameter Name	Units	Compliance Limit	3/24/2017	9/20/2017	3/27/2018	9/18/2018	3/11/2019	10/3/2019	3/23/2020	9/24/2020
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Tetrachloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Toluene	ug/L	1000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichloroethene	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichlorofluoromethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl acetate	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl chloride	ug/L	2	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Total Xylenes	ug/L	10000	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
o-Xylene	ug/L	10000	-	-	-	-	-	-	ND U	ND U
mp-Xylene	ug/L	10000	-	-	-	-	-	-	ND U	ND U
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroform	ug/L	80	ND U	ND U	ND U	0.26 J	0.28 J	0.32 J	0.34 JB	0.31 J

Location ID: SMW-32										
Number of Sampling Dates: 45										
Parameter Name	Units	Compliance Limit	3/23/2021	9/16/2021	3/24/2022	9/16/2022	3/17/2023			
Acetone	ug/L	1400	4.5 J	ND U	ND	ND	ND			
Acrylonitrile	ug/L	-	ND U	ND U	ND	ND	ND			
Benzene	ug/L	5	ND U	ND U	ND	ND	ND			
Bromochloromethane	ug/L	-	ND U	ND U	ND	ND	ND			
Bromomethane	ug/L	0.75	ND U	ND U	ND	ND	ND			
2-Butanone	ug/L	700	ND U	ND U	ND	ND	ND			
Carbon disulfide	ug/L	81	ND U	0.25 J	ND	ND	ND			
Carbon Tetrachloride	ug/L	5	ND U	ND U	ND	ND	ND			
Chlorobenzene	ug/L	100	ND U	0.36 J	ND	ND	ND			
Chloroethane	ug/L	2100	ND U	0.57 J	ND	ND	ND			
Chloromethane	ug/L	19	ND U	ND U	ND	ND	ND			
1,2-Dibromo-3-chloropropane	ug/L	0.2	ND U	ND U	ND	ND	ND			
1,2-Dibromoethane	ug/L	0.05	ND U	ND U	ND	ND	ND			
Dibromomethane	ug/L	-	ND U	ND U	ND	ND	ND			
1,2-Dichlorobenzene	ug/L	600	ND U	ND U	ND	ND	ND			
1,4-Dichlorobenzene	ug/L	75	ND U	ND U	ND	ND	ND			
trans-1,4-dichloro-2-butene	ug/L	-	ND U	ND U	ND	ND	ND			
1,1-Dichloroethane	ug/L	2.8	ND U	ND U	ND	ND	ND			
1,2-Dichloroethane	ug/L	5	ND U	ND U	ND	ND	ND			
1,1-Dichloroethene	ug/L	7	ND U	ND U	ND	ND	ND			
cis-1,2-Dichloroethene	ug/L	70	ND U	ND U	ND	ND	ND			

Location ID: SMW-32

Number of Sampling Dates: 45

Parameter Name	Units	Compliance Limit	3/23/2021	9/16/2021	3/24/2022	9/16/2022	3/17/2023
trans-1,2-Dichloroethene	ug/L	100	ND U	ND U	ND	ND	ND
Methylene Chloride	ug/L	5	ND U	ND U	ND	ND	ND
Methyl t-Butyl Ether	ug/L	20	ND U	ND U	ND	ND	ND
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND	ND	ND
Ethylbenzene	ug/L	700	ND U	ND U	ND	ND	ND
2-Hexanone	ug/L	-	ND U	ND U	ND	ND	ND
Iodomethane	ug/L	-	ND U	ND U	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	630	ND U	ND U	ND	ND	ND
Styrene	ug/L	100	ND U	ND U	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	-	ND U	ND U	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.076	ND U	ND U	ND	ND	ND
Tetrachloroethene	ug/L	5	ND U	ND U	ND	ND	ND
Toluene	ug/L	1000	ND U	ND U	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5	ND U	ND U	ND	ND	ND
Trichloroethene	ug/L	5	ND U	ND U	ND	ND	ND
Trichlorofluoromethane	ug/L	-	ND U	ND U	ND	ND	ND
1,2,3-Trichloropropane	ug/L	-	ND U	ND U	ND	ND	ND
Vinyl acetate	ug/L	-	ND U	ND U	ND	ND	ND
Vinyl chloride	ug/L	2	ND U	ND U	ND	ND	ND
Total Xylenes	ug/L	10000	ND U	ND U	ND	ND	ND
o-Xylene	ug/L	10000	ND U	ND U	ND	ND	ND
mp-Xylene	ug/L	10000	ND U	ND U	ND	ND	ND
Bromodichloromethane	ug/L	80	ND U	ND U	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND U	ND U	ND	ND	ND
Bromoform	ug/L	80	ND U	ND U	ND	ND	ND
Chloroform	ug/L	80	0.27 J	0.33 J	0.33 JB	ND	0.31 J

## Historical Well Data Table II

Name: Eastern Sanitary Landfill

Location ID: SMW-32											
Number of Sampling Dates: 45											
Parameter Name	Units	Compliance Limit	10/5/2001	3/14/2002	9/11/2002	3/27/2003	10/2/2003	4/1/2004	10/5/2004	4/18/2005	
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND	
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	
Barium, Total	mg/L	2	0.048	0.064	0.069	0.059	0.057	0.045	0.046	0.05	
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND	
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	
Calcium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	
Cobalt, Total	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND	
Copper, Total	mg/L	1.3	0.078	0.071	0.019	0.035	0.016	0.516	0.069	0.047	
Iron, Total	mg/L	0.3	0.1	0.221	0.061	0.029	0.04	0.067	0.048	0.102	
Lead, Total	mg/L	0.015	0.002	ND	0.005	ND	ND	0.005	0.003	0.003	
Magnesium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Manganese, Total	mg/L	0.043	ND	0.011	ND	0.016	0.011	ND	0.053	0.019	
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	0.0003	ND	ND	ND	
Nickel, Total	mg/L	0.039	0.016	0.023	ND	0.019	0.028	0.032	0.026	0.028	
Potassium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND	
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND	
Sodium, Total	mg/L	--	--	--	--	--	--	--	--	--	
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND	
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND	
Zinc, Total	mg/L	0.6	1.409	0.322	0.53	0.1	0.269	0.514	0.2	0.407	
Alkalinity, Total	mg/L	--	5	2	4000	80	6	6	5.1	4.65	
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND	
Chemical Oxygen Demand (COD)	mg/L	--	7	ND	ND	ND	ND	ND	ND	ND	
Chloride	mg/L	250	18.23	22.2	21.32	21.76	22.42	20.31	18.9	43.05	
Hardness	mg/L	--	16.52	26.65	30.8	24.13	36.04	14.28	19.45	33.11	
Nitrate-N	mg/L	10	3.46	2.97	2.16	2.32	2.8	2.11	1.9	3.97	
pH	SU	8.5	5.1	4.67	10.35	6.04	4.26	4.34	3.97	6.88	
Specific Conductance	umhos/cm	--	109	476	3210	283	129	146	121	156	
Sulfate	mg/L	250	5	ND	1.09	0.66	2.92	3.43	2.49	3.79	
Total Dissolved Solids	mg/L	500	ND	ND	6158	165	105	98	ND	357	
Turbidity	NTU	5	12	7.7	2.8	3.7	3.67	1.62	2.8	6	

Location ID: SMW-32											
Number of Sampling Dates: 45											
Parameter Name	Units	Compliance Limit	9/29/2005	3/23/2006	9/28/2006	4/26/2007	11/6/2007	4/3/2008	10/9/2008	3/18/2009	
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND	
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	
Barium, Total	mg/L	2	0.048	0.036	0.039	0.031	0.027	0.03	0.025	0.03	
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND	

Location ID: SMW-32  
 Number of Sampling Dates: 45

Parameter Name	Units	Compliance Limit	9/29/2005	3/23/2006	9/28/2006	4/26/2007	11/6/2007	4/3/2008	10/9/2008	3/18/2009
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND
Calcium, Total	mg/L	--	--	--	--	9.25	7.09	9.15	11.18	7.03
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	--	ND	ND	0.01	0.012	ND	ND	ND	ND
Copper, Total	mg/L	1.3	0.029	0.06	0.242	0.056	0.16	0.118	0.067	0.012
Iron, Total	mg/L	0.3	0.085	0.1	0.266	0.24	0.106	ND	0.089	1.443
Lead, Total	mg/L	0.015	ND	0.002	0.005	0.004	ND	0.002	ND	0.009
Magnesium, Total	mg/L	--	--	--	--	5.9	2.37	5.3	2.949	5.1
Manganese, Total	mg/L	0.043	0.016	0.035	0.045	0.283	0.11	0.071	0.063	0.021
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total	mg/L	0.039	0.033	0.025	0.032	0.028	0.032	0.043	0.033	0.081
Potassium, Total	mg/L	--	--	--	--	3.8	1.65	2.01	1.79	1.64
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	--	--	--	--	41.9	17.5	26.2	21.6	19.5
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	0.251	0.361	0.62	0.422	0.256	0.362	0.177	0.351
Alkalinity, Total	mg/L	--	4.3	7.6	3.4	4.2	3.4	3	2.8	3.8
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	--	ND	ND	ND	ND	11	ND	ND	ND
Chloride	mg/L	250	27.99	26.57	23.56	36.38	32.11	32.78	41.81	51.37
Hardness	mg/L	--	42.96	37.86	56.56	47.39	27.46	44.67	40.06	38.54
Nitrate-N	mg/L	10	2.63	1.89	1.74	2.56	2.14	2.05	2.08	3.03
pH	SU	8.5	4.23	4.06	4.16	4.16	4.63	4.04	4.54	4.68
Specific Conductance	umhos/cm	--	150	153	169	154	140	177	220	207
Sulfate	mg/L	250	1.13	4.45	5.91	4.29	1.76	1.3	ND	1.69
Total Dissolved Solids	mg/L	500	76	292	382	73	246	148	998	102
Turbidity	NTU	5	4.63	2.21	2.62	13.9	2.2	2.96	10.71	80

Location ID: SMW-32  
 Number of Sampling Dates: 45

Parameter Name	Units	Compliance Limit	10/6/2009	5/12/2010	9/13/2010	3/8/2011	10/7/2011	3/13/2012	8/30/2012	3/5/2013
Antimony, Total	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total	mg/L	2	0.031	0.031	0.038	0.037	0.088	0.094	0.114	0.129
Beryllium, Total	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND
Calcium, Total	mg/L	--	8.47	11.22	11.71	8.88	10	2.08	6.39	15.83
Chromium, Total	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt, Total	mg/L	--	0.016	0.011	0.012	0.016	0.011	0.014	0.013	0.015
Copper, Total	mg/L	1.3	0.08	0.09	0.033	0.066	0.029	0.037	0.044	0.054
Iron, Total	mg/L	0.3	0.023	0.175	0.203	0.074	ND	0.009	0.168	0.022
Lead, Total	mg/L	0.015	0.003	ND	ND	ND	ND	ND	ND	ND
Magnesium, Total	mg/L	--	4.85	8.35	2.517	4.2	5.2	0.56	6.278	6.205

Location ID: SMW-32

Number of Sampling Dates: 45

Parameter Name	Units	Compliance Limit	10/6/2009	5/12/2010	9/13/2010	3/8/2011	10/7/2011	3/13/2012	8/30/2012	3/5/2013
Manganese, Total	mg/L	0.043	ND	0.041	0.037	0.054	0.03	0.037	0.05	0.047
Mercury, Total	mg/L	0.002	ND	ND	ND	ND	0.0017	ND	0.0014	ND
Nickel, Total	mg/L	0.039	0.068	0.053	0.054	0.056	0.043	0.053	0.041	0.057
Potassium, Total	mg/L	--	1.7	1.81	1.83	1.76	2.1	2.06	2.16	2.08
Selenium, Total	mg/L	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total	mg/L	0.0094	ND	ND	ND	ND	ND	ND	ND	ND
Sodium, Total	mg/L	--	11	28.2	40.2	22.4	18	1.95	18.2	20.8
Thallium, Total	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium, Total	mg/L	0.0086	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total	mg/L	0.6	0.614	0.391	0.212	0.277	0.32	0.421	0.32	0.442
Alkalinity, Total	mg/L	--	5.2	4.6	2.7	ND	5	7.91	3.5	ND
Ammonia-N	mg/L	--	ND	ND	ND	ND	ND	ND	ND	ND
Chemical Oxygen Demand (COD)	mg/L	--	ND	ND	ND	--	ND	ND	ND	ND
Chloride	mg/L	250	44.92	51.14	64.15	54.67	57	56.46	38	61.55
Hardness	mg/L	--	41.12	62.4	39.6	39.47	52	74.94	41.8	65.1
Nitrate-N	mg/L	10	2.21	2.89	3.25	2.66	3.7	2.54	2.5	3.16
pH	SU	8.5	4.6	4.68	4.51	4.66	4.67	4.32	4.1	4.44
Specific Conductance	umhos/cm	--	209	174	242	256	276	268	301	227
Sulfate	mg/L	250	ND	3.08	2.44	2.05	ND	ND	ND	1.94
Total Dissolved Solids	mg/L	500	130	170	178	110	89	134	212	104
Turbidity	NTU	5	2.5	4.4	9.1	2.1	1.76	3.11	3.41	0.9

Location ID: SMW-32

Number of Sampling Dates: 45

Parameter Name	Units	Compliance Limit	9/23/2013	12/5/2013	3/19/2014	9/8/2014	3/18/2015	9/8/2015	3/14/2016	9/20/2016
Antimony, Total	mg/L	0.006	ND	ND	ND U	ND U	ND U	ND U	0.0012 J	ND U
Arsenic, Total	mg/L	0.01	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Barium, Total	mg/L	2	0.1	0.12	0.091	0.097	0.1	0.11	0.1	0.11
Beryllium, Total	mg/L	0.004	ND	ND	0.00079 J	0.00089 J	0.00078 J	0.00081 J	0.00084 J	0.00077 J
Cadmium, Total	mg/L	0.005	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Calcium, Total	mg/L	--	8.24	13.87	10.9	11.9	11.8	11.7	12.6	12.9
Chromium, Total	mg/L	0.1	ND	ND	0.00092 J	0.0013 J	0.0013 J	0.0014 J	0.0012 J	0.0021 J
Cobalt, Total	mg/L	--	0.01	0.01	0.013	0.014	0.015	0.02	0.018	0.016
Copper, Total	mg/L	1.3	0.04	0.04	0.04	0.035	0.043	0.05	0.039	0.044
Iron, Total	mg/L	0.3	0.015	0.026	0.086	0.064	0.04 J	0.29	0.062	0.032 J
Lead, Total	mg/L	0.015	ND	ND	ND U	0.0011 J	0.00097 J	0.0023	0.001 J	0.0012 J
Magnesium, Total	mg/L	--	5.924	5.814	6	6.4	6.1	7.5	7.2	6.6
Manganese, Total	mg/L	0.043	0.04	0.04	0.044	0.042	0.044	0.083	0.064	0.048
Mercury, Total	mg/L	0.002	0.00202	0.0019	0.0026	0.0032	0.0033	0.0027	0.0031	0.003
Nickel, Total	mg/L	0.039	0.046	0.05	0.049	0.052	0.054	0.057	0.056	0.059
Potassium, Total	mg/L	--	1.94	1.78	2	2.1	2.1	2.4	2.3	2.2
Selenium, Total	mg/L	0.05	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Silver, Total	mg/L	0.0094	ND	--	ND U	ND U	ND U	ND U	ND U	ND U
Sodium, Total	mg/L	--	21.24	20.4	23.4	24	24.7	26.9	28	28.6
Thallium, Total	mg/L	0.002	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: SMW-32

Number of Sampling Dates: 45

Parameter Name	Units	Compliance Limit	9/23/2013	12/5/2013	3/19/2014	9/8/2014	3/18/2015	9/8/2015	3/14/2016	9/20/2016
Vanadium, Total	mg/L	0.0086	ND	ND	ND U	ND U	ND U	ND U	ND U	ND U
Zinc, Total	mg/L	0.6	0.63	0.62	0.39	0.27	0.32	0.55	0.45	0.48
Alkalinity, Total	mg/L	--	ND	7.79	3 J	3 J	5 J	5	3 J	6
Ammonia-N	mg/L	--	ND	ND	0.132	ND U	ND U	ND U	ND U	ND U
Chemical Oxygen Demand (COD)	mg/L	--	ND	ND	ND U	10	ND U	ND U	ND U	10
Chloride	mg/L	250	68.11	66.5	63.8	74.3	71.9	81.7	66.8	82.9
Hardness	mg/L	--	45	58.6	67	59	83	70	62	59
Nitrate-N	mg/L	10	4.22	3.41	3.8	3.6	3.6	3.6	3.1	3.7
pH	SU	8.5	3.72	5.16	5.55	5.6	4.7	5.74	6.28	5.84
Specific Conductance	umhos/cm	--	295	212	210	250	221	278	253	276
Sulfate	mg/L	250	1.48	1.64	0.7 J	12 J	0.78 J	4.1	2.2	0.52 J
Total Dissolved Solids	mg/L	500	138	--	127	224	202	231	165	192
Turbidity	NTU	5	0.43	0.88	0.5	1.9	1.28	0.81	2.35	1.63

Location ID: SMW-32

Number of Sampling Dates: 45

Parameter Name	Units	Compliance Limit	3/24/2017	9/20/2017	3/27/2018	9/18/2018	3/11/2019	10/3/2019	3/23/2020	9/24/2020
Antimony, Total	mg/L	0.006	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Arsenic, Total	mg/L	0.01	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Barium, Total	mg/L	2	0.11	0.099	0.1	0.12	0.11	0.12	0.12	0.11
Beryllium, Total	mg/L	0.004	0.00075 J	0.00079 J	0.00086 J	0.00086 J	0.00093 J	0.00089 J	0.00092 J	0.001 J
Cadmium, Total	mg/L	0.005	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Calcium, Total	mg/L	--	12.3	12.6	12.4	13	13.6	14.5	14.2	14.1
Chromium, Total	mg/L	0.1	0.0011 J	0.0015 J	0.0014 J	ND U	0.0016 J	0.00077 J	0.0011 J	ND U
Cobalt, Total	mg/L	--	0.016	0.018	0.016	0.018	0.019	0.018	0.018	0.019
Copper, Total	mg/L	1.3	0.033	0.052	0.045	0.037	0.055	0.035	0.034	0.041
Iron, Total	mg/L	0.3	0.022 J	0.052 J	0.031 J	0.045 J	0.035 J	0.025 J	0.047 J	0.08
Lead, Total	mg/L	0.015	0.00077 J	0.0014 J	0.001 J	0.00088 J	0.0016 J	ND U	ND U	0.0009 J
Magnesium, Total	mg/L	--	6.5	7.3	7	7.7	7.8	7.8	8	7.9
Manganese, Total	mg/L	0.043	0.055	0.061	0.056	0.064	0.07	0.06	0.073	0.071
Mercury, Total	mg/L	0.002	0.0031	0.0031	0.0032	0.0028	0.0028	0.0033	0.003	0.0033
Nickel, Total	mg/L	0.039	0.059	0.06	0.055	0.06	0.061	0.064	0.064	0.062
Potassium, Total	mg/L	--	2.2	2.3	2.3	2.3	2.4	2.4	2.4	2.5
Selenium, Total	mg/L	0.05	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Silver, Total	mg/L	0.0094	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Sodium, Total	mg/L	--	28	29.7	32	33.5	36.4	35.3	38	38.1
Thallium, Total	mg/L	0.002	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Zinc, Total	mg/L	0.6	0.38	0.31	0.42	0.31	0.5	0.3	0.23	0.36
Alkalinity, Total	mg/L	--	4 J	4 J	7	8	4 J	6	ND U	15
Ammonia-N	mg/L	--	ND U	ND U	0.043 J	0.031 J	0.054 J	0.154	0.039 J	ND U
Chemical Oxygen Demand (COD)	mg/L	--	ND U	5 J	ND U	ND U	8 J	ND U	ND U	ND U
Chloride	mg/L	250	82.6	87.3	92.4	88.7	92.6	94.5	81.5	97.3
Hardness	mg/L	--	59	61.4	60.1	64.2	66.1	68.5	68.8	71.7
Nitrate-N	mg/L	10	3.5	3.5	3.5	3.3	3.4	3	2.3	2.8



Location ID: SMW-32										
Number of Sampling Dates: 45										
Parameter Name	Units	Compliance Limit	3/24/2017	9/20/2017	3/27/2018	9/18/2018	3/11/2019	10/3/2019	3/23/2020	9/24/2020
pH	SU	8.5	6.11	5.4	5.58	5.29	5.52	5.14	5.29	5.05
Specific Conductance	umhos/cm	--	266	290	251	293	279	302	380	298
Sulfate	mg/L	250	1.2 J	1.5 J	1.4 J	2.3	2.5	1.3 J	1.1 J	1.7 J
Total Dissolved Solids	mg/L	500	206	100	180	190	180	186	218	210
Turbidity	NTU	5	0.39	1.44	2.36	2.21	1.13	0.94	1.35	1.88

Location ID: SMW-32										
Number of Sampling Dates: 45										
Parameter Name	Units	Compliance Limit	3/23/2021	9/16/2021	3/24/2022	9/16/2022	3/17/2023			
Antimony, Total	mg/L	0.006	ND U	ND U	ND	ND	ND			
Arsenic, Total	mg/L	0.01	ND U	0.00033 J	ND	ND	ND			
Barium, Total	mg/L	2	0.12	0.12	0.13	0.12	0.12			
Beryllium, Total	mg/L	0.004	0.0011 J	0.001 J	0.0011 J	0.0012	0.0011			
Cadmium, Total	mg/L	0.005	ND U	0.00026 J	ND	ND	ND			
Calcium, Total	mg/L	--	13.8	15	14.9	13.3	14			
Chromium, Total	mg/L	0.1	ND U	0.0014 J	ND	ND	0.0011 J			
Cobalt, Total	mg/L	--	0.023	0.02	0.018	0.02	0.018			
Copper, Total	mg/L	1.3	0.042	0.035	0.036	0.048	0.035			
Iron, Total	mg/L	0.3	0.11	0.11	0.028 J	0.069	0.039 J			
Lead, Total	mg/L	0.015	ND U	ND U	ND	ND	ND			
Magnesium, Total	mg/L	--	9.2	8.1	8.5	8.3	7.9			
Manganese, Total	mg/L	0.043	0.1	0.07	0.067	0.088	0.068			
Mercury, Total	mg/L	0.002	0.0027	0.0032	0.003	0.0023	0.0034			
Nickel, Total	mg/L	0.039	0.063	0.062	0.068	0.069	0.07			
Potassium, Total	mg/L	--	2.9	2.6	2.6	2.7	2.5			
Selenium, Total	mg/L	0.05	ND U	0.0014 J	ND	ND	ND			
Silver, Total	mg/L	0.0094	ND U	ND U	ND	ND	ND			
Sodium, Total	mg/L	--	43.3	40	45.4	39.6	41.7			
Thallium, Total	mg/L	0.002	ND U	ND U	ND	ND	ND			
Vanadium, Total	mg/L	0.0086	ND U	ND U	ND	ND	ND			
Zinc, Total	mg/L	0.6	0.29	0.28	0.26	0.32	0.14			
Alkalinity, Total	mg/L	--	ND U	50	ND	ND	10			
Ammonia-N	mg/L	--	0.128	ND U	0.061 J	ND	0.089 J			
Chemical Oxygen Demand (COD)	mg/L	--	5 J	5 J	ND	ND	8 J			
Chloride	mg/L	250	120	116	108	103	101			
Hardness	mg/L	--	73.1	76.2	69.2	71.1	71.1			
Nitrate-N	mg/L	10	3.9	3.5	2.8	2.8	2.7			
pH	SU	8.5	5.43	5.62	4.31	4.77	4.54			
Specific Conductance	umhos/cm	--	327	344	315	363	394.71			
Sulfate	mg/L	250	3.5	2.5	ND	3	1.9 J			
Total Dissolved Solids	mg/L	500	306	302	166	210	270			
Turbidity	NTU	5	2.2	2.32	0.94	1.2	4.54			

# Historical Surface Water Sampling Location Data Table I

Name: Eastern Sanitary Landfill - Surface water

Location ID: SW-1										
Number of Sampling Dates: 16										
Parameter Name	Units	NCTS	9/15/2015	4/5/2016	9/23/2016	3/30/2017	9/22/2017	3/26/2018	9/20/2018	3/14/2019
Acetone	ug/L	-	ND U	ND U	ND U	4.9 JB	ND U	6.6 JB	ND U	ND U
Acrylonitrile	ug/L	0.51	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Benzene	ug/L	22	0.77 J	0.82 J	0.9 J	0.77 J	0.82 J	0.76 J	0.4 J	0.44 J
Bromochloromethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromomethane	ug/L	-	0.52 J	ND U	ND U	ND U	ND U	ND U	ND U	ND U
2-Butanone	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon disulfide	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Carbon Tetrachloride	ug/L	2.3	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorobenzene	ug/L	130	0.46 J	0.5 J	0.68 J	0.46 J	0.55 J	ND U	0.19 J	0.21 J
Chloroethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloromethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromo-3-chloropropane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dibromoethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Dibromomethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichlorobenzene	ug/L	420	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,4-Dichlorobenzene	ug/L	63	3.7	3.6	4.3	3.3	4	2.8	1.7	1.8
trans-1,4-dichloro-2-butene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2-Dichloroethane	ug/L	3.8	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1-Dichloroethene	ug/L	330	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,2-Dichloroethene	ug/L	-	ND U	ND U	ND U	ND U	0.37 J	ND U	ND U	ND U
trans-1,2-Dichloroethene	ug/L	140	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methylene Chloride	ug/L	46	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Methyl t-Butyl Ether	ug/L	-	0.74 J	0.64 J	0.72 J	0.69 J	0.63 J	0.63 J	0.41 J	0.41 J
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
trans-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
cis-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Ethylbenzene	ug/L	530	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
2-Hexanone	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Iodomethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
4-Methyl-2-Pentanone(MIBK)	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Styrene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,1,2-Tetrachloroethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2,2-Tetrachloroethane	ug/L	1.7	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Tetrachloroethene	ug/L	6.9	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Toluene	ug/L	1300	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: SW-1  
 Number of Sampling Dates: 16

Parameter Name	Units	NCTS	9/15/2015	4/5/2016	9/23/2016	3/30/2017	9/22/2017	3/26/2018	9/20/2018	3/14/2019
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,1,2-Trichloroethane	ug/L	5.9	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichbroethene	ug/L	25	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Trichbrofluoromethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
1,2,3-Trichloropropane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl acetate	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Vinyl chloride	ug/L	0.25	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Total Xylenes	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
mp-Xylene	ug/L	-	-	-	-	-	-	-	-	-
o-Xylene	ug/L	-	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U
Chloroform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U

Location ID: SW-1  
 Number of Sampling Dates: 16

Parameter Name	Units	NCTS	9/25/2019	3/26/2020	9/30/2020	3/22/2021	9/16/2021	3/18/2022	9/16/2022	3/20/2023
Acetone	ug/L	-	5.1 JB	3.3 J	ND U	3.3 J	ND U	ND	ND	ND
Acrylonitrile	ug/L	0.51	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Benzene	ug/L	22	0.56 J	0.39 J	0.35 J	0.44 J	0.39 J	0.51 J	0.37 J	0.26 J
Bromochloromethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromomethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
2-Butanone	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Carbon disulfide	ug/L	-	ND U	0.27 JB	ND U	ND U	ND U	ND	ND	ND
Carbon Tetrachloride	ug/L	2.3	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorobenzene	ug/L	130	0.35 J	0.25 J	0.3 J	0.25 J	0.54 JB	0.23 J	0.2 J	ND
Chloroethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloromethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dibromoethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Dibromomethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichlorobenzene	ug/L	420	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,4-Dichlorobenzene	ug/L	63	2.4	2	2.2	2	2.1	2.1	1.7	0.96 J
trans-1,4-dichloro-2-butene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2-Dichloroethane	ug/L	3.8	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1-Dichloroethene	ug/L	330	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,2-Dichloroethene	ug/L	-	ND U	0.36 J	ND U	ND U	ND U	0.33 J	ND	ND

Location ID: SW-1  
 Number of Sampling Dates: 16

Parameter Name	Units	NCTS	9/25/2019	3/26/2020	9/30/2020	3/22/2021	9/16/2021	3/18/2022	9/16/2022	3/20/2023
trans-1,2-Dichloroethene	ug/L	140	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Methylene Chloride	ug/L	46	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Methyl t-Butyl Ether	ug/L	-	0.57 J	0.4 J	0.43 J	0.39 J	0.5 J	0.41 J	0.37 J	ND
1,2-Dichloropropane	ug/L	5	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
trans-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
cis-1,3-Dichloropropene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Ethylbenzene	ug/L	530	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
2-Hexanone	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Iodomethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
4-Methyl-2-Pentanone(MIBK)	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Styrene	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	1.7	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Tetrachloroethene	ug/L	6.9	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Toluene	ug/L	1300	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,1-Trichloroethane	ug/L	200	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,1,2-Trichloroethane	ug/L	5.9	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Trichloroethene	ug/L	25	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Trichlorofluoromethane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
1,2,3-Trichloropropane	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl acetate	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Vinyl chloride	ug/L	0.25	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Total Xylenes	ug/L	-	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
mp-Xylene	ug/L	-	-	ND U	ND U	ND U	ND U	ND	ND	ND
o-Xylene	ug/L	-	-	ND U	ND U	ND U	ND U	ND	ND	ND
Bromodichloromethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chlorodibromomethane	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Bromoform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
Chloroform	ug/L	80	ND U	ND U	ND U	ND U	ND U	ND	ND	ND

## Historical Surface Water Location Data Table II and Water Quality Parameters

Name: Eastern Sanitary Landfill - Surface water

Location ID: SW-1		Number of Sampling Dates: 16									
Parameter Name	Units	NCTS	9/15/2015	4/5/2016	9/23/2016	3/30/2017	9/22/2017	3/26/2018	9/20/2018	3/14/2019	
Antimony, Total	mg/L	0.0056	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Arsenic, Total	mg/L	0.00018	0.0011 J	ND U	0.001 J	ND U	0.0013 J	ND U	ND U	ND U	
Barium, Total	mg/L	1	0.15	0.14	0.17	0.16	0.18	0.14	0.11	0.11	
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Cadmium, Total	mg/L	0.00025	ND U	ND U	ND U	ND U	ND U	0.0016	ND U	ND U	
Calcium, Total	mg/L	–	44.6	39.3	42.3	43.3	47.9	40.8	30.8	29.8	
Chromium, Total	mg/L	0.1	0.0011 J	0.002 J	0.0013 J	0.0014 J	0.0019 J	0.0018 J	0.0011 J	0.0018 J	
Cobalt, Total	mg/L	–	0.38	0.38	0.42	0.4	0.4	0.3	0.22	0.26	
Copper, Total	mg/L	0.009	ND U	ND U	ND U	ND U	0.0019 J	ND U	ND U	ND U	
Iron, Total	mg/L	–	48.9	48.9	63.6	71.2	81.9	52.3	28.4	49.2	
Lead, Total	mg/L	0.0025	ND U	ND U	ND U	ND U	ND U	ND U	ND U	0.00089 J	
Magnesium, Total	mg/L	–	21.3	20.6	24.6	23.9	22.6	21.3	16.5	16.4	
Manganese, Total	mg/L	–	13.1	10.2	11.6	12.9	12.1	10.5	8.6	8.1	
Mercury, Total	mg/L	0.00077	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Nickel, Total	mg/L	0.052	0.0073	0.0076	0.0083	0.0081	0.0086	0.0077	0.0064	0.0071	
Potassium, Total	mg/L	–	5.3	4.2	5.2	5	5.1	4.7	4.1	2.8	
Selenium, Total	mg/L	0.005	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Silver, Total	mg/L	0.0032	ND U	ND U	ND U	ND U	ND U	ND U	ND U	ND U	
Sodium, Total	mg/L	–	30.3	28.7	37.3	33.7	39.7	36.1	26.6	20.8	
Thallium, Total	mg/L	0.00024	ND U	ND U	ND U	ND U	ND U	ND U	ND U	0.00075 J	
Vanadium, Total	mg/L	–	ND U	ND U	ND U	ND U	ND U	ND U	ND U	0.0011 J	
Zinc, Total	mg/L	0.12	0.0062	0.015	0.005 J	0.004 J	0.0044 J	0.0066	0.0061	0.0098	
Alkalinity, Total	mg/L	–	224	251	196	205	215	199	162	149	
Ammonia-N	mg/L	–	0.512	0.656	0.734	0.973	1.47	0.753	0.444	0.295	
Chemical Oxygen Demand (COD)	mg/L	–	9	4 J	10	17	19	8	ND U	20	
Chloride	mg/L	–	68.9	50.1	69.7	77	75.9	76.3	49.9	40.7	
Hardness	mg/L	–	199	197	205	213	213	189	145	142	
Nitrate-N	mg/L	–	ND U	0.04 J	ND U	ND U	ND U	ND U	0.18 J	ND U	
pH	SU	–	6.03	6.86	6.72	6.59	6.78	6.75	6.39	7.2	
Specific Conductance	umhos/cm	–	590	499	689	603	749	488	509	407	
Sulfate	mg/L	–	37.2	33.5	40.3	36.3	31.9	32.1	31.1	32.2	
Total Dissolved Solids	mg/L	–	343	370	437	359	296	348	264	308	
Turbidity	NTU	–	1.26	0.34	1.5	0.07	0.33	6.96	1.23	10.5	

Location ID: SW-1		Number of Sampling Dates: 16									
Parameter Name	Units	NCTS	9/25/2019	3/26/2020	9/30/2020	3/22/2021	9/16/2021	3/18/2022	9/16/2022	3/20/2023	
Antimony, Total	mg/L	0.0056	ND U	ND U	ND U	ND U	ND U	ND	–	ND	
Arsenic, Total	mg/L	0.00018	ND U	ND U	ND U	ND U	0.0013 J	ND	–	0.0014 J	

Location ID: SW-1

Number of Sampling Dates: 16

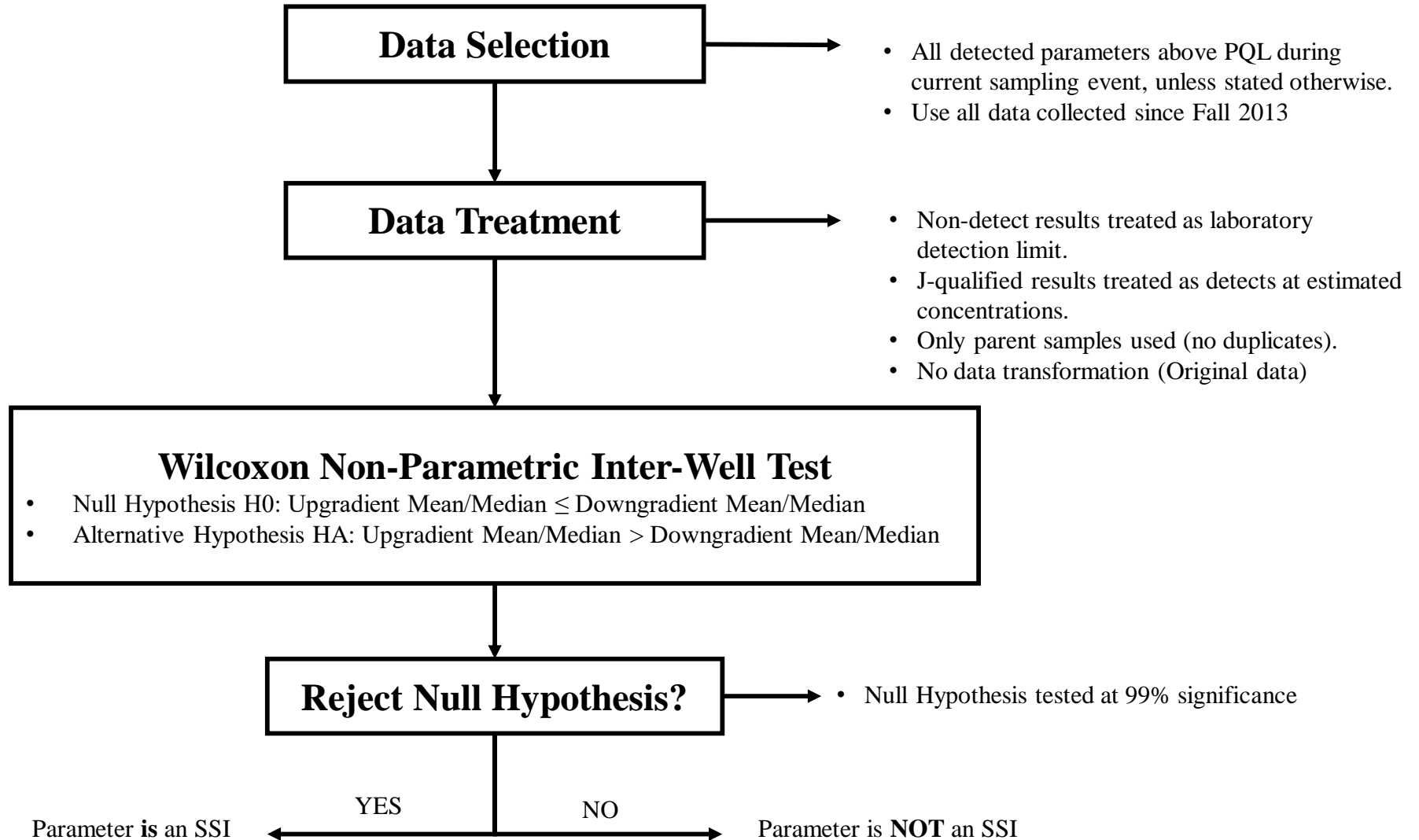
Parameter Name	Units	NCTS	9/25/2019	3/26/2020	9/30/2020	3/22/2021	9/16/2021	3/18/2022	9/16/2022	3/20/2023
Barium, Total	mg/L	1	0.17	0.12	0.14	0.16	0.18	0.16	–	0.15
Beryllium, Total	mg/L	0.004	ND U	ND U	ND U	ND U	ND U	ND	–	ND
Cadmium, Total	mg/L	0.00025	ND U	ND U	ND U	ND U	ND U	ND	–	ND
Calcium, Total	mg/L	–	37.8	34.6	36.4	37	43	42	–	36.5
Chromium, Total	mg/L	0.1	ND U	0.0008 J	ND U	ND U	ND U	ND	–	0.0013 J
Cobalt, Total	mg/L	–	0.29	0.25	0.24	0.28	0.29	0.32	–	0.28
Copper, Total	mg/L	0.009	ND U	ND U	ND U	ND U	ND U	ND	–	ND
Iron, Total	mg/L	–	73.8	54.5	67.1	80.3	73	68.7	–	75.5
Lead, Total	mg/L	0.0025	ND U	ND U	ND U	ND U	ND U	ND	–	ND
Magnesium, Total	mg/L	–	20.7	17.7	19.6	20.4	21	22.3	–	18.6
Manganese, Total	mg/L	–	9.5	9.2	9.2	9.1	11	13.4	–	9.5
Mercury, Total	mg/L	0.00077	ND U	ND U	ND U	ND U	ND U	ND	–	ND
Nickel, Total	mg/L	0.052	0.0076	0.0068	0.0062	0.0073	0.0071	0.0086	–	0.0074
Potassium, Total	mg/L	–	3.7	3.3	3.7	3.4	4	3.6	–	4.2
Selenium, Total	mg/L	0.005	ND U	ND U	ND U	ND U	ND U	ND	–	ND
Silver, Total	mg/L	0.0032	ND U	ND U	ND U	ND U	ND U	ND	–	ND
Sodium, Total	mg/L	–	33.2	27.4	32.3	33.2	38	37.6	–	32.8
Thallium, Total	mg/L	0.00024	ND U	ND U	ND U	ND U	0.00019 J	ND	–	ND
Vanadium, Total	mg/L	–	ND U	ND U	ND U	ND U	ND U	ND	–	ND
Zinc, Total	mg/L	0.12	0.015	0.0054 J	0.0056 J	0.0086	ND U	0.0052 J	–	0.0051 J
Alkalinity, Total	mg/L	–	185	152	165	202	181	213	203	157
Ammonia-N	mg/L	–	0.665	0.402	0.756	0.716	0.613	0.94	1.23	1.31
Chemical Oxygen Demand (COD)	mg/L	–	16	13 J	14 J	23	20	17	22	43
Chloride	mg/L	–	64.4	51.3	58.5	69.6	81.7	74.9	73.3	65.5
Hardness	mg/L	–	179	172	185	165	198	189	197	168
Nitrate-N	mg/L	–	ND U	ND U	ND U	ND U	ND U	ND	ND	ND
pH	SU	–	6.23	6.5	6.27	6.76	6.25	–	6.26	6.26
Specific Conductance	umhos/cm	–	676	451	536	517	704	–	828	716.7
Sulfate	mg/L	–	34.6	32.3	35.5	30.8	35.5	36	28.8	28.6
Total Dissolved Solids	mg/L	–	334	258	352	370	386	424	364	358
Turbidity	NTU	–	3.99	0.54	2.09	0.81	0.74	–	0.42	40.88

# APPENDIX F

## Statistical Analysis Results

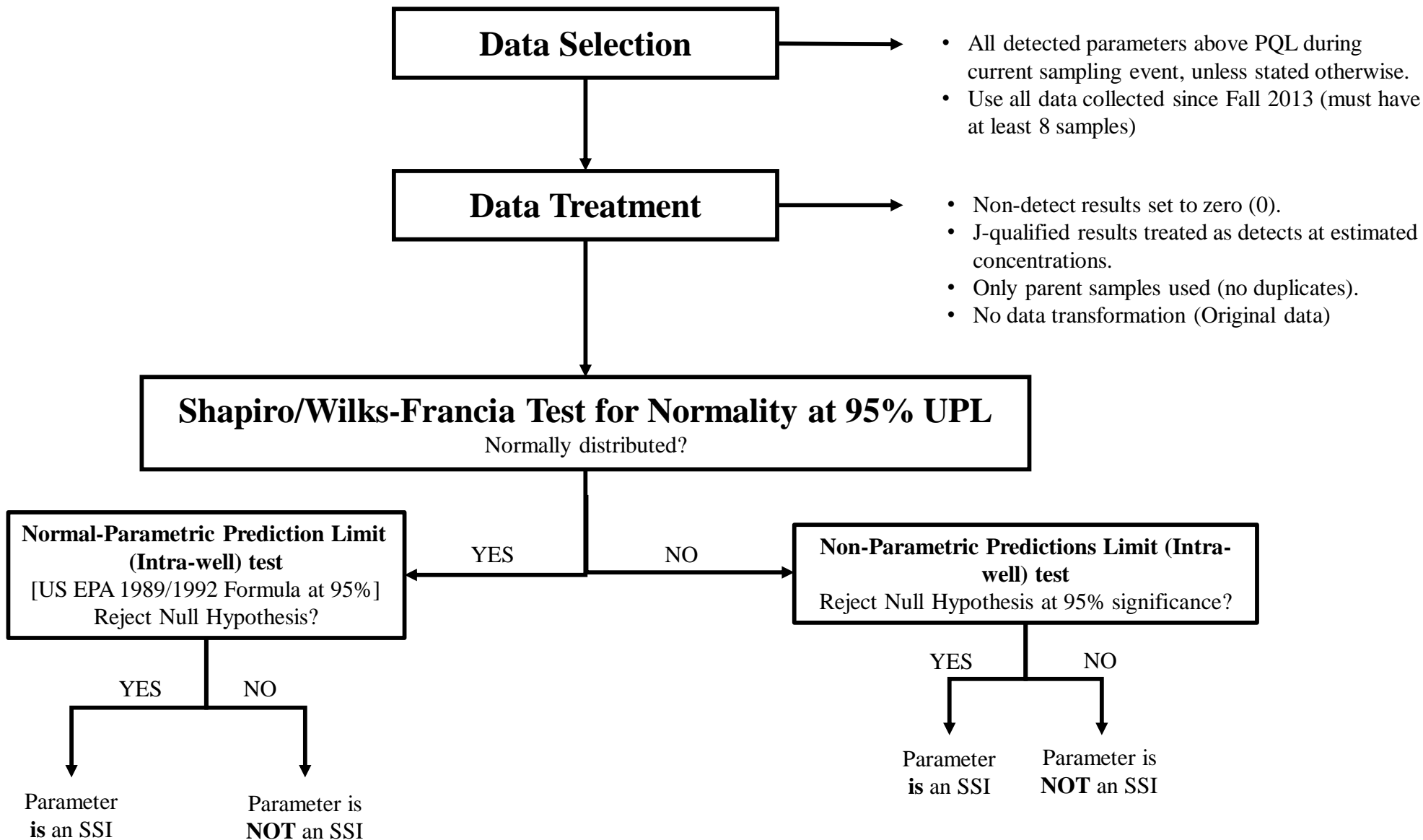
- 1) Patapsco Aquifer VOC Inter-well Statistics
- 2) Patapsco Aquifer VOC Intra-well Statistics
- 3) Patuxent Aquifer VOC Inter-well Statistics
- 4) Patuxent Aquifer VOC Intra-well Statistics
- 5) Patapsco Aquifer Water Quality Parameters Inter-well Statistics
- 6) Patapsco Aquifer Water Quality Parameters Intra-well Statistics
- 7) Patuxent Aquifer Water Quality Parameters Inter-well Statistics
- 8) Patuxent Aquifer Water Quality Parameters Intra-well Statistics
- 9) Patapsco Aquifer Metals Inter-well Statistics
- 10) Patapsco Aquifer Metals Intra-well Statistics
- 11) Patuxent Aquifer Metals Inter-well Statistics
- 12) Patuxent Aquifer Metals Intra-well Statistics

# INTER-WELL ANALYSIS: Determination of a Statistically Significant Increase (SSI)





# INTRA-WELL ANALYSIS: Determination of a Statistically Significant Increase (SSI)



# 1) Patapsco Aquifer VOC Inter-well Statistics

APPENDIX F

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Methyl t-Butyl Ether

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 21

Non detect rank is 11

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<1	11
	3/19/2014	ND<1 U	11
	9/8/2014	ND<1 U	11
	3/17/2015	ND<1 U	11
	9/14/2015	ND<1 U	11
	3/17/2016	ND<1 U	11
	9/21/2016	ND<1 U	11
	3/24/2017	ND<1 U	11
	9/20/2017	ND<1 U	11
	3/27/2018	ND<1 U	11
	9/19/2018	ND<1 U	11
	3/11/2019	ND<1 U	11
	9/25/2019	ND<1 U	11
	3/18/2020	ND<1 U	11
	9/23/2020	ND<1 U	11
	3/17/2021	ND<1 U	11
	9/8/2021	ND<1 U	11
3/15/2022	ND<1	11	
9/12/2022	ND<1	11	
3/13/2023	ND<1	11	
GWM-2	9/25/2013	ND<1	11
	3/18/2014	1.1	33
	9/16/2014	1.2	38
	3/18/2015	0.99 J	29
	9/15/2015	1.1	34
	3/16/2016	0.9 J	26
	9/22/2016	0.9 J	27
	3/24/2017	0.81 J	23
	9/21/2017	0.94 J	28
	3/28/2018	0.84 J	24
	9/21/2018	1	31
	3/12/2019	1.7	49
	10/1/2019	1.5	46
	3/18/2020	1.2	39
	9/23/2020	1.3	41
	3/17/2021	1.2	40
	9/9/2021	1.4	45
3/15/2022	0.99 J	30	
9/12/2022	0.88 J	25	
3/13/2023	1.1	35	
GWM-4	9/18/2013	2	53
	3/20/2014	2.9	59
	9/9/2014	3.4	60

3/16/2015	2.8	58
9/9/2015	2.4	57
3/18/2016	2.2	56
9/20/2016	2	54
3/23/2017	1.5	47
9/18/2017	1.8	52
3/15/2018	1.3	42
9/17/2018	1.7	50
3/5/2019	1.7	51
9/24/2019	2	55
3/16/2020	1.3	43
9/22/2020	1.6	48
3/16/2021	1.1	36
9/14/2021	1.3	44
3/22/2022	1.1	37
9/13/2022	0.78 J	22
3/14/2023	1	32

---

The Wilcoxon Statistic is 746

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 5.41787

The Standard Deviation adjusted for ties is 62.3911

The Z Score adjusted for ties is 5.53764

**5.41787 > 2.326 indicating statistical significance at 1% level**

**5.53764 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Methyl t-Butyl Ether

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 40

Non detect rank is 20.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<1	20.5
	3/19/2014	ND<1 U	20.5
	9/8/2014	ND<1 U	20.5
	3/17/2015	ND<1 U	20.5
	9/14/2015	ND<1 U	20.5
	3/17/2016	ND<1 U	20.5
	9/21/2016	ND<1 U	20.5
	3/24/2017	ND<1 U	20.5
	9/20/2017	ND<1 U	20.5
	3/27/2018	ND<1 U	20.5
	9/19/2018	ND<1 U	20.5
	3/11/2019	ND<1 U	20.5
	9/25/2019	ND<1 U	20.5
	3/18/2020	ND<1 U	20.5
	9/23/2020	ND<1 U	20.5
	3/17/2021	ND<1 U	20.5
	9/8/2021	ND<1 U	20.5
3/15/2022	ND<1	20.5	
9/12/2022	ND<1	20.5	
3/13/2023	ND<1	20.5	
GWM-2	9/25/2013	ND<1	20.5
	3/18/2014	1.1	52
	9/16/2014	1.2	55
	3/18/2015	0.99 J	49
	9/15/2015	1.1	53
	3/16/2016	0.9 J	46
	9/22/2016	0.9 J	47
	3/24/2017	0.81 J	43
	9/21/2017	0.94 J	48
	3/28/2018	0.84 J	44
	9/21/2018	1	51
	3/12/2019	1.7	61
	10/1/2019	1.5	60
	3/18/2020	1.2	56
	9/23/2020	1.3	58
	3/17/2021	1.2	57
	9/9/2021	1.4	59
3/15/2022	0.99 J	50	
9/12/2022	0.88 J	45	
3/13/2023	1.1	54	
GWM-5A	9/19/2013	ND<1	20.5
	12/5/2013	ND<1	20.5
	3/19/2014	0.34 J	41

9/4/2014	0.35 J	42
3/17/2015	ND<1 U	20.5
9/11/2015	ND<1 U	20.5
3/15/2016	ND<1 U	20.5
9/21/2016	ND<1 U	20.5
3/28/2017	ND<1 U	20.5
9/19/2017	ND<1 U	20.5
3/26/2018	ND<1 U	20.5
9/18/2018	ND<1 U	20.5
3/4/2019	ND<1 U	20.5
9/23/2019	ND<1 U	20.5
3/19/2020	ND<1 U	20.5
9/23/2020	ND<1 U	20.5
3/19/2021	ND<1 U	20.5
9/15/2021	ND<1 U	20.5
3/16/2022	ND<1	20.5
9/14/2022	ND<1	20.5
3/16/2023	ND<1	20.5

---

The Wilcoxon Statistic is 241.5

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is -2.71712

The Standard Deviation adjusted for ties is 55.8276

The Z Score adjusted for ties is -3.2063

-2.71712 < 2.326 indicating no statistical significance at 1% level

-3.2063 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Methyl t-Butyl Ether

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 41

Non detect rank is 21

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<1	21
	3/19/2014	ND<1 U	21
	9/8/2014	ND<1 U	21
	3/17/2015	ND<1 U	21
	9/14/2015	ND<1 U	21
	3/17/2016	ND<1 U	21
	9/21/2016	ND<1 U	21
	3/24/2017	ND<1 U	21
	9/20/2017	ND<1 U	21
	3/27/2018	ND<1 U	21
	9/19/2018	ND<1 U	21
	3/11/2019	ND<1 U	21
	9/25/2019	ND<1 U	21
	3/18/2020	ND<1 U	21
	9/23/2020	ND<1 U	21
	3/17/2021	ND<1 U	21
	9/8/2021	ND<1 U	21
3/15/2022	ND<1	21	
9/12/2022	ND<1	21	
3/13/2023	ND<1	21	
GWM-2	9/25/2013	ND<1	21
	3/18/2014	1.1	51
	9/16/2014	1.2	54
	3/18/2015	0.99 J	48
	9/15/2015	1.1	52
	3/16/2016	0.9 J	45
	9/22/2016	0.9 J	46
	3/24/2017	0.81 J	42
	9/21/2017	0.94 J	47
	3/28/2018	0.84 J	43
	9/21/2018	1	50
	3/12/2019	1.7	60
	10/1/2019	1.5	59
	3/18/2020	1.2	55
	9/23/2020	1.3	57
	3/17/2021	1.2	56
	9/9/2021	1.4	58
3/15/2022	0.99 J	49	
9/12/2022	0.88 J	44	
3/13/2023	1.1	53	
GWM-14	9/24/2013	ND<1	21
	3/21/2014	ND<1 U	21
	9/8/2014	ND<1 U	21

3/19/2015	ND<1 U	21
9/14/2015	ND<1 U	21
3/21/2016	ND<1 U	21
9/23/2016	ND<1 U	21
3/27/2017	ND<1 U	21
9/20/2017	ND<1 U	21
3/16/2018	ND<1 U	21
9/20/2018	ND<1 U	21
3/5/2019	ND<1 U	21
9/25/2019	ND<1 U	21
3/25/2020	ND<1 U	21
9/28/2020	ND<1 U	21
3/18/2021	ND<1 U	21
9/15/2021	ND<1 U	21
3/22/2022	ND<1	21
9/14/2022	ND<1	21
3/16/2023	ND<1	21

---

The Wilcoxon Statistic is 210

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -2.98728

The Standard Deviation adjusted for ties is 52.626

The Z Score adjusted for ties is -3.61989

-2.98728 < 2.326 indicating no statistical significance at 1% level

-3.61989 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Methyl t-Butyl Ether

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 21

Non detect rank is 11

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<1	11
	3/19/2014	ND<1 U	11
	9/8/2014	ND<1 U	11
	3/17/2015	ND<1 U	11
	9/14/2015	ND<1 U	11
	3/17/2016	ND<1 U	11
	9/21/2016	ND<1 U	11
	3/24/2017	ND<1 U	11
	9/20/2017	ND<1 U	11
	3/27/2018	ND<1 U	11
	9/19/2018	ND<1 U	11
	3/11/2019	ND<1 U	11
	9/25/2019	ND<1 U	11
	3/18/2020	ND<1 U	11
	9/23/2020	ND<1 U	11
	3/17/2021	ND<1 U	11
	9/8/2021	ND<1 U	11
3/15/2022	ND<1	11	
9/12/2022	ND<1	11	
3/13/2023	ND<1	11	
GWM-2	9/25/2013	ND<1	11
	3/18/2014	1.1	31
	9/16/2014	1.2	34
	3/18/2015	0.99 J	28
	9/15/2015	1.1	32
	3/16/2016	0.9 J	25
	9/22/2016	0.9 J	26
	3/24/2017	0.81 J	22
	9/21/2017	0.94 J	27
	3/28/2018	0.84 J	23
	9/21/2018	1	30
	3/12/2019	1.7	40
	10/1/2019	1.5	39
	3/18/2020	1.2	35
	9/23/2020	1.3	37
	3/17/2021	1.2	36
	9/9/2021	1.4	38
3/15/2022	0.99 J	29	
9/12/2022	0.88 J	24	
3/13/2023	1.1	33	
GWM-6	9/24/2013	5	47
	3/21/2014	2.6	41
	9/17/2014	3.5	42

3/19/2015	5.1	49
9/15/2015	5.2	50
3/21/2016	5.7	51
9/26/2016	3.5	43
3/31/2017	5	48
9/21/2017	10	57
3/30/2018	11.7	58
9/26/2018	12.2	59
3/13/2019	13.1	60
10/3/2019	7.7	54
4/3/2020	3.7	44
9/30/2020	7.2	53
3/22/2021	8.3	56
9/16/2021	3.9	45
3/24/2022	7.7	55
9/16/2022	6.7	52
3/17/2023	4.8	46

---

The Wilcoxon Statistic is 800

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 6.26466

The Standard Deviation adjusted for ties is 62.3911

The Z Score adjusted for ties is 6.40315

**6.26466 > 2.326 indicating statistical significance at 1% level**

**6.40315 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Methyl t-Butyl Ether

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 40

Non detect rank is 20.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<1	20.5
	3/19/2014	ND<1 U	20.5
	9/8/2014	ND<1 U	20.5
	3/17/2015	ND<1 U	20.5
	9/14/2015	ND<1 U	20.5
	3/17/2016	ND<1 U	20.5
	9/21/2016	ND<1 U	20.5
	3/24/2017	ND<1 U	20.5
	9/20/2017	ND<1 U	20.5
	3/27/2018	ND<1 U	20.5
	9/19/2018	ND<1 U	20.5
	3/11/2019	ND<1 U	20.5
	9/25/2019	ND<1 U	20.5
	3/18/2020	ND<1 U	20.5
	9/23/2020	ND<1 U	20.5
	3/17/2021	ND<1 U	20.5
	9/8/2021	ND<1 U	20.5
3/15/2022	ND<1	20.5	
9/12/2022	ND<1	20.5	
3/13/2023	ND<1	20.5	
GWM-2	9/25/2013	ND<1	20.5
	3/18/2014	1.1	51
	9/16/2014	1.2	54
	3/18/2015	0.99 J	48
	9/15/2015	1.1	52
	3/16/2016	0.9 J	45
	9/22/2016	0.9 J	46
	3/24/2017	0.81 J	42
	9/21/2017	0.94 J	47
	3/28/2018	0.84 J	43
	9/21/2018	1	50
	3/12/2019	1.7	60
	10/1/2019	1.5	59
	3/18/2020	1.2	55
	9/23/2020	1.3	57
	3/17/2021	1.2	56
	9/9/2021	1.4	58
3/15/2022	0.99 J	49	
9/12/2022	0.88 J	44	
3/13/2023	1.1	53	
GWM-3	9/25/2013	ND<1	20.5
	3/18/2014	0.38 J	41
	9/16/2014	ND<1 U	20.5

3/18/2015	ND<1 U	20.5
9/15/2015	ND<1 U	20.5
3/16/2016	ND<1 U	20.5
9/22/2016	ND<1 U	20.5
3/29/2017	ND<1 U	20.5
9/21/2017	ND<1 U	20.5
3/28/2018	ND<1 U	20.5
9/20/2018	ND<1 U	20.5
3/12/2019	ND<1 U	20.5
10/1/2019	ND<1 U	20.5
3/18/2020	ND<1 U	20.5
9/24/2020	ND<1 U	20.5
3/17/2021	ND<1 U	20.5
9/9/2021	ND<1 U	20.5
3/15/2022	ND<1	20.5
9/16/2022	ND<1	20.5
3/15/2023	ND<1	20.5

---

The Wilcoxon Statistic is 220.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -2.82263

The Standard Deviation adjusted for ties is 53.499

The Z Score adjusted for ties is -3.36455

-2.82263 < 2.326 indicating no statistical significance at 1% level

-3.36455 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Methyl t-Butyl Ether

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 21

Non detect rank is 11

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<1	11
	3/19/2014	ND<1 U	11
	9/8/2014	ND<1 U	11
	3/17/2015	ND<1 U	11
	9/14/2015	ND<1 U	11
	3/17/2016	ND<1 U	11
	9/21/2016	ND<1 U	11
	3/24/2017	ND<1 U	11
	9/20/2017	ND<1 U	11
	3/27/2018	ND<1 U	11
	9/19/2018	ND<1 U	11
	3/11/2019	ND<1 U	11
	9/25/2019	ND<1 U	11
	3/18/2020	ND<1 U	11
	9/23/2020	ND<1 U	11
	3/17/2021	ND<1 U	11
	9/8/2021	ND<1 U	11
3/15/2022	ND<1	11	
9/12/2022	ND<1	11	
3/13/2023	ND<1	11	
GWM-2	9/25/2013	ND<1	11
	3/18/2014	1.1	39
	9/16/2014	1.2	42
	3/18/2015	0.99 J	36
	9/15/2015	1.1	40
	3/16/2016	0.9 J	33
	9/22/2016	0.9 J	34
	3/24/2017	0.81 J	28
	9/21/2017	0.94 J	35
	3/28/2018	0.84 J	30
	9/21/2018	1	38
	3/12/2019	1.7	48
	10/1/2019	1.5	47
	3/18/2020	1.2	43
	9/23/2020	1.3	45
	3/17/2021	1.2	44
	9/9/2021	1.4	46
3/15/2022	0.99 J	37	
9/12/2022	0.88 J	32	
3/13/2023	1.1	41	
GWM-17S	11/14/2019	0.76 J	25
	3/26/2020	0.85 J	31
	9/29/2020	0.77 J	27

3/16/2021	0.76 J	26
9/14/2021	0.7 J	24
3/18/2022	0.66 J	23
9/13/2022	0.63 J	22
3/14/2023	0.82 J	29

---

The Wilcoxon Statistic is 171

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 0.290474

The Standard Deviation adjusted for ties is 34.6041

The Z Score adjusted for ties is 0.303432

0.290474 < 2.326 indicating no statistical significance at 1% level

0.303432 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chloroform

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 42

Non detect rank is 21.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<1	21.5
	3/19/2014	ND<1 U	21.5
	9/8/2014	ND<1 U	21.5
	3/17/2015	ND<1 U	21.5
	9/14/2015	ND<1 U	21.5
	3/17/2016	ND<1 U	21.5
	9/21/2016	ND<1 U	21.5
	3/24/2017	ND<1 U	21.5
	9/20/2017	ND<1 U	21.5
	3/27/2018	ND<1 U	21.5
	9/19/2018	ND<1 U	21.5
	3/11/2019	ND<1 U	21.5
	9/25/2019	ND<1 U	21.5
	3/18/2020	0.54 JB	54
	9/23/2020	0.62 J	55
	3/17/2021	ND<1 U	21.5
	9/8/2021	0.24 J	44
3/15/2022	7.1	58	
9/12/2022	14	59	
3/13/2023	20.3	60	
GWM-2	9/25/2013	ND<1	21.5
	3/18/2014	ND<1 U	21.5
	9/16/2014	0.31 J	48
	3/18/2015	0.34 J	51
	9/15/2015	0.34 J	52
	3/16/2016	ND<1 U	21.5
	9/22/2016	0.31 J	49
	3/24/2017	ND<1 U	21.5
	9/21/2017	ND<1 U	21.5
	3/28/2018	ND<1 U	21.5
	9/21/2018	0.62 JB	56
	3/12/2019	0.68 J	57
	10/1/2019	0.31 J	50
	3/18/2020	0.34 JB	53
	9/23/2020	0.24 J	45
	3/17/2021	0.22 J	43
	9/9/2021	0.24 J	46
3/15/2022	ND<1	21.5	
9/12/2022	ND<1	21.5	
3/13/2023	0.29 J	47	
GWM-4	9/18/2013	ND<1	21.5
	3/20/2014	ND<1 U	21.5
	9/9/2014	ND<1 U	21.5

3/16/2015	ND<1 U	21.5
9/9/2015	ND<1 U	21.5
3/18/2016	ND<1 U	21.5
9/20/2016	ND<1 U	21.5
3/23/2017	ND<1 U	21.5
9/18/2017	ND<1 U	21.5
3/15/2018	ND<1 U	21.5
9/17/2018	ND<1 U	21.5
3/5/2019	ND<1 U	21.5
9/24/2019	ND<1 U	21.5
3/16/2020	ND<1 U	21.5
9/22/2020	ND<1 U	21.5
3/16/2021	ND<1 U	21.5
9/14/2021	ND<1 U	21.5
3/22/2022	ND<1	21.5
9/13/2022	ND<1	21.5
3/14/2023	ND<1	21.5

---

The Wilcoxon Statistic is 220

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -2.83047

The Standard Deviation adjusted for ties is 51.6934

The Z Score adjusted for ties is -3.49174

-2.83047 < 2.326 indicating no statistical significance at 1% level

-3.49174 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chloroform

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 43

Non detect rank is 22

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<1	22
	3/19/2014	ND<1 U	22
	9/8/2014	ND<1 U	22
	3/17/2015	ND<1 U	22
	9/14/2015	ND<1 U	22
	3/17/2016	ND<1 U	22
	9/21/2016	ND<1 U	22
	3/24/2017	ND<1 U	22
	9/20/2017	ND<1 U	22
	3/27/2018	ND<1 U	22
	9/19/2018	ND<1 U	22
	3/11/2019	ND<1 U	22
	9/25/2019	ND<1 U	22
	3/18/2020	0.54 JB	55
	9/23/2020	0.62 J	56
	3/17/2021	ND<1 U	22
9/8/2021	0.24 J	45	
3/15/2022	7.1	59	
9/12/2022	14	60	
3/13/2023	20.3	61	
GWM-2	9/25/2013	ND<1	22
	3/18/2014	ND<1 U	22
	9/16/2014	0.31 J	49
	3/18/2015	0.34 J	52
	9/15/2015	0.34 J	53
	3/16/2016	ND<1 U	22
	9/22/2016	0.31 J	50
	3/24/2017	ND<1 U	22
	9/21/2017	ND<1 U	22
	3/28/2018	ND<1 U	22
	9/21/2018	0.62 JB	57
	3/12/2019	0.68 J	58
	10/1/2019	0.31 J	51
	3/18/2020	0.34 JB	54
	9/23/2020	0.24 J	46
	3/17/2021	0.22 J	44
	9/9/2021	0.24 J	47
3/15/2022	ND<1	22	
9/12/2022	ND<1	22	
3/13/2023	0.29 J	48	
GWM-5A	9/19/2013	ND<1	22
	12/5/2013	ND<1	22
	3/19/2014	ND<1 U	22

9/4/2014	ND<1 U	22
3/17/2015	ND<1 U	22
9/11/2015	ND<1 U	22
3/15/2016	ND<1 U	22
9/21/2016	ND<1 U	22
3/28/2017	ND<1 U	22
9/19/2017	ND<1 U	22
3/26/2018	ND<1 U	22
9/18/2018	ND<1 U	22
3/4/2019	ND<1 U	22
9/23/2019	ND<1 U	22
3/19/2020	ND<1 U	22
9/23/2020	ND<1 U	22
3/19/2021	ND<1 U	22
9/15/2021	ND<1 U	22
3/16/2022	ND<1	22
9/14/2022	ND<1	22
3/16/2023	ND<1	22

---

The Wilcoxon Statistic is 231

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is -2.8765

The Standard Deviation adjusted for ties is 53.1055

The Z Score adjusted for ties is -3.56837

-2.8765 < 2.326 indicating no statistical significance at 1% level

-3.56837 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chloroform

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 42

Non detect rank is 21.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<1	21.5
	3/19/2014	ND<1 U	21.5
	9/8/2014	ND<1 U	21.5
	3/17/2015	ND<1 U	21.5
	9/14/2015	ND<1 U	21.5
	3/17/2016	ND<1 U	21.5
	9/21/2016	ND<1 U	21.5
	3/24/2017	ND<1 U	21.5
	9/20/2017	ND<1 U	21.5
	3/27/2018	ND<1 U	21.5
	9/19/2018	ND<1 U	21.5
	3/11/2019	ND<1 U	21.5
	9/25/2019	ND<1 U	21.5
	3/18/2020	0.54 JB	54
	9/23/2020	0.62 J	55
	3/17/2021	ND<1 U	21.5
	9/8/2021	0.24 J	44
3/15/2022	7.1	58	
9/12/2022	14	59	
3/13/2023	20.3	60	
GWM-2	9/25/2013	ND<1	21.5
	3/18/2014	ND<1 U	21.5
	9/16/2014	0.31 J	48
	3/18/2015	0.34 J	51
	9/15/2015	0.34 J	52
	3/16/2016	ND<1 U	21.5
	9/22/2016	0.31 J	49
	3/24/2017	ND<1 U	21.5
	9/21/2017	ND<1 U	21.5
	3/28/2018	ND<1 U	21.5
	9/21/2018	0.62 JB	56
	3/12/2019	0.68 J	57
	10/1/2019	0.31 J	50
	3/18/2020	0.34 JB	53
	9/23/2020	0.24 J	45
	3/17/2021	0.22 J	43
	9/9/2021	0.24 J	46
3/15/2022	ND<1	21.5	
9/12/2022	ND<1	21.5	
3/13/2023	0.29 J	47	
GWM-14	9/24/2013	ND<1	21.5
	3/21/2014	ND<1 U	21.5
	9/8/2014	ND<1 U	21.5

3/19/2015	ND<1 U	21.5
9/14/2015	ND<1 U	21.5
3/21/2016	ND<1 U	21.5
9/23/2016	ND<1 U	21.5
3/27/2017	ND<1 U	21.5
9/20/2017	ND<1 U	21.5
3/16/2018	ND<1 U	21.5
9/20/2018	ND<1 U	21.5
3/5/2019	ND<1 U	21.5
9/25/2019	ND<1 U	21.5
3/25/2020	ND<1 U	21.5
9/28/2020	ND<1 U	21.5
3/18/2021	ND<1 U	21.5
9/15/2021	ND<1 U	21.5
3/22/2022	ND<1	21.5
9/14/2022	ND<1	21.5
3/16/2023	ND<1	21.5

---

The Wilcoxon Statistic is 220

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -2.83047

The Standard Deviation adjusted for ties is 51.6934

The Z Score adjusted for ties is -3.49174

-2.83047 < 2.326 indicating no statistical significance at 1% level

-3.49174 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chloroform

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 40

Non detect rank is 20.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<1	20.5
	3/19/2014	ND<1 U	20.5
	9/8/2014	ND<1 U	20.5
	3/17/2015	ND<1 U	20.5
	9/14/2015	ND<1 U	20.5
	3/17/2016	ND<1 U	20.5
	9/21/2016	ND<1 U	20.5
	3/24/2017	ND<1 U	20.5
	9/20/2017	ND<1 U	20.5
	3/27/2018	ND<1 U	20.5
	9/19/2018	ND<1 U	20.5
	3/11/2019	ND<1 U	20.5
	9/25/2019	ND<1 U	20.5
	3/18/2020	0.54 JB	54
	9/23/2020	0.62 J	55
	3/17/2021	ND<1 U	20.5
	9/8/2021	0.24 J	43
3/15/2022	7.1	58	
9/12/2022	14	59	
3/13/2023	20.3	60	
GWM-2	9/25/2013	ND<1	20.5
	3/18/2014	ND<1 U	20.5
	9/16/2014	0.31 J	48
	3/18/2015	0.34 J	51
	9/15/2015	0.34 J	52
	3/16/2016	ND<1 U	20.5
	9/22/2016	0.31 J	49
	3/24/2017	ND<1 U	20.5
	9/21/2017	ND<1 U	20.5
	3/28/2018	ND<1 U	20.5
	9/21/2018	0.62 JB	56
	3/12/2019	0.68 J	57
	10/1/2019	0.31 J	50
	3/18/2020	0.34 JB	53
	9/23/2020	0.24 J	44
	3/17/2021	0.22 J	41
	9/9/2021	0.24 J	45
3/15/2022	ND<1	20.5	
9/12/2022	ND<1	20.5	
3/13/2023	0.29 J	46	
GWM-6	9/24/2013	ND<1	20.5
	3/21/2014	ND<1 U	20.5
	9/17/2014	ND<1 U	20.5

3/19/2015	ND<1 U	20.5
9/15/2015	ND<1 U	20.5
3/21/2016	ND<1 U	20.5
9/26/2016	ND<1 U	20.5
3/31/2017	ND<1 U	20.5
9/21/2017	ND<1 U	20.5
3/30/2018	ND<1 U	20.5
9/26/2018	ND<1 U	20.5
3/13/2019	ND<1 U	20.5
10/3/2019	ND<1 U	20.5
4/3/2020	ND<1 U	20.5
9/30/2020	ND<1 U	20.5
3/22/2021	0.29 J	47
9/16/2021	ND<1 U	20.5
3/24/2022	0.22 JB	42
9/16/2022	ND<1	20.5
3/17/2023	ND<1	20.5

---

The Wilcoxon Statistic is 248

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -2.39139

The Standard Deviation adjusted for ties is 53.499

The Z Score adjusted for ties is -2.85052

-2.39139 < 2.326 indicating no statistical significance at 1% level

-2.85052 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chloroform

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 38

Non detect rank is 19.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<1	19.5
	3/19/2014	ND<1 U	19.5
	9/8/2014	ND<1 U	19.5
	3/17/2015	ND<1 U	19.5
	9/14/2015	ND<1 U	19.5
	3/17/2016	ND<1 U	19.5
	9/21/2016	ND<1 U	19.5
	3/24/2017	ND<1 U	19.5
	9/20/2017	ND<1 U	19.5
	3/27/2018	ND<1 U	19.5
	9/19/2018	ND<1 U	19.5
	3/11/2019	ND<1 U	19.5
	9/25/2019	ND<1 U	19.5
	3/18/2020	0.54 JB	54
	9/23/2020	0.62 J	55
	3/17/2021	ND<1 U	19.5
	9/8/2021	0.24 J	41
3/15/2022	7.1	58	
9/12/2022	14	59	
3/13/2023	20.3	60	
GWM-2	9/25/2013	ND<1	19.5
	3/18/2014	ND<1 U	19.5
	9/16/2014	0.31 J	45
	3/18/2015	0.34 J	49
	9/15/2015	0.34 J	50
	3/16/2016	ND<1 U	19.5
	9/22/2016	0.31 J	46
	3/24/2017	ND<1 U	19.5
	9/21/2017	ND<1 U	19.5
	3/28/2018	ND<1 U	19.5
	9/21/2018	0.62 JB	56
	3/12/2019	0.68 J	57
	10/1/2019	0.31 J	47
	3/18/2020	0.34 JB	51
	9/23/2020	0.24 J	42
	3/17/2021	0.22 J	40
	9/9/2021	0.24 J	43
3/15/2022	ND<1	19.5	
9/12/2022	ND<1	19.5	
3/13/2023	0.29 J	44	
GWM-3	9/25/2013	ND<1	19.5
	3/18/2014	ND<1 U	19.5
	9/16/2014	0.21 J	39

3/18/2015	ND<1 U	19.5
9/15/2015	ND<1 U	19.5
3/16/2016	ND<1 U	19.5
9/22/2016	ND<1 U	19.5
3/29/2017	ND<1 U	19.5
9/21/2017	ND<1 U	19.5
3/28/2018	ND<1 U	19.5
9/20/2018	0.41 J	53
3/12/2019	0.37 J	52
10/1/2019	0.31 J	48
3/18/2020	ND<1 U	19.5
9/24/2020	ND<1 U	19.5
3/17/2021	ND<1 U	19.5
9/9/2021	ND<1 U	19.5
3/15/2022	ND<1	19.5
9/16/2022	ND<1	19.5
3/15/2023	ND<1	19.5

---

The Wilcoxon Statistic is 294

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -1.67005

The Standard Deviation adjusted for ties is 55.0819

The Z Score adjusted for ties is -1.93349

-1.67005 < 2.326 indicating no statistical significance at 1% level

-1.93349 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chloroform

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 30

Non detect rank is 15.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<1	15.5
	3/19/2014	ND<1 U	15.5
	9/8/2014	ND<1 U	15.5
	3/17/2015	ND<1 U	15.5
	9/14/2015	ND<1 U	15.5
	3/17/2016	ND<1 U	15.5
	9/21/2016	ND<1 U	15.5
	3/24/2017	ND<1 U	15.5
	9/20/2017	ND<1 U	15.5
	3/27/2018	ND<1 U	15.5
	9/19/2018	ND<1 U	15.5
	3/11/2019	ND<1 U	15.5
	9/25/2019	ND<1 U	15.5
	3/18/2020	0.54 JB	42
	9/23/2020	0.62 J	43
	3/17/2021	ND<1 U	15.5
	9/8/2021	0.24 J	32
3/15/2022	7.1	46	
9/12/2022	14	47	
3/13/2023	20.3	48	
GWM-2	9/25/2013	ND<1	15.5
	3/18/2014	ND<1 U	15.5
	9/16/2014	0.31 J	36
	3/18/2015	0.34 J	39
	9/15/2015	0.34 J	40
	3/16/2016	ND<1 U	15.5
	9/22/2016	0.31 J	37
	3/24/2017	ND<1 U	15.5
	9/21/2017	ND<1 U	15.5
	3/28/2018	ND<1 U	15.5
	9/21/2018	0.62 JB	44
	3/12/2019	0.68 J	45
	10/1/2019	0.31 J	38
	3/18/2020	0.34 JB	41
	9/23/2020	0.24 J	33
	3/17/2021	0.22 J	31
	9/9/2021	0.24 J	34
3/15/2022	ND<1	15.5	
9/12/2022	ND<1	15.5	
3/13/2023	0.29 J	35	
GWM-17S	11/14/2019	ND<1 U	15.5
	3/26/2020	ND<1 U	15.5
	9/29/2020	ND<1 U	15.5

3/16/2021	ND<1 U	15.5
9/14/2021	ND<1 U	15.5
3/18/2022	ND<1	15.5
9/13/2022	ND<1	15.5
3/14/2023	ND<1	15.5

---

The Wilcoxon Statistic is 88

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is -2.00565

The Standard Deviation adjusted for ties is 31.4304

The Z Score adjusted for ties is -2.30668

-2.00565 < 2.326 indicating no statistical significance at 1% level

-2.30668 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## 2) Patapsco Aquifer VOC Intra-well Statistics

APPENDIX F

## Shapiro-Francia Test of Normality

Parameter: Benzene

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	0	-1.55477	33.5744	0
10	0	-1.50626	35.8432	0
11	0	-1.4538	37.9567	0
12	0	-1.40507	39.931	0
13	0	-1.36581	41.7964	0
14	0	-1.32251	43.5454	0
15	0	-1.28155	45.1878	0
16	0	-1.24809	46.7455	0
17	0	-1.21073	48.2114	0
18	0	-1.17499	49.592	0
19	0	-1.1455	50.9042	0
20	0	-1.11232	52.1414	0
21	0	-1.08032	53.3085	0
22	0	-1.05375	54.4189	0
23	0	-1.02365	55.4667	0
24	0	-0.994457	56.4557	0
25	0	-0.970094	57.3968	0
26	0	-0.942375	58.2848	0
27	0	-0.919183	59.1297	0
28	0	-0.892733	59.9267	0
29	0	-0.866894	60.6782	0
30	0	-0.841621	61.3865	0
31	0	-0.820379	62.0596	0
32	0	-0.796056	62.6933	0
33	0	-0.772193	63.2896	0
34	0	-0.752084	63.8552	0
35	0	-0.729003	64.3866	0
36	0	-0.706302	64.8855	0
37	0	-0.687131	65.3576	0
38	0	-0.665079	65.8	0
39	0	-0.643345	66.2139	0
40	0	-0.624956	66.6044	0
41	0	-0.603765	66.969	0
42	0	-0.582841	67.3087	0
43	0	-0.565108	67.628	0
44	0	-0.544642	67.9247	0
45	0	-0.524401	68.1996	0
46	0	-0.507221	68.4569	0
47	0	-0.487364	68.6944	0

48	0	-0.467699	68.9132	0
49	0	-0.450985	69.1166	0
50	0	-0.431644	69.3029	0
51	0	-0.412463	69.473	0
52	0	-0.396142	69.6299	0
53	0	-0.377233	69.7723	0
54	0	-0.358459	69.9007	0
55	0	-0.342466	70.018	0
56	0	-0.323919	70.1229	0
57	0	-0.305481	70.2163	0
58	0	-0.28976	70.3002	0
59	0	-0.271509	70.3739	0
60	0	-0.253347	70.4381	0
61	0	-0.237847	70.4947	0
62	0	-0.219834	70.543	0
63	0	-0.204452	70.5848	0
64	0	-0.186567	70.6196	0
65	0	-0.168741	70.6481	0
66	0	-0.150969	70.6709	0
67	0	-0.135774	70.6893	0
68	0	-0.118085	70.7033	0
69	0	-0.100433	70.7134	0
70	0	-0.0853288	70.7206	0
71	0	-0.0677301	70.7252	0
72	0	-0.0501541	70.7278	0
73	0	-0.0350997	70.729	0
74	0	-0.0175476	70.7293	0
75	0	0	70.7293	0
76	0	0.0175476	70.7296	0
77	0	0.0350997	70.7308	0
78	0	0.0501541	70.7333	0
79	0	0.0677301	70.7379	0
80	0	0.0853288	70.7452	0
81	0	0.100433	70.7553	0
82	0	0.118085	70.7692	0
83	0	0.135774	70.7877	0
84	0	0.150969	70.8105	0
85	0	0.168741	70.8389	0
86	0	0.186567	70.8738	0
87	0	0.201894	70.9145	0
88	0	0.219834	70.9628	0
89	0	0.237847	71.0194	0
90	0	0.253347	71.0836	0
91	0	0.271509	71.1573	0
92	0	0.28976	71.2413	0
93	0	0.305481	71.3346	0
94	0	0.323919	71.4395	0
95	0	0.342466	71.5568	0
96	0	0.358459	71.6853	0
97	0	0.377233	71.8276	0
98	0	0.396142	71.9845	0
99	0	0.412463	72.1547	0
100	0	0.431644	72.341	0
101	0	0.450985	72.5444	0
102	0	0.467699	72.7631	0
103	0	0.487364	73.0006	0
104	0	0.507221	73.2579	0

105	0	0.524401	73.5329	0
106	0	0.544642	73.8295	0
107	0	0.565108	74.1489	0
108	0	0.582841	74.4886	0
109	0	0.603765	74.8531	0
110	0	0.624956	75.2437	0
111	0	0.643345	75.6576	0
112	0	0.665079	76.0999	0
113	0	0.687131	76.572	0
114	0.25	0.706302	77.0709	0.176576
115	0.3	0.729003	77.6024	0.395277
116	0.33	0.752084	78.168	0.643464
117	0.37	0.772193	78.7643	0.929176
118	0.37	0.796056	79.398	1.22372
119	0.39	0.820379	80.071	1.54366
120	0.47	0.841621	80.7793	1.93923
121	0.58	0.866894	81.5308	2.44202
122	0.68	0.892733	82.3278	3.04908
123	0.69	0.915365	83.1657	3.68068
124	0.79	0.942375	84.0538	4.42516
125	0.81	0.970094	84.9948	5.21094
126	0.86	0.994457	85.9838	6.06617
127	0.93	1.02365	87.0317	7.01817
128	1	1.05375	88.142	8.07191
129	1.1	1.08032	89.3091	9.26027
130	5	1.11232	90.5464	14.8219
131	8.5	1.1455	91.8586	24.5587
132	8.6	1.17499	93.2392	34.6635
133	10	1.21073	94.705	46.7708
134	10.5	1.24809	96.2627	59.8757
135	11.1	1.28155	97.9051	74.1009
136	11.4	1.32251	99.6541	89.1775
137	12.4	1.36581	101.52	106.114
138	13.4	1.40507	103.494	124.941
139	16.8	1.4538	105.607	149.365
140	22	1.50626	107.876	182.503
141	22	1.55477	110.293	216.708
142	23.7	1.61644	112.906	255.018
143	24.9	1.68494	115.745	296.973
144	26.1	1.75069	118.81	342.666
145	29.6	1.83843	122.19	397.083
146	32.2	1.94314	125.966	459.652
147	37.2	2.05375	130.184	536.051
148	39.5	2.22621	135.14	623.986
149	40.2	2.51213	141.451	724.974

Data Set Standard Deviation = 7.97188  
 Numerator = 525588  
 Denominator = 1.33042e+006  
 W Statistic = 0.395055 = 525588 / 1.33042e+006

**5% Critical value of 0.976 exceeds 0.395055  
 Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.395055  
 Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Benzene

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 52.6316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0.79

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	ND<0
	3/20/2014	0.79 J
	9/9/2014	0.37 J
	3/16/2015	0.47 J
	9/9/2015	0.33 J
	3/18/2016	0.37 J
	9/20/2016	0.39 J
	3/23/2017	ND<0 U
	9/18/2017	0.3 J
	3/15/2018	ND<0 U
	9/17/2018	ND<0 U
	3/5/2019	ND<0 U
	9/24/2019	0.25 J
	3/16/2020	0.58 J
	9/22/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/22/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Benzene

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 0

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	ND<0 U
	9/4/2014	ND<0 U
	3/17/2015	ND<0 U
	9/11/2015	ND<0 U
	3/15/2016	ND<0 U
	9/21/2016	ND<0 U
	3/28/2017	ND<0 U
	9/19/2017	ND<0 U
	3/26/2018	ND<0 U
	9/18/2018	ND<0 U
	3/4/2019	ND<0 U
	9/23/2019	ND<0 U
	3/19/2020	ND<0 U
	9/23/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	ND<0 U
	3/16/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Benzene

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/19/2015	ND<0 U
	9/14/2015	ND<0 U
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/27/2017	ND<0 U
	9/20/2017	ND<0 U
	3/16/2018	ND<0 U
	9/20/2018	ND<0 U
	3/5/2019	ND<0 U
	9/25/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/18/2021	ND<0 U
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Benzene

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 40.2

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	22
	3/21/2014	5
	9/17/2014	8.6
	3/19/2015	16.8
	9/15/2015	13.4
	3/21/2016	11.4
	9/26/2016	8.5
	3/31/2017	10.5
	9/21/2017	32.2
	3/30/2018	37.2
	9/26/2018	40.2
	3/13/2019	39.5
	10/3/2019	23.7
	4/3/2020	10
	9/30/2020	26.1
	3/22/2021	29.6
	9/16/2021	12.4
	3/24/2022	24.9
	9/16/2022	22

---

Date	Count	Mean	Significant
3/17/2023	1	11.1	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Benzene

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	ND<0
	3/18/2014	ND<0 U
	9/16/2014	ND<0 U
	3/18/2015	ND<0 U
	9/15/2015	ND<0 U
	3/16/2016	ND<0 U
	9/22/2016	ND<0 U
	3/29/2017	ND<0 U
	9/21/2017	ND<0 U
	3/28/2018	ND<0 U
	9/20/2018	ND<0 U
	3/12/2019	ND<0 U
	10/1/2019	ND<0 U
	3/18/2020	ND<0 U
	9/24/2020	ND<0 U
	3/17/2021	ND<0 U
	9/9/2021	ND<0 U
	3/15/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/15/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Benzene

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 1.1

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	0.93 J
	3/26/2020	1.1
	9/29/2020	1 J
	3/16/2021	0.81 J
	9/14/2021	0.86 J
	3/18/2022	0.69 J
	9/13/2022	0.68 J

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Shapiro-Francia Test of Normality

Parameter: Chloroform

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	0	-1.55477	33.5744	0
10	0	-1.50626	35.8432	0
11	0	-1.4538	37.9567	0
12	0	-1.40507	39.931	0
13	0	-1.36581	41.7964	0
14	0	-1.32251	43.5454	0
15	0	-1.28155	45.1878	0
16	0	-1.24809	46.7455	0
17	0	-1.21073	48.2114	0
18	0	-1.17499	49.592	0
19	0	-1.1455	50.9042	0
20	0	-1.11232	52.1414	0
21	0	-1.08032	53.3085	0
22	0	-1.05375	54.4189	0
23	0	-1.02365	55.4667	0
24	0	-0.994457	56.4557	0
25	0	-0.970094	57.3968	0
26	0	-0.942375	58.2848	0
27	0	-0.919183	59.1297	0
28	0	-0.892733	59.9267	0
29	0	-0.866894	60.6782	0
30	0	-0.841621	61.3865	0
31	0	-0.820379	62.0596	0
32	0	-0.796056	62.6933	0
33	0	-0.772193	63.2896	0
34	0	-0.752084	63.8552	0
35	0	-0.729003	64.3866	0
36	0	-0.706302	64.8855	0
37	0	-0.687131	65.3576	0
38	0	-0.665079	65.8	0
39	0	-0.643345	66.2139	0
40	0	-0.624956	66.6044	0
41	0	-0.603765	66.969	0
42	0	-0.582841	67.3087	0
43	0	-0.565108	67.628	0
44	0	-0.544642	67.9247	0
45	0	-0.524401	68.1996	0
46	0	-0.507221	68.4569	0
47	0	-0.487364	68.6944	0

48	0	-0.467699	68.9132	0
49	0	-0.450985	69.1166	0
50	0	-0.431644	69.3029	0
51	0	-0.412463	69.473	0
52	0	-0.396142	69.6299	0
53	0	-0.377233	69.7723	0
54	0	-0.358459	69.9007	0
55	0	-0.342466	70.018	0
56	0	-0.323919	70.1229	0
57	0	-0.305481	70.2163	0
58	0	-0.28976	70.3002	0
59	0	-0.271509	70.3739	0
60	0	-0.253347	70.4381	0
61	0	-0.237847	70.4947	0
62	0	-0.219834	70.543	0
63	0	-0.204452	70.5848	0
64	0	-0.186567	70.6196	0
65	0	-0.168741	70.6481	0
66	0	-0.150969	70.6709	0
67	0	-0.135774	70.6893	0
68	0	-0.118085	70.7033	0
69	0	-0.100433	70.7134	0
70	0	-0.0853288	70.7206	0
71	0	-0.0677301	70.7252	0
72	0	-0.0501541	70.7278	0
73	0	-0.0350997	70.729	0
74	0	-0.0175476	70.7293	0
75	0	0	70.7293	0
76	0	0.0175476	70.7296	0
77	0	0.0350997	70.7308	0
78	0	0.0501541	70.7333	0
79	0	0.0677301	70.7379	0
80	0	0.0853288	70.7452	0
81	0	0.100433	70.7553	0
82	0	0.118085	70.7692	0
83	0	0.135774	70.7877	0
84	0	0.150969	70.8105	0
85	0	0.168741	70.8389	0
86	0	0.186567	70.8738	0
87	0	0.201894	70.9145	0
88	0	0.219834	70.9628	0
89	0	0.237847	71.0194	0
90	0	0.253347	71.0836	0
91	0	0.271509	71.1573	0
92	0	0.28976	71.2413	0
93	0	0.305481	71.3346	0
94	0	0.323919	71.4395	0
95	0	0.342466	71.5568	0
96	0	0.358459	71.6853	0
97	0	0.377233	71.8276	0
98	0	0.396142	71.9845	0
99	0	0.412463	72.1547	0
100	0	0.431644	72.341	0
101	0	0.450985	72.5444	0
102	0	0.467699	72.7631	0
103	0	0.487364	73.0006	0
104	0	0.507221	73.2579	0

105	0	0.524401	73.5329	0
106	0	0.544642	73.8295	0
107	0	0.565108	74.1489	0
108	0	0.582841	74.4886	0
109	0	0.603765	74.8531	0
110	0	0.624956	75.2437	0
111	0	0.643345	75.6576	0
112	0	0.665079	76.0999	0
113	0	0.687131	76.572	0
114	0	0.706302	77.0709	0
115	0	0.729003	77.6024	0
116	0	0.752084	78.168	0
117	0	0.772193	78.7643	0
118	0	0.796056	79.398	0
119	0	0.820379	80.071	0
120	0	0.841621	80.7793	0
121	0	0.866894	81.5308	0
122	0	0.892733	82.3278	0
123	0	0.915365	83.1657	0
124	0	0.942375	84.0538	0
125	0	0.970094	84.9948	0
126	0.21	0.994457	85.9838	0.208836
127	0.22	1.02365	87.0317	0.43404
128	0.22	1.05375	88.142	0.665863
129	0.24	1.08032	89.3091	0.92514
130	0.24	1.11232	90.5464	1.1921
131	0.24	1.1455	91.8586	1.46702
132	0.29	1.17499	93.2392	1.80776
133	0.29	1.21073	94.705	2.15888
134	0.31	1.24809	96.2627	2.54578
135	0.31	1.28155	97.9051	2.94306
136	0.31	1.32251	99.6541	3.35304
137	0.31	1.36581	101.52	3.77644
138	0.34	1.40507	103.494	4.25417
139	0.34	1.4538	105.607	4.74846
140	0.34	1.50626	107.876	5.26059
141	0.37	1.55477	110.293	5.83585
142	0.41	1.61644	112.906	6.49859
143	0.54	1.68494	115.745	7.40846
144	0.62	1.75069	118.81	8.49388
145	0.62	1.83843	122.19	9.63371
146	0.68	1.94314	125.966	10.955
147	7.1	2.05375	130.184	25.5367
148	14	2.22621	135.14	56.7035
149	20.3	2.51213	141.451	107.7

---

Data Set Standard Deviation = 2.08846  
 Numerator = 11599.3  
 Denominator = 91309.9  
 W Statistic = 0.127032 = 11599.3 / 91309.9

**5% Critical value of 0.976 exceeds 0.127032**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.127032**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Chloroform

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	ND<0
	3/20/2014	ND<0 U
	9/9/2014	ND<0 U
	3/16/2015	ND<0 U
	9/9/2015	ND<0 U
	3/18/2016	ND<0 U
	9/20/2016	ND<0 U
	3/23/2017	ND<0 U
	9/18/2017	ND<0 U
	3/15/2018	ND<0 U
	9/17/2018	ND<0 U
	3/5/2019	ND<0 U
	9/24/2019	ND<0 U
	3/16/2020	ND<0 U
	9/22/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/22/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Chloroform

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 0

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	ND<0 U
	9/4/2014	ND<0 U
	3/17/2015	ND<0 U
	9/11/2015	ND<0 U
	3/15/2016	ND<0 U
	9/21/2016	ND<0 U
	3/28/2017	ND<0 U
	9/19/2017	ND<0 U
	3/26/2018	ND<0 U
	9/18/2018	ND<0 U
	3/4/2019	ND<0 U
	9/23/2019	ND<0 U
	3/19/2020	ND<0 U
	9/23/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	ND<0 U
	3/16/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Chloroform

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/19/2015	ND<0 U
	9/14/2015	ND<0 U
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/27/2017	ND<0 U
	9/20/2017	ND<0 U
	3/16/2018	ND<0 U
	9/20/2018	ND<0 U
	3/5/2019	ND<0 U
	9/25/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/18/2021	ND<0 U
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Chloroform

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 89.4737%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0.29

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/17/2014	ND<0 U
	3/19/2015	ND<0 U
	9/15/2015	ND<0 U
	3/21/2016	ND<0 U
	9/26/2016	ND<0 U
	3/31/2017	ND<0 U
	9/21/2017	ND<0 U
	3/30/2018	ND<0 U
	9/26/2018	ND<0 U
	3/13/2019	ND<0 U
	10/3/2019	ND<0 U
	4/3/2020	ND<0 U
	9/30/2020	ND<0 U
	3/22/2021	0.29 J
	9/16/2021	ND<0 U
	3/24/2022	0.22 JB
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Chloroform

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 78.9474%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0.41

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	ND<0
	3/18/2014	ND<0 U
	9/16/2014	0.21 J
	3/18/2015	ND<0 U
	9/15/2015	ND<0 U
	3/16/2016	ND<0 U
	9/22/2016	ND<0 U
	3/29/2017	ND<0 U
	9/21/2017	ND<0 U
	3/28/2018	ND<0 U
	9/20/2018	0.41 J
	3/12/2019	0.37 J
	10/1/2019	0.31 J
	3/18/2020	ND<0 U
	9/24/2020	ND<0 U
	3/17/2021	ND<0 U
	9/9/2021	ND<0 U
	3/15/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/15/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Chloroform

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	ND<0 U
	9/29/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Shapiro-Francia Test of Normality

Parameter: Ethylbenzene

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	0	-1.55477	33.5744	0
10	0	-1.50626	35.8432	0
11	0	-1.4538	37.9567	0
12	0	-1.40507	39.931	0
13	0	-1.36581	41.7964	0
14	0	-1.32251	43.5454	0
15	0	-1.28155	45.1878	0
16	0	-1.24809	46.7455	0
17	0	-1.21073	48.2114	0
18	0	-1.17499	49.592	0
19	0	-1.1455	50.9042	0
20	0	-1.11232	52.1414	0
21	0	-1.08032	53.3085	0
22	0	-1.05375	54.4189	0
23	0	-1.02365	55.4667	0
24	0	-0.994457	56.4557	0
25	0	-0.970094	57.3968	0
26	0	-0.942375	58.2848	0
27	0	-0.919183	59.1297	0
28	0	-0.892733	59.9267	0
29	0	-0.866894	60.6782	0
30	0	-0.841621	61.3865	0
31	0	-0.820379	62.0596	0
32	0	-0.796056	62.6933	0
33	0	-0.772193	63.2896	0
34	0	-0.752084	63.8552	0
35	0	-0.729003	64.3866	0
36	0	-0.706302	64.8855	0
37	0	-0.687131	65.3576	0
38	0	-0.665079	65.8	0
39	0	-0.643345	66.2139	0
40	0	-0.624956	66.6044	0
41	0	-0.603765	66.969	0
42	0	-0.582841	67.3087	0
43	0	-0.565108	67.628	0
44	0	-0.544642	67.9247	0
45	0	-0.524401	68.1996	0
46	0	-0.507221	68.4569	0
47	0	-0.487364	68.6944	0

48	0	-0.467699	68.9132	0
49	0	-0.450985	69.1166	0
50	0	-0.431644	69.3029	0
51	0	-0.412463	69.473	0
52	0	-0.396142	69.6299	0
53	0	-0.377233	69.7723	0
54	0	-0.358459	69.9007	0
55	0	-0.342466	70.018	0
56	0	-0.323919	70.1229	0
57	0	-0.305481	70.2163	0
58	0	-0.28976	70.3002	0
59	0	-0.271509	70.3739	0
60	0	-0.253347	70.4381	0
61	0	-0.237847	70.4947	0
62	0	-0.219834	70.543	0
63	0	-0.204452	70.5848	0
64	0	-0.186567	70.6196	0
65	0	-0.168741	70.6481	0
66	0	-0.150969	70.6709	0
67	0	-0.135774	70.6893	0
68	0	-0.118085	70.7033	0
69	0	-0.100433	70.7134	0
70	0	-0.0853288	70.7206	0
71	0	-0.0677301	70.7252	0
72	0	-0.0501541	70.7278	0
73	0	-0.0350997	70.729	0
74	0	-0.0175476	70.7293	0
75	0	0	70.7293	0
76	0	0.0175476	70.7296	0
77	0	0.0350997	70.7308	0
78	0	0.0501541	70.7333	0
79	0	0.0677301	70.7379	0
80	0	0.0853288	70.7452	0
81	0	0.100433	70.7553	0
82	0	0.118085	70.7692	0
83	0	0.135774	70.7877	0
84	0	0.150969	70.8105	0
85	0	0.168741	70.8389	0
86	0	0.186567	70.8738	0
87	0	0.201894	70.9145	0
88	0	0.219834	70.9628	0
89	0	0.237847	71.0194	0
90	0	0.253347	71.0836	0
91	0	0.271509	71.1573	0
92	0	0.28976	71.2413	0
93	0	0.305481	71.3346	0
94	0	0.323919	71.4395	0
95	0	0.342466	71.5568	0
96	0	0.358459	71.6853	0
97	0	0.377233	71.8276	0
98	0	0.396142	71.9845	0
99	0	0.412463	72.1547	0
100	0	0.431644	72.341	0
101	0	0.450985	72.5444	0
102	0	0.467699	72.7631	0
103	0	0.487364	73.0006	0
104	0	0.507221	73.2579	0

105	0	0.524401	73.5329	0
106	0	0.544642	73.8295	0
107	0	0.565108	74.1489	0
108	0	0.582841	74.4886	0
109	0	0.603765	74.8531	0
110	0	0.624956	75.2437	0
111	0	0.643345	75.6576	0
112	0	0.665079	76.0999	0
113	0	0.687131	76.572	0
114	0	0.706302	77.0709	0
115	0	0.729003	77.6024	0
116	0	0.752084	78.168	0
117	0	0.772193	78.7643	0
118	0	0.796056	79.398	0
119	0	0.820379	80.071	0
120	0	0.841621	80.7793	0
121	0	0.866894	81.5308	0
122	0	0.892733	82.3278	0
123	0	0.915365	83.1657	0
124	0	0.942375	84.0538	0
125	0	0.970094	84.9948	0
126	0	0.994457	85.9838	0
127	0	1.02365	87.0317	0
128	0	1.05375	88.142	0
129	0	1.08032	89.3091	0
130	1.5	1.11232	90.5464	1.66848
131	3.6	1.1455	91.8586	5.7923
132	3.8	1.17499	93.2392	10.2572
133	6.3	1.21073	94.705	17.8848
134	6.6	1.24809	96.2627	26.1222
135	7.8	1.28155	97.9051	36.1183
136	8.9	1.32251	99.6541	47.8886
137	11.9	1.36581	101.52	64.1417
138	11.9	1.40507	103.494	80.8621
139	16	1.4538	105.607	104.123
140	16.2	1.50626	107.876	128.524
141	23.7	1.55477	110.293	165.372
142	27.2	1.61644	112.906	209.34
143	28.1	1.68494	115.745	256.686
144	28.8	1.75069	118.81	307.106
145	31.6	1.83843	122.19	365.2
146	39.9	1.94314	125.966	442.731
147	41.4	2.05375	130.184	527.757
148	46	2.22621	135.14	630.162
149	47.4	2.51213	141.451	749.237

Data Set Standard Deviation = 8.82334  
 Numerator = 561356  
 Denominator = 1.62979e+006  
 W Statistic = 0.344435 = 561356 / 1.62979e+006

**5% Critical value of 0.976 exceeds 0.344435**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.344435**  
**Evidence of non-normality at 99% level of significance**



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Ethylbenzene

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	ND<0
	3/20/2014	ND<0 U
	9/9/2014	ND<0 U
	3/16/2015	ND<0 U
	9/9/2015	ND<0 U
	3/18/2016	ND<0 U
	9/20/2016	ND<0 U
	3/23/2017	ND<0 U
	9/18/2017	ND<0 U
	3/15/2018	ND<0 U
	9/17/2018	ND<0 U
	3/5/2019	ND<0 U
	9/24/2019	ND<0 U
	3/16/2020	ND<0 U
	9/22/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/22/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Ethylbenzene

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 0

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	ND<0 U
	9/4/2014	ND<0 U
	3/17/2015	ND<0 U
	9/11/2015	ND<0 U
	3/15/2016	ND<0 U
	9/21/2016	ND<0 U
	3/28/2017	ND<0 U
	9/19/2017	ND<0 U
	3/26/2018	ND<0 U
	9/18/2018	ND<0 U
	3/4/2019	ND<0 U
	9/23/2019	ND<0 U
	3/19/2020	ND<0 U
	9/23/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	ND<0 U
	3/16/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Ethylbenzene

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/19/2015	ND<0 U
	9/14/2015	ND<0 U
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/27/2017	ND<0 U
	9/20/2017	ND<0 U
	3/16/2018	ND<0 U
	9/20/2018	ND<0 U
	3/5/2019	ND<0 U
	9/25/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/18/2021	ND<0 U
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Ethylbenzene

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 47.4

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	16
	3/21/2014	1.5
	9/17/2014	3.8
	3/19/2015	6.3
	9/15/2015	7.8
	3/21/2016	6.6
	9/26/2016	3.6
	3/31/2017	8.9
	9/21/2017	27.2
	3/30/2018	39.9
	9/26/2018	46
	3/13/2019	47.4
	10/3/2019	23.7
	4/3/2020	11.9
	9/30/2020	31.6
	3/22/2021	41.4
	9/16/2021	16.2
	3/24/2022	28.8
	9/16/2022	28.1

---

Date	Count	Mean	Significant
3/17/2023	1	11.9	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Ethylbenzene

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	ND<0
	3/18/2014	ND<0 U
	9/16/2014	ND<0 U
	3/18/2015	ND<0 U
	9/15/2015	ND<0 U
	3/16/2016	ND<0 U
	9/22/2016	ND<0 U
	3/29/2017	ND<0 U
	9/21/2017	ND<0 U
	3/28/2018	ND<0 U
	9/20/2018	ND<0 U
	3/12/2019	ND<0 U
	10/1/2019	ND<0 U
	3/18/2020	ND<0 U
	9/24/2020	ND<0 U
	3/17/2021	ND<0 U
	9/9/2021	ND<0 U
	3/15/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/15/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Ethylbenzene

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	ND<0 U
	9/29/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Shapiro-Francia Test of Normality

Parameter: Methyl t-Butyl Ether

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	0	-1.55477	33.5744	0
10	0	-1.50626	35.8432	0
11	0	-1.4538	37.9567	0
12	0	-1.40507	39.931	0
13	0	-1.36581	41.7964	0
14	0	-1.32251	43.5454	0
15	0	-1.28155	45.1878	0
16	0	-1.24809	46.7455	0
17	0	-1.21073	48.2114	0
18	0	-1.17499	49.592	0
19	0	-1.1455	50.9042	0
20	0	-1.11232	52.1414	0
21	0	-1.08032	53.3085	0
22	0	-1.05375	54.4189	0
23	0	-1.02365	55.4667	0
24	0	-0.994457	56.4557	0
25	0	-0.970094	57.3968	0
26	0	-0.942375	58.2848	0
27	0	-0.919183	59.1297	0
28	0	-0.892733	59.9267	0
29	0	-0.866894	60.6782	0
30	0	-0.841621	61.3865	0
31	0	-0.820379	62.0596	0
32	0	-0.796056	62.6933	0
33	0	-0.772193	63.2896	0
34	0	-0.752084	63.8552	0
35	0	-0.729003	64.3866	0
36	0	-0.706302	64.8855	0
37	0	-0.687131	65.3576	0
38	0	-0.665079	65.8	0
39	0	-0.643345	66.2139	0
40	0	-0.624956	66.6044	0
41	0	-0.603765	66.969	0
42	0	-0.582841	67.3087	0
43	0	-0.565108	67.628	0
44	0	-0.544642	67.9247	0
45	0	-0.524401	68.1996	0
46	0	-0.507221	68.4569	0
47	0	-0.487364	68.6944	0

48	0	-0.467699	68.9132	0
49	0	-0.450985	69.1166	0
50	0	-0.431644	69.3029	0
51	0	-0.412463	69.473	0
52	0	-0.396142	69.6299	0
53	0	-0.377233	69.7723	0
54	0	-0.358459	69.9007	0
55	0	-0.342466	70.018	0
56	0	-0.323919	70.1229	0
57	0	-0.305481	70.2163	0
58	0	-0.28976	70.3002	0
59	0	-0.271509	70.3739	0
60	0	-0.253347	70.4381	0
61	0	-0.237847	70.4947	0
62	0	-0.219834	70.543	0
63	0	-0.204452	70.5848	0
64	0	-0.186567	70.6196	0
65	0	-0.168741	70.6481	0
66	0	-0.150969	70.6709	0
67	0	-0.135774	70.6893	0
68	0	-0.118085	70.7033	0
69	0	-0.100433	70.7134	0
70	0	-0.0853288	70.7206	0
71	0	-0.0677301	70.7252	0
72	0	-0.0501541	70.7278	0
73	0	-0.0350997	70.729	0
74	0	-0.0175476	70.7293	0
75	0	0	70.7293	0
76	0	0.0175476	70.7296	0
77	0	0.0350997	70.7308	0
78	0	0.0501541	70.7333	0
79	0	0.0677301	70.7379	0
80	0.34	0.0853288	70.7452	0.0290118
81	0.35	0.100433	70.7553	0.0641634
82	0.38	0.118085	70.7692	0.109036
83	0.63	0.135774	70.7877	0.194573
84	0.66	0.150969	70.8105	0.294213
85	0.7	0.168741	70.8389	0.412332
86	0.76	0.186567	70.8738	0.554123
87	0.76	0.201894	70.9145	0.707562
88	0.77	0.219834	70.9628	0.876834
89	0.78	0.237847	71.0194	1.06235
90	0.81	0.253347	71.0836	1.26757
91	0.82	0.271509	71.1573	1.4902
92	0.84	0.28976	71.2413	1.7336
93	0.85	0.305481	71.3346	1.99326
94	0.88	0.323919	71.4395	2.27831
95	0.9	0.342466	71.5568	2.58653
96	0.9	0.358459	71.6853	2.90914
97	0.94	0.377233	71.8276	3.26374
98	0.99	0.396142	71.9845	3.65592
99	0.99	0.412463	72.1547	4.06426
100	1	0.431644	72.341	4.4959
101	1	0.450985	72.5444	4.94689
102	1.1	0.467699	72.7631	5.46136
103	1.1	0.487364	73.0006	5.99746
104	1.1	0.507221	73.2579	6.5554



105	1.1	0.524401	73.5329	7.13224
106	1.1	0.544642	73.8295	7.73135
107	1.2	0.565108	74.1489	8.40948
108	1.2	0.582841	74.4886	9.10889
109	1.2	0.603765	74.8531	9.8334
110	1.3	0.624956	75.2437	10.6458
111	1.3	0.643345	75.6576	11.4822
112	1.3	0.665079	76.0999	12.3468
113	1.3	0.687131	76.572	13.2401
114	1.4	0.706302	77.0709	14.2289
115	1.5	0.729003	77.6024	15.3224
116	1.5	0.752084	78.168	16.4505
117	1.6	0.772193	78.7643	17.686
118	1.7	0.796056	79.398	19.0393
119	1.7	0.820379	80.071	20.434
120	1.7	0.841621	80.7793	21.8647
121	1.8	0.866894	81.5308	23.4251
122	2	0.892733	82.3278	25.2106
123	2	0.915365	83.1657	27.0413
124	2	0.942375	84.0538	28.9261
125	2.2	0.970094	84.9948	31.0603
126	2.4	0.994457	85.9838	33.447
127	2.6	1.02365	87.0317	36.1085
128	2.8	1.05375	88.142	39.059
129	2.9	1.08032	89.3091	42.1919
130	3.4	1.11232	90.5464	45.9738
131	3.5	1.1455	91.8586	49.9831
132	3.5	1.17499	93.2392	54.0955
133	3.7	1.21073	94.705	58.5752
134	3.9	1.24809	96.2627	63.4427
135	4.8	1.28155	97.9051	69.5942
136	5	1.32251	99.6541	76.2067
137	5	1.36581	101.52	83.0357
138	5.1	1.40507	103.494	90.2016
139	5.2	1.4538	105.607	97.7614
140	5.7	1.50626	107.876	106.347
141	6.7	1.55477	110.293	116.764
142	7.2	1.61644	112.906	128.402
143	7.7	1.68494	115.745	141.376
144	7.7	1.75069	118.81	154.857
145	8.3	1.83843	122.19	170.116
146	10	1.94314	125.966	189.547
147	11.7	2.05375	130.184	213.576
148	12.2	2.22621	135.14	240.736
149	13.1	2.51213	141.451	273.645

Data Set Standard Deviation = 2.47082  
 Numerator = 74881.3  
 Denominator = 127805  
 W Statistic = 0.585903 = 74881.3 / 127805

**5% Critical value of 0.976 exceeds 0.585903**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.585903**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Methyl t-Butyl Ether

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 3.4

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	2
	3/20/2014	2.9
	9/9/2014	3.4
	3/16/2015	2.8
	9/9/2015	2.4
	3/18/2016	2.2
	9/20/2016	2
	3/23/2017	1.5
	9/18/2017	1.8
	3/15/2018	1.3
	9/17/2018	1.7
	3/5/2019	1.7
	9/24/2019	2
	3/16/2020	1.3
	9/22/2020	1.6
	3/16/2021	1.1
	9/14/2021	1.3
	3/22/2022	1.1
	9/13/2022	0.78 J

---

Date	Count	Mean	Significant
3/14/2023	1	1	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Methyl t-Butyl Ether

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 90%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 0.35

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	0.34 J
	9/4/2014	0.35 J
	3/17/2015	ND<0 U
	9/11/2015	ND<0 U
	3/15/2016	ND<0 U
	9/21/2016	ND<0 U
	3/28/2017	ND<0 U
	9/19/2017	ND<0 U
	3/26/2018	ND<0 U
	9/18/2018	ND<0 U
	3/4/2019	ND<0 U
	9/23/2019	ND<0 U
	3/19/2020	ND<0 U
	9/23/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	ND<0 U
	3/16/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Methyl t-Butyl Ether

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/19/2015	ND<0 U
	9/14/2015	ND<0 U
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/27/2017	ND<0 U
	9/20/2017	ND<0 U
	3/16/2018	ND<0 U
	9/20/2018	ND<0 U
	3/5/2019	ND<0 U
	9/25/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/18/2021	ND<0 U
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Methyl t-Butyl Ether

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 13.1

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	5
	3/21/2014	2.6
	9/17/2014	3.5
	3/19/2015	5.1
	9/15/2015	5.2
	3/21/2016	5.7
	9/26/2016	3.5
	3/31/2017	5
	9/21/2017	10
	3/30/2018	11.7
	9/26/2018	12.2
	3/13/2019	13.1
	10/3/2019	7.7
	4/3/2020	3.7
	9/30/2020	7.2
	3/22/2021	8.3
	9/16/2021	3.9
	3/24/2022	7.7
	9/16/2022	6.7

---

Date	Count	Mean	Significant
3/17/2023	1	4.8	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Methyl t-Butyl Ether

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 94.7368%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0.38

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	ND<0
	3/18/2014	0.38 J
	9/16/2014	ND<0 U
	3/18/2015	ND<0 U
	9/15/2015	ND<0 U
	3/16/2016	ND<0 U
	9/22/2016	ND<0 U
	3/29/2017	ND<0 U
	9/21/2017	ND<0 U
	3/28/2018	ND<0 U
	9/20/2018	ND<0 U
	3/12/2019	ND<0 U
	10/1/2019	ND<0 U
	3/18/2020	ND<0 U
	9/24/2020	ND<0 U
	3/17/2021	ND<0 U
	9/9/2021	ND<0 U
	3/15/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/15/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Methyl t-Butyl Ether

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0.85

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	0.76 J
	3/26/2020	0.85 J
	9/29/2020	0.77 J
	3/16/2021	0.76 J
	9/14/2021	0.7 J
	3/18/2022	0.66 J
	9/13/2022	0.63 J

---

Date	Count	Mean	Significant
3/14/2023	1	0.82	FALSE

### 3) Patuxent Aquifer VOC Inter-well Statistics

APPENDIX F



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Bromomethane

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 26

Non detect rank is 13.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<1 U	13.5
	4/2/2020	ND<1 U	13.5
	9/30/2020	ND<1 U	13.5
	3/22/2021	ND<1 U	13.5
	9/8/2021	ND<1 U	13.5
	3/14/2022	ND<1	13.5
	9/12/2022	ND<1	13.5
	3/13/2023	0.85 J	29
SMW-32	9/23/2013	ND<1	13.5
	12/5/2013	ND<1	13.5
	3/19/2014	0.48 J	27
	9/8/2014	ND<1 U	13.5
	3/18/2015	ND<1 U	13.5
	9/8/2015	0.49 J	28
	3/14/2016	ND<1 U	13.5
	9/20/2016	ND<1 U	13.5
	3/24/2017	ND<1 U	13.5
	9/20/2017	ND<1 U	13.5
	3/27/2018	ND<1 U	13.5
	9/18/2018	ND<1 U	13.5
	3/11/2019	ND<1 U	13.5
	10/3/2019	ND<1 U	13.5
	3/23/2020	ND<1 U	13.5
	9/24/2020	ND<1 U	13.5
	3/23/2021	ND<1 U	13.5
	9/16/2021	ND<1 U	13.5
	3/24/2022	ND<1	13.5
	9/16/2022	ND<1	13.5
3/17/2023	ND<1	13.5	

---

The Wilcoxon Statistic is 80.5

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is -0.19518

The Standard Deviation adjusted for ties is 10.8358

The Z Score adjusted for ties is -0.369148

-0.19518 < 2.326 indicating no statistical significance at 1% level

-0.369148 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Bromomethane

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 23

Non detect rank is 12

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<1 U	12
	4/2/2020	ND<1 U	12
	9/30/2020	ND<1 U	12
	3/22/2021	ND<1 U	12
	9/8/2021	ND<1 U	12
	3/14/2022	ND<1	12
	9/12/2022	ND<1	12
	3/13/2023	0.85 J	28
SMW-13	9/23/2013	ND<1	12
	3/21/2014	ND<1 U	12
	9/8/2014	ND<1 U	12
	3/18/2015	ND<1 U	12
	9/8/2015	0.45 J	25
	3/14/2016	ND<1 U	12
	10/24/2016	ND<1 U	12
	3/30/2017	ND<1 U	12
	9/20/2017	0.6 J	27
	3/30/2018	ND<1 U	12
	9/21/2018	ND<1 U	12
	3/11/2019	ND<1 U	12
	10/3/2019	ND<1 U	12
	3/23/2020	0.52 J	26
	9/25/2020	ND<1 U	12
	3/23/2021	ND<1 U	12
	9/16/2021	0.43 JB	24
	3/23/2022	ND<1	12
9/16/2022	ND<1	12	
3/17/2023	ND<1	12	

---

The Wilcoxon Statistic is 84

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is 0.177992

The Standard Deviation adjusted for ties is 13.1334

The Z Score adjusted for ties is 0.266496

0.177992 < 2.326 indicating no statistical significance at 1% level

0.266496 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Bromomethane

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 21

Non detect rank is 11

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<1 U	11
	4/2/2020	ND<1 U	11
	9/30/2020	ND<1 U	11
	3/22/2021	ND<1 U	11
	9/8/2021	ND<1 U	11
	3/14/2022	ND<1	11
	9/12/2022	ND<1	11
	3/13/2023	0.85 J	22
GWM-15D	3/21/2016	ND<1 U	11
	9/23/2016	ND<1 U	11
	3/28/2017	ND<1 U	11
	9/21/2017	ND<1 U	11
	3/16/2018	ND<1 U	11
	9/19/2018	ND<1 U	11
	3/5/2019	ND<1 U	11
	10/3/2019	ND<1 U	11
	3/25/2020	ND<1 U	11
	9/28/2020	ND<1 U	11
	3/19/2021	ND<1 U	11
	9/15/2021	0.95 JB	23
	3/22/2022	ND<1	11
	9/14/2022	ND<1	11
	3/16/2023	ND<1	11

---

The Wilcoxon Statistic is 57

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is -0.225924

The Standard Deviation adjusted for ties is 7.5757

The Z Score adjusted for ties is -0.462003

-0.225924 < 2.326 indicating no statistical significance at 1% level

-0.462003 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Bromomethane

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 15

Non detect rank is 8

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<1 U	8
	4/2/2020	ND<1 U	8
	9/30/2020	ND<1 U	8
	3/22/2021	ND<1 U	8
	9/8/2021	ND<1 U	8
	3/14/2022	ND<1	8
	9/12/2022	ND<1	8
	3/13/2023	0.85 J	16
GWM-17D	11/14/2019	ND<1 U	8
	3/26/2020	ND<1 U	8
	9/29/2020	ND<1 U	8
	3/16/2021	ND<1 U	8
	9/14/2021	ND<1 U	8
	3/18/2022	ND<1	8
	9/13/2022	ND<1	8
	3/14/2023	ND<1	8

---

The Wilcoxon Statistic is 28

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -0.472595

The Standard Deviation adjusted for ties is 4

The Z Score adjusted for ties is -1.125

-0.472595 < 2.326 indicating no statistical significance at 1% level

-1.125 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Bromomethane

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 14

Non detect rank is 7.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<1 U	7.5
	4/2/2020	ND<1 U	7.5
	9/30/2020	ND<1 U	7.5
	3/22/2021	ND<1 U	7.5
	9/8/2021	ND<1 U	7.5
	3/14/2022	ND<1	7.5
	9/12/2022	ND<1	7.5
	3/13/2023	0.85 J	16
GWM-19D	11/14/2019	ND<1 U	7.5
	3/25/2020	ND<1 U	7.5
	9/29/2020	ND<1 U	7.5
	3/22/2021	ND<1 U	7.5
	9/15/2021	0.67 JB	15
	3/24/2022	ND<1	7.5
	9/15/2022	ND<1	7.5
	3/16/2023	ND<1	7.5

---

The Wilcoxon Statistic is 31.5

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -0.105021

The Standard Deviation adjusted for ties is 5.47723

The Z Score adjusted for ties is -0.182574

-0.105021 < 2.326 indicating no statistical significance at 1% level

-0.182574 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## 4) Patuxent Aquifer VOC Intra-well Statistics

APPENDIX F

## Shapiro-Francia Test of Normality

Parameter: Bromomethane

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Number of Measurements = 80

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0.43	-2.25713	5.09463	-0.970566
2	0.45	-1.97737	9.00462	-1.86038
3	0.48	-1.78661	12.1966	-2.71796
4	0.49	-1.65463	14.9344	-3.52872
5	0.52	-1.54643	17.3258	-4.33287
6	0.6	-1.44663	19.4186	-5.20085
7	0.67	-1.36581	21.284	-6.11594
8	0.85	-1.29303	22.9559	-7.21501
9	0.95	-1.22123	24.4473	-8.37518
10	1	-1.16012	25.7932	-9.5353
11	1	-1.10306	27.01	-10.6384
12	1	-1.04505	28.1021	-11.6834
13	1	-0.994457	29.091	-12.6779
14	1	-0.946291	29.9865	-13.6242
15	1	-0.896473	30.7902	-14.5206
16	1	-0.852385	31.5167	-15.373
17	1	-0.809896	32.1727	-16.1829
18	1	-0.765456	32.7586	-16.9484
19	1	-0.725736	33.2853	-17.6741
20	1	-0.687131	33.7574	-18.3612
21	1	-0.646431	34.1753	-19.0077
22	1	-0.609791	34.5472	-19.6175
23	1	-0.573953	34.8766	-20.1914
24	1	-0.53594	35.1638	-20.7274
25	1	-0.501527	35.4153	-21.2289
26	1	-0.467699	35.6341	-21.6966
27	1	-0.431644	35.8204	-22.1282
28	1	-0.398855	35.9795	-22.5271
29	1	-0.363809	36.1118	-22.8909
30	1	-0.331854	36.222	-23.2227
31	1	-0.300232	36.3121	-23.523
32	1	-0.266311	36.383	-23.7893
33	1	-0.235269	36.4384	-24.0246
34	1	-0.204452	36.4802	-24.229
35	1	-0.171285	36.5095	-24.4003
36	1	-0.140835	36.5293	-24.5411
37	1	-0.110516	36.5416	-24.6516
38	1	-0.0777834	36.5476	-24.7294
39	1	-0.0476439	36.5499	-24.7771
40	1	-0.0175476	36.5502	-24.7946
41	1	0.0175476	36.5505	-24.7771
42	1	0.0476439	36.5528	-24.7294
43	1	0.0777834	36.5588	-24.6516
44	1	0.110516	36.571	-24.5411
45	1	0.140835	36.5909	-24.4003
46	1	0.171285	36.6202	-24.229
47	1	0.204452	36.662	-24.0246

48	1	0.235269	36.7174	-23.7893
49	1	0.266311	36.7883	-23.523
50	1	0.300232	36.8784	-23.2227
51	1	0.331854	36.9885	-22.8909
52	1	0.363809	37.1209	-22.5271
53	1	0.398855	37.28	-22.1282
54	1	0.431644	37.4663	-21.6966
55	1	0.467699	37.685	-21.2289
56	1	0.501527	37.9366	-20.7274
57	1	0.53594	38.2238	-20.1914
58	1	0.573953	38.5532	-19.6175
59	1	0.609791	38.9251	-19.0077
60	1	0.646431	39.343	-18.3612
61	1	0.687131	39.8151	-17.6741
62	1	0.725736	40.3418	-16.9484
63	1	0.765456	40.9277	-16.1829
64	1	0.809896	41.5836	-15.373
65	1	0.852385	42.3102	-14.5206
66	1	0.896473	43.1139	-13.6242
67	1	0.946291	44.0093	-12.6779
68	1	0.994457	44.9983	-11.6834
69	1	1.04505	46.0904	-10.6384
70	1	1.10306	47.3072	-9.5353
71	1	1.16012	48.653	-8.37518
72	1	1.22123	50.1444	-7.15395
73	1	1.29303	51.8164	-5.86092
74	1	1.36581	53.6818	-4.49511
75	1	1.44663	55.7745	-3.04848
76	1	1.54643	58.166	-1.50205
77	1	1.65463	60.9038	0.152577
78	1	1.78661	64.0958	1.93919
79	1	1.97737	68.0058	3.91656
80	1	2.25713	73.1004	6.17369

---

Data Set Standard Deviation = 0.138883  
 Numerator = 38.1144  
 Denominator = 111.389  
 W Statistic = 0.342174 = 38.1144 / 111.389

**5% Critical value of 0.97 exceeds 0.342174**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.958 exceeds 0.342174**  
**Evidence of non-normality at 99% level of significance**



## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Bromomethane

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 90%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 1

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<1
	12/5/2013	ND<1
	3/19/2014	0.48 J
	9/8/2014	ND<1 U
	3/18/2015	ND<1 U
	9/8/2015	0.49 J
	3/14/2016	ND<1 U
	9/20/2016	ND<1 U
	3/24/2017	ND<1 U
	9/20/2017	ND<1 U
	3/27/2018	ND<1 U
	9/18/2018	ND<1 U
	3/11/2019	ND<1 U
	10/3/2019	ND<1 U
	3/23/2020	ND<1 U
	9/24/2020	ND<1 U
	3/23/2021	ND<1 U
	9/16/2021	ND<1 U
	3/24/2022	ND<1
	9/16/2022	ND<1

---

Date	Count	Mean	Significant
3/17/2023	1	1	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Bromomethane

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 78.9474%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 1

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<1
	3/21/2014	ND<1 U
	9/8/2014	ND<1 U
	3/18/2015	ND<1 U
	9/8/2015	0.45 J
	3/14/2016	ND<1 U
	10/24/2016	ND<1 U
	3/30/2017	ND<1 U
	9/20/2017	0.6 J
	3/30/2018	ND<1 U
	9/21/2018	ND<1 U
	3/11/2019	ND<1 U
	10/3/2019	ND<1 U
	3/23/2020	0.52 J
	9/25/2020	ND<1 U
	3/23/2021	ND<1 U
	9/16/2021	0.43 JB
	3/23/2022	ND<1
	9/16/2022	ND<1

---

Date	Count	Mean	Significant
3/17/2023	1	1	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Bromomethane

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 92.8571%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 1

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	ND<1 U
	9/23/2016	ND<1 U
	3/28/2017	ND<1 U
	9/21/2017	ND<1 U
	3/16/2018	ND<1 U
	9/19/2018	ND<1 U
	3/5/2019	ND<1 U
	10/3/2019	ND<1 U
	3/25/2020	ND<1 U
	9/28/2020	ND<1 U
	3/19/2021	ND<1 U
	9/15/2021	0.95 JB
	3/22/2022	ND<1
	9/14/2022	ND<1

---

Date	Count	Mean	Significant
3/16/2023	1	1	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Bromomethane

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 1

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<1 U
	3/26/2020	ND<1 U
	9/29/2020	ND<1 U
	3/16/2021	ND<1 U
	9/14/2021	ND<1 U
	3/18/2022	ND<1
	9/13/2022	ND<1

---

Date	Count	Mean	Significant
3/14/2023	1	1	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Bromomethane

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 85.7143%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 1

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<1 U
	3/25/2020	ND<1 U
	9/29/2020	ND<1 U
	3/22/2021	ND<1 U
	9/15/2021	0.67 JB
	3/24/2022	ND<1
	9/15/2022	ND<1

---

Date	Count	Mean	Significant
3/16/2023	1	1	FALSE

## Shapiro-Francia Test of Normality

Parameter: 1,4-Dichlorobenzene

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Number of Measurements = 80

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	1	-2.25713	5.09463	-2.25713
2	1	-1.97737	9.00462	-4.2345
3	1	-1.78661	12.1966	-6.02111
4	1	-1.65463	14.9344	-7.67574
5	1	-1.54643	17.3258	-9.22217
6	1	-1.44663	19.4186	-10.6688
7	1	-1.36581	21.284	-12.0346
8	1	-1.29303	22.9559	-13.3276
9	1	-1.22123	24.4473	-14.5489
10	1	-1.16012	25.7932	-15.709
11	1	-1.10306	27.01	-16.8121
12	1	-1.04505	28.1021	-17.8571
13	1	-0.994457	29.091	-18.8516
14	1	-0.946291	29.9865	-19.7978
15	1	-0.896473	30.7902	-20.6943
16	1	-0.852385	31.5167	-21.5467
17	1	-0.809896	32.1727	-22.3566
18	1	-0.765456	32.7586	-23.1221
19	1	-0.725736	33.2853	-23.8478
20	1	-0.687131	33.7574	-24.5349
21	1	-0.646431	34.1753	-25.1814
22	1	-0.609791	34.5472	-25.7911
23	1	-0.573953	34.8766	-26.3651
24	1	-0.53594	35.1638	-26.901
25	1	-0.501527	35.4153	-27.4026
26	1	-0.467699	35.6341	-27.8703
27	1	-0.431644	35.8204	-28.3019
28	1	-0.398855	35.9795	-28.7008
29	1	-0.363809	36.1118	-29.0646
30	1	-0.331854	36.222	-29.3964
31	1	-0.300232	36.3121	-29.6967
32	1	-0.266311	36.383	-29.963
33	1	-0.235269	36.4384	-30.1982
34	1	-0.204452	36.4802	-30.4027
35	1	-0.171285	36.5095	-30.574
36	1	-0.140835	36.5293	-30.7148
37	1	-0.110516	36.5416	-30.8253
38	1	-0.0777834	36.5476	-30.9031
39	1	-0.0476439	36.5499	-30.9508
40	1	-0.0175476	36.5502	-30.9683
41	1	0.0175476	36.5505	-30.9508
42	1	0.0476439	36.5528	-30.9031
43	1	0.0777834	36.5588	-30.8253
44	1	0.110516	36.571	-30.7148
45	1	0.140835	36.5909	-30.574
46	1	0.171285	36.6202	-30.4027
47	1	0.204452	36.662	-30.1982

48	1	0.235269	36.7174	-29.963
49	1	0.266311	36.7883	-29.6967
50	1	0.300232	36.8784	-29.3964
51	1	0.331854	36.9885	-29.0646
52	1	0.363809	37.1209	-28.7008
53	1	0.398855	37.28	-28.3019
54	1	0.431644	37.4663	-27.8703
55	1	0.467699	37.685	-27.4026
56	1	0.501527	37.9366	-26.901
57	1	0.53594	38.2238	-26.3651
58	1	0.573953	38.5532	-25.7911
59	1	0.609791	38.9251	-25.1814
60	1	0.646431	39.343	-24.5349
61	1	0.687131	39.8151	-23.8478
62	1	0.725736	40.3418	-23.1221
63	1	0.765456	40.9277	-22.3566
64	1	0.809896	41.5836	-21.5467
65	1	0.852385	42.3102	-20.6943
66	1	0.896473	43.1139	-19.7978
67	1	0.946291	44.0093	-18.8516
68	1	0.994457	44.9983	-17.8571
69	1	1.04505	46.0904	-16.8121
70	1	1.10306	47.3072	-15.709
71	1	1.16012	48.653	-14.5489
72	1	1.22123	50.1444	-13.3276
73	1	1.29303	51.8164	-12.0346
74	1.4	1.36581	53.6818	-10.1225
75	1.7	1.44663	55.7745	-7.6632
76	1.8	1.54643	58.166	-4.87962
77	1.8	1.65463	60.9038	-1.9013
78	1.8	1.78661	64.0958	1.3146
79	1.9	1.97737	68.0058	5.0716
80	2	2.25713	73.1004	9.58586

Data Set Standard Deviation = 0.225453  
 Numerator = 91.8888  
 Denominator = 293.535  
 W Statistic = 0.313042 = 91.8888 / 293.535

**5% Critical value of 0.97 exceeds 0.313042**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.958 exceeds 0.313042**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: 1,4-Dichlorobenzene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 1

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<1
	12/5/2013	ND<1
	3/19/2014	ND<1 U
	9/8/2014	ND<1 U
	3/18/2015	ND<1 U
	9/8/2015	ND<1 U
	3/14/2016	ND<1 U
	9/20/2016	ND<1 U
	3/24/2017	ND<1 U
	9/20/2017	ND<1 U
	3/27/2018	ND<1 U
	9/18/2018	ND<1 U
	3/11/2019	ND<1 U
	10/3/2019	ND<1 U
	3/23/2020	ND<1 U
	9/24/2020	ND<1 U
	3/23/2021	ND<1 U
	9/16/2021	ND<1 U
	3/24/2022	ND<1
	9/16/2022	ND<1

---

Date	Count	Mean	Significant
3/17/2023	1	1	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: 1,4-Dichlorobenzene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 1

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<1
	3/21/2014	ND<1 U
	9/8/2014	ND<1 U
	3/18/2015	ND<1 U
	9/8/2015	ND<1 U
	3/14/2016	ND<1 U
	10/24/2016	ND<1 U
	3/30/2017	ND<1 U
	9/20/2017	ND<1 U
	3/30/2018	ND<1 U
	9/21/2018	ND<1 U
	3/11/2019	ND<1 U
	10/3/2019	ND<1 U
	3/23/2020	ND<1 U
	9/25/2020	ND<1 U
	3/23/2021	ND<1 U
	9/16/2021	ND<1 U
	3/23/2022	ND<1
	9/16/2022	ND<1

---

Date	Count	Mean	Significant
3/17/2023	1	1	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: 1,4-Dichlorobenzene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 1

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	ND<1 U
	9/23/2016	ND<1 U
	3/28/2017	ND<1 U
	9/21/2017	ND<1 U
	3/16/2018	ND<1 U
	9/19/2018	ND<1 U
	3/5/2019	ND<1 U
	10/3/2019	ND<1 U
	3/25/2020	ND<1 U
	9/28/2020	ND<1 U
	3/19/2021	ND<1 U
	9/15/2021	ND<1 U
	3/22/2022	ND<1
	9/14/2022	ND<1

---

Date	Count	Mean	Significant
3/16/2023	1	1	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: 1,4-Dichlorobenzene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 14.2857%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 2

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	1.8
	3/26/2020	1.9
	9/29/2020	2
	3/16/2021	1.8
	9/14/2021	1.8
	3/18/2022	1.7
	9/13/2022	ND<1

---

Date	Count	Mean	Significant
3/14/2023	1	1.4	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: 1,4-Dichlorobenzene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 1

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<1 U
	3/25/2020	ND<1 U
	9/29/2020	ND<1 U
	3/22/2021	ND<1 U
	9/15/2021	ND<1 U
	3/24/2022	ND<1
	9/15/2022	ND<1

---

Date	Count	Mean	Significant
3/16/2023	1	1	FALSE

## 5) Patapsco Aquifer Water Quality Parameters Inter-well Statistics

APPENDIX F

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Alkalinity, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 2

Non detect rank is 1.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5000	1.5
	3/19/2014	26000	36
	9/8/2014	11000	24
	3/17/2015	37000	38
	9/14/2015	24000	34
	3/17/2016	22000	32
	9/21/2016	5000	15
	3/24/2017	25000	35
	9/20/2017	52000	40
	3/27/2018	58000	41
	9/19/2018	47000	39
	3/11/2019	12000	28
	9/25/2019	11000	25
	3/18/2020	11000	26
	9/23/2020	12000	29
	3/17/2021	16000	30
	9/8/2021	17000	31
3/15/2022	11000	27	
9/12/2022	7000	21	
3/13/2023	22000	33	
GWM-2	9/25/2013	3300	8
	3/18/2014	2000 J	3
	9/16/2014	3000 J	5
	3/18/2015	4000 J	9
	9/15/2015	5000	16
	3/16/2016	3000 J	6
	9/22/2016	4000 J	10
	3/24/2017	4000 J	11
	9/21/2017	4000 J	12
	3/28/2018	4000 J	13
	9/21/2018	7000	22
	3/12/2019	3000 J	7
	10/1/2019	2000 J	4
	3/18/2020	5000 J	17
	9/23/2020	4000 J	14
	3/17/2021	5000	18
	9/9/2021	6000	20
3/15/2022	ND<5000	1.5	
9/12/2022	5000	19	
3/13/2023	10000	23	
GWM-4	9/18/2013	29260	37
	3/20/2014	175000	54
	9/9/2014	152000	44

3/16/2015	160000	46
9/9/2015	148000	43
3/18/2016	164000	50
9/20/2016	192000	57
3/23/2017	146000	42
9/18/2017	160000	47
3/15/2018	162000	48
9/17/2018	198000	59
3/5/2019	170000	53
9/24/2019	169000	52
3/16/2020	163000	49
9/22/2020	195000	58
3/16/2021	188000	56
9/14/2021	222000	60
3/22/2022	168000	51
9/13/2022	178000	55
3/14/2023	159000	45

---

The Wilcoxon Statistic is 796

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 6.20193

The Standard Deviation adjusted for ties is 63.7695

The Z Score adjusted for ties is 6.20202

**6.20193 > 2.326 indicating statistical significance at 1% level**

**6.20202 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Alkalinity, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 2

Non detect rank is 1.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5000	1.5
	3/19/2014	26000	36
	9/8/2014	11000	24
	3/17/2015	37000	37
	9/14/2015	24000	34
	3/17/2016	22000	32
	9/21/2016	5000	15
	3/24/2017	25000	35
	9/20/2017	52000	39
	3/27/2018	58000	41
	9/19/2018	47000	38
	3/11/2019	12000	28
	9/25/2019	11000	25
	3/18/2020	11000	26
	9/23/2020	12000	29
	3/17/2021	16000	30
	9/8/2021	17000	31
3/15/2022	11000	27	
9/12/2022	7000	21	
3/13/2023	22000	33	
GWM-2	9/25/2013	3300	8
	3/18/2014	2000 J	3
	9/16/2014	3000 J	5
	3/18/2015	4000 J	9
	9/15/2015	5000	16
	3/16/2016	3000 J	6
	9/22/2016	4000 J	10
	3/24/2017	4000 J	11
	9/21/2017	4000 J	12
	3/28/2018	4000 J	13
	9/21/2018	7000	22
	3/12/2019	3000 J	7
	10/1/2019	2000 J	4
	3/18/2020	5000 J	17
	9/23/2020	4000 J	14
	3/17/2021	5000	18
	9/9/2021	6000	20
3/15/2022	ND<5000	1.5	
9/12/2022	5000	19	
3/13/2023	10000	23	
GWM-5A	9/19/2013	77330	44
	12/5/2013	102390	53
	3/19/2014	157000	61



9/4/2014	106000	55
3/17/2015	150000	60
9/11/2015	101000	50
3/15/2016	101000	51
9/21/2016	102000	52
3/28/2017	86000	47
9/19/2017	90000	48
3/26/2018	98000	49
9/18/2018	144000	59
3/4/2019	124000	56
9/23/2019	105000	54
3/19/2020	130000	58
9/23/2020	77000	43
3/19/2021	126000	57
9/15/2021	78000	45
3/16/2022	70000	42
9/14/2022	80000	46
3/16/2023	57000	40

---

The Wilcoxon Statistic is 839

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is 6.35259

The Standard Deviation adjusted for ties is 65.8778

The Z Score adjusted for ties is 6.35267

**6.35259 > 2.326 indicating statistical significance at 1% level**

**6.35267 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Alkalinity, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 2

Non detect rank is 1.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5000	1.5
	3/19/2014	26000	36
	9/8/2014	11000	24
	3/17/2015	37000	37
	9/14/2015	24000	34
	3/17/2016	22000	32
	9/21/2016	5000	15
	3/24/2017	25000	35
	9/20/2017	52000	39
	3/27/2018	58000	40
	9/19/2018	47000	38
	3/11/2019	12000	28
	9/25/2019	11000	25
	3/18/2020	11000	26
	9/23/2020	12000	29
	3/17/2021	16000	30
	9/8/2021	17000	31
3/15/2022	11000	27	
9/12/2022	7000	21	
3/13/2023	22000	33	
GWM-2	9/25/2013	3300	8
	3/18/2014	2000 J	3
	9/16/2014	3000 J	5
	3/18/2015	4000 J	9
	9/15/2015	5000	16
	3/16/2016	3000 J	6
	9/22/2016	4000 J	10
	3/24/2017	4000 J	11
	9/21/2017	4000 J	12
	3/28/2018	4000 J	13
	9/21/2018	7000	22
	3/12/2019	3000 J	7
	10/1/2019	2000 J	4
	3/18/2020	5000 J	17
	9/23/2020	4000 J	14
	3/17/2021	5000	18
	9/9/2021	6000	20
3/15/2022	ND<5000	1.5	
9/12/2022	5000	19	
3/13/2023	10000	23	
GWM-14	9/24/2013	178190	57
	3/21/2014	209000	60
	9/8/2014	199000	58

3/19/2015	128000	45
9/14/2015	204000	59
3/21/2016	178000	56
9/23/2016	163000	54
3/27/2017	175000	55
9/20/2017	149000	49
3/16/2018	142000	47
9/20/2018	140000	46
3/5/2019	154000	51
9/25/2019	150000	50
3/25/2020	106000	41
9/28/2020	158000	52
3/18/2021	148000	48
9/15/2021	161000	53
3/22/2022	116000	42
9/14/2022	126000	44
3/16/2023	125000	43

---

The Wilcoxon Statistic is 800

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 6.26466

The Standard Deviation adjusted for ties is 63.7695

The Z Score adjusted for ties is 6.26475

**6.26466 > 2.326 indicating statistical significance at 1% level**

**6.26475 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Alkalinity, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 3

Non detect rank is 2

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5000	2
	3/19/2014	26000	37
	9/8/2014	11000	25
	3/17/2015	37000	38
	9/14/2015	24000	35
	3/17/2016	22000	33
	9/21/2016	5000	16
	3/24/2017	25000	36
	9/20/2017	52000	45
	3/27/2018	58000	47
	9/19/2018	47000	43
	3/11/2019	12000	29
	9/25/2019	11000	26
	3/18/2020	11000	27
	9/23/2020	12000	30
	3/17/2021	16000	31
	9/8/2021	17000	32
3/15/2022	11000	28	
9/12/2022	7000	22	
3/13/2023	22000	34	
GWM-2	9/25/2013	3300	9
	3/18/2014	2000 J	4
	9/16/2014	3000 J	6
	3/18/2015	4000 J	10
	9/15/2015	5000	17
	3/16/2016	3000 J	7
	9/22/2016	4000 J	11
	3/24/2017	4000 J	12
	9/21/2017	4000 J	13
	3/28/2018	4000 J	14
	9/21/2018	7000	23
	3/12/2019	3000 J	8
	10/1/2019	2000 J	5
	3/18/2020	5000 J	18
	9/23/2020	4000 J	15
	3/17/2021	5000	19
	9/9/2021	6000	21
3/15/2022	ND<5000	2	
9/12/2022	5000	20	
3/13/2023	10000	24	
GWM-6	9/24/2013	42270	41
	3/21/2014	42000	40
	9/17/2014	48000	44

3/19/2015	45000	42
9/15/2015	53000	46
3/21/2016	61000	48
9/26/2016	62000	50
3/31/2017	61000	49
9/21/2017	73000	53
3/30/2018	94000	55
9/26/2018	113000	58
3/13/2019	94000	56
10/3/2019	125000	59
4/3/2020	88000	54
9/30/2020	72000	52
3/22/2021	100000	57
9/16/2021	70000	51
3/24/2022	137000	60
9/16/2022	ND<50000	2
3/17/2023	39000	39

---

The Wilcoxon Statistic is 746

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 5.41787

The Standard Deviation adjusted for ties is 63.7669

The Z Score adjusted for ties is 5.41817

**5.41787 > 2.326 indicating statistical significance at 1% level**

**5.41817 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Alkalinity, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 2

Non detect rank is 1.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5000	1.5
	3/19/2014	26000	56
	9/8/2014	11000	28
	3/17/2015	37000	57
	9/14/2015	24000	54
	3/17/2016	22000	52
	9/21/2016	5000	15
	3/24/2017	25000	55
	9/20/2017	52000	59
	3/27/2018	58000	60
	9/19/2018	47000	58
	3/11/2019	12000	37
	9/25/2019	11000	29
	3/18/2020	11000	30
	9/23/2020	12000	38
	3/17/2021	16000	43
	9/8/2021	17000	44
3/15/2022	11000	31	
9/12/2022	7000	22	
3/13/2023	22000	53	
GWM-2	9/25/2013	3300	8
	3/18/2014	2000 J	3
	9/16/2014	3000 J	5
	3/18/2015	4000 J	9
	9/15/2015	5000	16
	3/16/2016	3000 J	6
	9/22/2016	4000 J	10
	3/24/2017	4000 J	11
	9/21/2017	4000 J	12
	3/28/2018	4000 J	13
	9/21/2018	7000	23
	3/12/2019	3000 J	7
	10/1/2019	2000 J	4
	3/18/2020	5000 J	17
	9/23/2020	4000 J	14
	3/17/2021	5000	18
	9/9/2021	6000	20
3/15/2022	ND<5000	1.5	
9/12/2022	5000	19	
3/13/2023	10000	25	
GWM-3	9/25/2013	6660	21
	3/18/2014	8000	24
	9/16/2014	10000	26

3/18/2015	10000	27
9/15/2015	11000	32
3/16/2016	12000	39
9/22/2016	11000	33
3/29/2017	11000	34
9/21/2017	11000	35
3/28/2018	12000	40
9/20/2018	13000	41
3/12/2019	11000	36
10/1/2019	18000	47
3/18/2020	20000	51
9/24/2020	17000	45
3/17/2021	19000	50
9/9/2021	17000	46
3/15/2022	18000	48
9/16/2022	18000	49
3/15/2023	14000	42

---

The Wilcoxon Statistic is 556

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 2.43843

The Standard Deviation adjusted for ties is 63.7695

The Z Score adjusted for ties is 2.43847

**2.43843 > 2.326 indicating statistical significance at 1% level**

**2.43847 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Alkalinity, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 2

Non detect rank is 1.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5000	1.5
	3/19/2014	26000	36
	9/8/2014	11000	24
	3/17/2015	37000	37
	9/14/2015	24000	34
	3/17/2016	22000	32
	9/21/2016	5000	15
	3/24/2017	25000	35
	9/20/2017	52000	39
	3/27/2018	58000	40
	9/19/2018	47000	38
	3/11/2019	12000	28
	9/25/2019	11000	25
	3/18/2020	11000	26
	9/23/2020	12000	29
	3/17/2021	16000	30
	9/8/2021	17000	31
3/15/2022	11000	27	
9/12/2022	7000	21	
3/13/2023	22000	33	
GWM-2	9/25/2013	3300	8
	3/18/2014	2000 J	3
	9/16/2014	3000 J	5
	3/18/2015	4000 J	9
	9/15/2015	5000	16
	3/16/2016	3000 J	6
	9/22/2016	4000 J	10
	3/24/2017	4000 J	11
	9/21/2017	4000 J	12
	3/28/2018	4000 J	13
	9/21/2018	7000	22
	3/12/2019	3000 J	7
	10/1/2019	2000 J	4
	3/18/2020	5000 J	17
	9/23/2020	4000 J	14
	3/17/2021	5000	18
	9/9/2021	6000	20
3/15/2022	ND<5000	1.5	
9/12/2022	5000	19	
3/13/2023	10000	23	
GWM-17S	11/14/2019	201000	48
	3/26/2020	188000	46
	9/29/2020	183000	45



3/16/2021	192000	47
9/14/2021	180000	44
3/18/2022	152000	42
9/13/2022	146000	41
3/14/2023	176000	43

---

The Wilcoxon Statistic is 320

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 4.41243

The Standard Deviation adjusted for ties is 36.1469

The Z Score adjusted for ties is 4.41255

**4.41243 > 2.326 indicating statistical significance at 1% level**

**4.41255 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Ammonia-N

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 18

Non detect rank is 9.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<100	9.5
	3/19/2014	134	38
	9/8/2014	ND<100 U	9.5
	3/17/2015	ND<100 U	9.5
	9/14/2015	ND<100 U	9.5
	3/17/2016	ND<100 U	9.5
	9/21/2016	ND<100 U	9.5
	3/24/2017	ND<100 U	9.5
	9/20/2017	60 J	23
	3/27/2018	34 J	20
	9/19/2018	66 J	25
	3/11/2019	74 J	27
	9/25/2019	149	39
	3/18/2020	ND<100 U	9.5
	9/23/2020	63 J	24
	3/17/2021	118	31
	9/8/2021	67 J	26
	3/15/2022	103	30
9/12/2022	ND<100	9.5	
3/13/2023	119	32	
GWM-2	9/25/2013	ND<100	9.5
	3/18/2014	130	36
	9/16/2014	124	34
	3/18/2015	ND<100 U	9.5
	9/15/2015	ND<100 U	9.5
	3/16/2016	ND<100 U	9.5
	9/22/2016	ND<100 U	9.5
	3/24/2017	32 J	19
	9/21/2017	ND<100 U	9.5
	3/28/2018	81 J	28
	9/21/2018	57 J	21
	3/12/2019	119	33
	10/1/2019	198	41
	3/18/2020	96 J	29
	9/23/2020	58 J	22
	3/17/2021	152	40
	9/9/2021	ND<100 U	9.5
	3/15/2022	126	35
9/12/2022	ND<100	9.5	
3/13/2023	132	37	
GWM-4	9/18/2013	ND<100	9.5
	3/20/2014	642	44
	9/9/2014	1630	52

3/16/2015	1650	53
9/9/2015	1950	56
3/18/2016	1680	54
9/20/2016	2720	60
3/23/2017	2230	58
9/18/2017	2590	59
3/15/2018	1150	51
9/17/2018	1750	55
3/5/2019	840	47
9/24/2019	2130	57
3/16/2020	700	45
9/22/2020	1140	50
3/16/2021	875	48
9/14/2021	1010	49
3/22/2022	739	46
9/13/2022	415	42
3/14/2023	520	43

---

The Wilcoxon Statistic is 768.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 5.7707

The Standard Deviation adjusted for ties is 62.9061

The Z Score adjusted for ties is 5.84999

**5.7707 > 2.326 indicating statistical significance at 1% level**

**5.84999 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Ammonia-N

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 28

Non detect rank is 14.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<100	14.5
	3/19/2014	134	54
	9/8/2014	ND<100 U	14.5
	3/17/2015	ND<100 U	14.5
	9/14/2015	ND<100 U	14.5
	3/17/2016	ND<100 U	14.5
	9/21/2016	ND<100 U	14.5
	3/24/2017	ND<100 U	14.5
	9/20/2017	60 J	35
	3/27/2018	34 J	31
	9/19/2018	66 J	37
	3/11/2019	74 J	40
	9/25/2019	149	55
	3/18/2020	ND<100 U	14.5
	9/23/2020	63 J	36
	3/17/2021	118	45
	9/8/2021	67 J	39
	3/15/2022	103	44
	9/12/2022	ND<100	14.5
3/13/2023	119	47	
GWM-2	9/25/2013	ND<100	14.5
	3/18/2014	130	52
	9/16/2014	124	49
	3/18/2015	ND<100 U	14.5
	9/15/2015	ND<100 U	14.5
	3/16/2016	ND<100 U	14.5
	9/22/2016	ND<100 U	14.5
	3/24/2017	32 J	30
	9/21/2017	ND<100 U	14.5
	3/28/2018	81 J	41
	9/21/2018	57 J	33
	3/12/2019	119	48
	10/1/2019	198	60
	3/18/2020	96 J	43
	9/23/2020	58 J	34
	3/17/2021	152	57
	9/9/2021	ND<100 U	14.5
	3/15/2022	126	50
	9/12/2022	ND<100	14.5
3/13/2023	132	53	
GWM-5A	9/19/2013	ND<100	14.5
	12/5/2013	ND<100	14.5
	3/19/2014	260	61

9/4/2014	ND<100 U	14.5
3/17/2015	ND<100 U	14.5
9/11/2015	ND<100 U	14.5
3/15/2016	ND<100 U	14.5
9/21/2016	ND<100 U	14.5
3/28/2017	ND<100 U	14.5
9/19/2017	10 J	29
3/26/2018	158	58
9/18/2018	66 J	38
3/4/2019	149	56
9/23/2019	118	46
3/19/2020	41 J	32
9/23/2020	ND<100 U	14.5
3/19/2021	ND<100 U	14.5
9/15/2021	87 J	42
3/16/2022	186	59
9/14/2022	128	51
3/16/2023	ND<100	14.5

---

The Wilcoxon Statistic is 400.5

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is -0.303588

The Standard Deviation adjusted for ties is 62.6154

The Z Score adjusted for ties is -0.31941

-0.303588 < 2.326 indicating no statistical significance at 1% level

-0.31941 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Ammonia-N

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 21

Non detect rank is 11

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<100	11
	3/19/2014	134	50
	9/8/2014	ND<100 U	11
	3/17/2015	ND<100 U	11
	9/14/2015	ND<100 U	11
	3/17/2016	ND<100 U	11
	9/21/2016	ND<100 U	11
	3/24/2017	ND<100 U	11
	9/20/2017	60 J	28
	3/27/2018	34 J	23
	9/19/2018	66 J	30
	3/11/2019	74 J	32
	9/25/2019	149	52
	3/18/2020	ND<100 U	11
	9/23/2020	63 J	29
	3/17/2021	118	41
	9/8/2021	67 J	31
	3/15/2022	103	39
	9/12/2022	ND<100	11
3/13/2023	119	42	
GWM-2	9/25/2013	ND<100	11
	3/18/2014	130	47
	9/16/2014	124	45
	3/18/2015	ND<100 U	11
	9/15/2015	ND<100 U	11
	3/16/2016	ND<100 U	11
	9/22/2016	ND<100 U	11
	3/24/2017	32 J	22
	9/21/2017	ND<100 U	11
	3/28/2018	81 J	33
	9/21/2018	57 J	25
	3/12/2019	119	43
	10/1/2019	198	57
	3/18/2020	96 J	37
	9/23/2020	58 J	26
	3/17/2021	152	53
	9/9/2021	ND<100 U	11
	3/15/2022	126	46
	9/12/2022	ND<100	11
3/13/2023	132	48	
GWM-14	9/24/2013	ND<100	11
	3/21/2014	119	44
	9/8/2014	87 J	35

3/19/2015	59 J	27
9/14/2015	54 J	24
3/21/2016	ND<100 U	11
9/23/2016	178	55
3/27/2017	85 J	34
9/20/2017	104	40
3/16/2018	209	58
9/20/2018	100	38
3/5/2019	ND<100 U	11
9/25/2019	165	54
3/25/2020	92 J	36
9/28/2020	189	56
3/18/2021	254	60
9/15/2021	137	51
3/22/2022	ND<100	11
9/14/2022	241	59
3/16/2023	132	49

---

The Wilcoxon Statistic is 554

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 2.40707

The Standard Deviation adjusted for ties is 62.3911

The Z Score adjusted for ties is 2.46028

**2.40707 > 2.326 indicating statistical significance at 1% level**

**2.46028 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Ammonia-N

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 22

Non detect rank is 11.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<100	11.5
	3/19/2014	134	53
	9/8/2014	ND<100 U	11.5
	3/17/2015	ND<100 U	11.5
	9/14/2015	ND<100 U	11.5
	3/17/2016	ND<100 U	11.5
	9/21/2016	ND<100 U	11.5
	3/24/2017	ND<100 U	11.5
	9/20/2017	60 J	29
	3/27/2018	34 J	24
	9/19/2018	66 J	32
	3/11/2019	74 J	34
	9/25/2019	149	54
	3/18/2020	ND<100 U	11.5
	9/23/2020	63 J	30
	3/17/2021	118	42
	9/8/2021	67 J	33
	3/15/2022	103	40
	9/12/2022	ND<100	11.5
3/13/2023	119	43	
GWM-2	9/25/2013	ND<100	11.5
	3/18/2014	130	50
	9/16/2014	124	45
	3/18/2015	ND<100 U	11.5
	9/15/2015	ND<100 U	11.5
	3/16/2016	ND<100 U	11.5
	9/22/2016	ND<100 U	11.5
	3/24/2017	32 J	23
	9/21/2017	ND<100 U	11.5
	3/28/2018	81 J	38
	9/21/2018	57 J	27
	3/12/2019	119	44
	10/1/2019	198	57
	3/18/2020	96 J	39
	9/23/2020	58 J	28
	3/17/2021	152	55
	9/9/2021	ND<100 U	11.5
	3/15/2022	126	47
	9/12/2022	ND<100	11.5
3/13/2023	132	51	
GWM-6	9/24/2013	ND<100	11.5
	3/21/2014	ND<100 U	11.5
	9/17/2014	133	52



3/19/2015	ND<100 U	11.5
9/15/2015	ND<100 U	11.5
3/21/2016	ND<100 U	11.5
9/26/2016	44 J	25
3/31/2017	45 J	26
9/21/2017	80 J	37
3/30/2018	111	41
9/26/2018	79 J	35
3/13/2019	128	49
10/3/2019	264	59
4/3/2020	126	48
9/30/2020	292	60
3/22/2021	217	58
9/16/2021	64 J	31
3/24/2022	191	56
9/16/2022	79 J	36
3/17/2023	125	46

---

The Wilcoxon Statistic is 506.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 1.66221

The Standard Deviation adjusted for ties is 62.1816

The Z Score adjusted for ties is 1.70468

1.66221 < 2.326 indicating no statistical significance at 1% level

1.70468 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Ammonia-N

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 25

Non detect rank is 13

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<100	13
	3/19/2014	134	54
	9/8/2014	ND<100 U	13
	3/17/2015	ND<100 U	13
	9/14/2015	ND<100 U	13
	3/17/2016	ND<100 U	13
	9/21/2016	ND<100 U	13
	3/24/2017	ND<100 U	13
	9/20/2017	60 J	33
	3/27/2018	34 J	27
	9/19/2018	66 J	35
	3/11/2019	74 J	37
	9/25/2019	149	55
	3/18/2020	ND<100 U	13
	9/23/2020	63 J	34
	3/17/2021	118	46
	9/8/2021	67 J	36
	3/15/2022	103	45
9/12/2022	ND<100	13	
3/13/2023	119	47	
GWM-2	9/25/2013	ND<100	13
	3/18/2014	130	51
	9/16/2014	124	49
	3/18/2015	ND<100 U	13
	9/15/2015	ND<100 U	13
	3/16/2016	ND<100 U	13
	9/22/2016	ND<100 U	13
	3/24/2017	32 J	26
	9/21/2017	ND<100 U	13
	3/28/2018	81 J	40
	9/21/2018	57 J	31
	3/12/2019	119	48
	10/1/2019	198	57
	3/18/2020	96 J	44
	9/23/2020	58 J	32
	3/17/2021	152	56
	9/9/2021	ND<100 U	13
	3/15/2022	126	50
9/12/2022	ND<100	13	
3/13/2023	132	53	
GWM-3	9/25/2013	ND<100	13
	3/18/2014	130	52
	9/16/2014	90 J	43

3/18/2015	ND<100 U	13
9/15/2015	ND<100 U	13
3/16/2016	ND<100 U	13
9/22/2016	74 J	38
3/29/2017	48 J	29
9/21/2017	ND<100 U	13
3/28/2018	54 J	30
9/20/2018	38 J	28
3/12/2019	89 J	42
10/1/2019	249	59
3/18/2020	ND<100 U	13
9/24/2020	ND<100 U	13
3/17/2021	287	60
9/9/2021	ND<100 U	13
3/15/2022	77 J	39
9/16/2022	84 J	41
3/15/2023	233	58

---

The Wilcoxon Statistic is 413

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 0.196016

The Standard Deviation adjusted for ties is 61.4238

The Z Score adjusted for ties is 0.203504

0.196016 < 2.326 indicating no statistical significance at 1% level

0.203504 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Ammonia-N

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 18

Non detect rank is 9.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<100	9.5
	3/19/2014	134	38
	9/8/2014	ND<100 U	9.5
	3/17/2015	ND<100 U	9.5
	9/14/2015	ND<100 U	9.5
	3/17/2016	ND<100 U	9.5
	9/21/2016	ND<100 U	9.5
	3/24/2017	ND<100 U	9.5
	9/20/2017	60 J	23
	3/27/2018	34 J	20
	9/19/2018	66 J	25
	3/11/2019	74 J	27
	9/25/2019	149	40
	3/18/2020	ND<100 U	9.5
	9/23/2020	63 J	24
	3/17/2021	118	31
	9/8/2021	67 J	26
	3/15/2022	103	30
9/12/2022	ND<100	9.5	
3/13/2023	119	32	
GWM-2	9/25/2013	ND<100	9.5
	3/18/2014	130	36
	9/16/2014	124	34
	3/18/2015	ND<100 U	9.5
	9/15/2015	ND<100 U	9.5
	3/16/2016	ND<100 U	9.5
	9/22/2016	ND<100 U	9.5
	3/24/2017	32 J	19
	9/21/2017	ND<100 U	9.5
	3/28/2018	81 J	28
	9/21/2018	57 J	21
	3/12/2019	119	33
	10/1/2019	198	43
	3/18/2020	96 J	29
	9/23/2020	58 J	22
	3/17/2021	152	41
	9/9/2021	ND<100 U	9.5
	3/15/2022	126	35
9/12/2022	ND<100	9.5	
3/13/2023	132	37	
GWM-17S	11/14/2019	185	42
	3/26/2020	139	39
	9/29/2020	203	44

3/16/2021	427	46
9/14/2021	362	45
3/18/2022	429	47
9/13/2022	ND<100	9.5
3/14/2023	548	48

---

The Wilcoxon Statistic is 284.5

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 3.43036

The Standard Deviation adjusted for ties is 35.1844

The Z Score adjusted for ties is 3.52429

**3.43036 > 2.326 indicating statistical significance at 1% level**

**3.52429 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chemical Oxygen Demand (COD)

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 34

Non detect rank is 17.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<15000	17.5
	3/19/2014	ND<15000 U	17.5
	9/8/2014	7000	44
	3/17/2015	ND<15000 U	17.5
	9/14/2015	ND<15000 U	17.5
	3/17/2016	ND<15000 U	17.5
	9/21/2016	ND<15000 U	17.5
	3/24/2017	ND<15000 U	17.5
	9/20/2017	8000	46
	3/27/2018	ND<15000 U	17.5
	9/19/2018	ND<15000 U	17.5
	3/11/2019	9000 J	47
	9/25/2019	ND<15000 U	17.5
	3/18/2020	ND<15000 U	17.5
	9/23/2020	ND<15000 U	17.5
	3/17/2021	9000 J	48
	9/8/2021	5000 J	39
3/15/2022	ND<15000	17.5	
9/12/2022	ND<15000	17.5	
3/13/2023	7000 J	45	
GWM-2	9/25/2013	ND<15000	17.5
	3/18/2014	4000 J	38
	9/16/2014	ND<15000 U	17.5
	3/18/2015	ND<15000 U	17.5
	9/15/2015	3000 J	36
	3/16/2016	3000 J	37
	9/22/2016	ND<15000 U	17.5
	3/24/2017	ND<15000 U	17.5
	9/21/2017	ND<15000 U	17.5
	3/28/2018	ND<15000 U	17.5
	9/21/2018	ND<15000 U	17.5
	3/12/2019	10000 J	50
	10/1/2019	ND<15000 U	17.5
	3/18/2020	ND<15000 U	17.5
	9/23/2020	ND<15000 U	17.5
	3/17/2021	10000 J	51
	9/9/2021	5000 J	40
3/15/2022	ND<15000	17.5	
9/12/2022	ND<15000	17.5	
3/13/2023	6000 J	42	
GWM-4	9/18/2013	ND<15000	17.5
	3/20/2014	ND<15000 U	17.5
	9/9/2014	25000	59

3/16/2015	ND<15000 U	17.5
9/9/2015	1000 J	35
3/18/2016	13000	55
9/20/2016	13000	56
3/23/2017	6000 J	43
9/18/2017	12000	54
3/15/2018	11000	52
9/17/2018	ND<15000 U	17.5
3/5/2019	16000	57
9/24/2019	ND<15000 U	17.5
3/16/2020	22000	58
9/22/2020	ND<15000 U	17.5
3/16/2021	11000 J	53
9/14/2021	9000 J	49
3/22/2022	ND<15000	17.5
9/13/2022	5000 J	41
3/14/2023	56000	60

---

The Wilcoxon Statistic is 584.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 2.88535

The Standard Deviation adjusted for ties is 57.6812

The Z Score adjusted for ties is 3.18995

**2.88535 > 2.326 indicating statistical significance at 1% level**

**3.18995 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chemical Oxygen Demand (COD)

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 36

Non detect rank is 18.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<15000	18.5
	3/19/2014	ND<15000 U	18.5
	9/8/2014	7000	46
	3/17/2015	ND<15000 U	18.5
	9/14/2015	ND<15000 U	18.5
	3/17/2016	ND<15000 U	18.5
	9/21/2016	ND<15000 U	18.5
	3/24/2017	ND<15000 U	18.5
	9/20/2017	8000	50
	3/27/2018	ND<15000 U	18.5
	9/19/2018	ND<15000 U	18.5
	3/11/2019	9000 J	52
	9/25/2019	ND<15000 U	18.5
	3/18/2020	ND<15000 U	18.5
	9/23/2020	ND<15000 U	18.5
	3/17/2021	9000 J	53
	9/8/2021	5000 J	41
3/15/2022	ND<15000	18.5	
9/12/2022	ND<15000	18.5	
3/13/2023	7000 J	47	
GWM-2	9/25/2013	ND<15000	18.5
	3/18/2014	4000 J	40
	9/16/2014	ND<15000 U	18.5
	3/18/2015	ND<15000 U	18.5
	9/15/2015	3000 J	38
	3/16/2016	3000 J	39
	9/22/2016	ND<15000 U	18.5
	3/24/2017	ND<15000 U	18.5
	9/21/2017	ND<15000 U	18.5
	3/28/2018	ND<15000 U	18.5
	9/21/2018	ND<15000 U	18.5
	3/12/2019	10000 J	57
	10/1/2019	ND<15000 U	18.5
	3/18/2020	ND<15000 U	18.5
	9/23/2020	ND<15000 U	18.5
	3/17/2021	10000 J	58
	9/9/2021	5000 J	42
3/15/2022	ND<15000	18.5	
9/12/2022	ND<15000	18.5	
3/13/2023	6000 J	45	
GWM-5A	9/19/2013	ND<15000	18.5
	12/5/2013	ND<15000	18.5
	3/19/2014	ND<15000 U	18.5



9/4/2014	10000	59
3/17/2015	ND<15000 U	18.5
9/11/2015	9000	54
3/15/2016	1000 J	37
9/21/2016	8000	51
3/28/2017	5000 J	43
9/19/2017	9000	55
3/26/2018	ND<15000 U	18.5
9/18/2018	ND<15000 U	18.5
3/4/2019	9000 J	56
9/23/2019	ND<15000 U	18.5
3/19/2020	ND<15000 U	18.5
9/23/2020	11000 J	60
3/19/2021	5000 J	44
9/15/2021	7000 J	48
3/16/2022	ND<15000	18.5
9/14/2022	7000 J	49
3/16/2023	12000 J	61

---

The Wilcoxon Statistic is 552.5

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is 2.00368

The Standard Deviation adjusted for ties is 58.7227

The Z Score adjusted for ties is 2.24785

2.00368 < 2.326 indicating no statistical significance at 1% level

2.24785 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chemical Oxygen Demand (COD)

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 28

Non detect rank is 14.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<15000	14.5
	3/19/2014	ND<15000 U	14.5
	9/8/2014	7000	35
	3/17/2015	ND<15000 U	14.5
	9/14/2015	ND<15000 U	14.5
	3/17/2016	ND<15000 U	14.5
	9/21/2016	ND<15000 U	14.5
	3/24/2017	ND<15000 U	14.5
	9/20/2017	8000	38
	3/27/2018	ND<15000 U	14.5
	9/19/2018	ND<15000 U	14.5
	3/11/2019	9000 J	39
	9/25/2019	ND<15000 U	14.5
	3/18/2020	ND<15000 U	14.5
	9/23/2020	ND<15000 U	14.5
	3/17/2021	9000 J	40
	9/8/2021	5000 J	32
3/15/2022	ND<15000	14.5	
9/12/2022	ND<15000	14.5	
3/13/2023	7000 J	36	
GWM-2	9/25/2013	ND<15000	14.5
	3/18/2014	4000 J	31
	9/16/2014	ND<15000 U	14.5
	3/18/2015	ND<15000 U	14.5
	9/15/2015	3000 J	29
	3/16/2016	3000 J	30
	9/22/2016	ND<15000 U	14.5
	3/24/2017	ND<15000 U	14.5
	9/21/2017	ND<15000 U	14.5
	3/28/2018	ND<15000 U	14.5
	9/21/2018	ND<15000 U	14.5
	3/12/2019	10000 J	41
	10/1/2019	ND<15000 U	14.5
	3/18/2020	ND<15000 U	14.5
	9/23/2020	ND<15000 U	14.5
	3/17/2021	10000 J	42
	9/9/2021	5000 J	33
3/15/2022	ND<15000	14.5	
9/12/2022	ND<15000	14.5	
3/13/2023	6000 J	34	
GWM-14	9/24/2013	29000	59
	3/21/2014	13000	45
	9/8/2014	11000	43

3/19/2015	ND<15000 U	14.5
9/14/2015	12000	44
3/21/2016	16000	47
9/23/2016	7000 J	37
3/27/2017	20000	51
9/20/2017	24000	56
3/16/2018	13000	46
9/20/2018	19000	50
3/5/2019	27000	57
9/25/2019	21000	53
3/25/2020	17000	48
9/28/2020	23000	55
3/18/2021	33000	60
9/15/2021	20000	52
3/22/2022	18000	49
9/14/2022	21000	54
3/16/2023	28000	58

---

The Wilcoxon Statistic is 768.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 5.7707

The Standard Deviation adjusted for ties is 60.4465

The Z Score adjusted for ties is 6.08802

**5.7707 > 2.326 indicating statistical significance at 1% level**

**6.08802 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chemical Oxygen Demand (COD)

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 27

Non detect rank is 14

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<15000	14
	3/19/2014	ND<15000 U	14
	9/8/2014	7000	37
	3/17/2015	ND<15000 U	14
	9/14/2015	ND<15000 U	14
	3/17/2016	ND<15000 U	14
	9/21/2016	ND<15000 U	14
	3/24/2017	ND<15000 U	14
	9/20/2017	8000	40
	3/27/2018	ND<15000 U	14
	9/19/2018	ND<15000 U	14
	3/11/2019	9000 J	41
	9/25/2019	ND<15000 U	14
	3/18/2020	ND<15000 U	14
	9/23/2020	ND<15000 U	14
	3/17/2021	9000 J	42
	9/8/2021	5000 J	33
3/15/2022	ND<15000	14	
9/12/2022	ND<15000	14	
3/13/2023	7000 J	38	
GWM-2	9/25/2013	ND<15000	14
	3/18/2014	4000 J	32
	9/16/2014	ND<15000 U	14
	3/18/2015	ND<15000 U	14
	9/15/2015	3000 J	29
	3/16/2016	3000 J	30
	9/22/2016	ND<15000 U	14
	3/24/2017	ND<15000 U	14
	9/21/2017	ND<15000 U	14
	3/28/2018	ND<15000 U	14
	9/21/2018	ND<15000 U	14
	3/12/2019	10000 J	43
	10/1/2019	ND<15000 U	14
	3/18/2020	ND<15000 U	14
	9/23/2020	ND<15000 U	14
	3/17/2021	10000 J	44
	9/9/2021	5000 J	34
3/15/2022	ND<15000	14	
9/12/2022	ND<15000	14	
3/13/2023	6000 J	36	
GWM-6	9/24/2013	16000	48
	3/21/2014	3000 J	31
	9/17/2014	12000	45

3/19/2015	2000 J	28
9/15/2015	5000	35
3/21/2016	13000	46
9/26/2016	7000 J	39
3/31/2017	14000	47
9/21/2017	16000	49
3/30/2018	19000	50
9/26/2018	27000	55
3/13/2019	29000	57
10/3/2019	28000	56
4/3/2020	23000	53
9/30/2020	21000	52
3/22/2021	20000	51
9/16/2021	25000	54
3/24/2022	31000	59
9/16/2022	29000	58
3/17/2023	33000	60

---

The Wilcoxon Statistic is 763

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 5.68445

The Standard Deviation adjusted for ties is 60.7988

The Z Score adjusted for ties is 5.96229

**5.68445 > 2.326 indicating statistical significance at 1% level**

**5.96229 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chemical Oxygen Demand (COD)

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 40

Non detect rank is 20.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<15000	20.5
	3/19/2014	ND<15000 U	20.5
	9/8/2014	7000	48
	3/17/2015	ND<15000 U	20.5
	9/14/2015	ND<15000 U	20.5
	3/17/2016	ND<15000 U	20.5
	9/21/2016	ND<15000 U	20.5
	3/24/2017	ND<15000 U	20.5
	9/20/2017	8000	53
	3/27/2018	ND<15000 U	20.5
	9/19/2018	ND<15000 U	20.5
	3/11/2019	9000 J	54
	9/25/2019	ND<15000 U	20.5
	3/18/2020	ND<15000 U	20.5
	9/23/2020	ND<15000 U	20.5
	3/17/2021	9000 J	55
	9/8/2021	5000 J	45
3/15/2022	ND<15000	20.5	
9/12/2022	ND<15000	20.5	
3/13/2023	7000 J	49	
GWM-2	9/25/2013	ND<15000	20.5
	3/18/2014	4000 J	43
	9/16/2014	ND<15000 U	20.5
	3/18/2015	ND<15000 U	20.5
	9/15/2015	3000 J	41
	3/16/2016	3000 J	42
	9/22/2016	ND<15000 U	20.5
	3/24/2017	ND<15000 U	20.5
	9/21/2017	ND<15000 U	20.5
	3/28/2018	ND<15000 U	20.5
	9/21/2018	ND<15000 U	20.5
	3/12/2019	10000 J	56
	10/1/2019	ND<15000 U	20.5
	3/18/2020	ND<15000 U	20.5
	9/23/2020	ND<15000 U	20.5
	3/17/2021	10000 J	57
	9/9/2021	5000 J	46
3/15/2022	ND<15000	20.5	
9/12/2022	ND<15000	20.5	
3/13/2023	6000 J	47	
GWM-3	9/25/2013	ND<15000	20.5
	3/18/2014	12000	58
	9/16/2014	ND<15000 U	20.5

3/18/2015	ND<15000 U	20.5
9/15/2015	ND<15000 U	20.5
3/16/2016	ND<15000 U	20.5
9/22/2016	ND<15000 U	20.5
3/29/2017	4000 J	44
9/21/2017	ND<15000 U	20.5
3/28/2018	ND<15000 U	20.5
9/20/2018	ND<15000 U	20.5
3/12/2019	12000 J	59
10/1/2019	7000 J	50
3/18/2020	ND<15000 U	20.5
9/24/2020	ND<15000 U	20.5
3/17/2021	7000 J	51
9/9/2021	7000 J	52
3/15/2022	ND<15000	20.5
9/16/2022	ND<15000	20.5
3/15/2023	17000	60

---

The Wilcoxon Statistic is 430.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 0.470438

The Standard Deviation adjusted for ties is 53.499

The Z Score adjusted for ties is 0.560758

0.470438 < 2.326 indicating no statistical significance at 1% level

0.560758 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chemical Oxygen Demand (COD)

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 27

Non detect rank is 14

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<15000	14
	3/19/2014	ND<15000 U	14
	9/8/2014	7000	34
	3/17/2015	ND<15000 U	14
	9/14/2015	ND<15000 U	14
	3/17/2016	ND<15000 U	14
	9/21/2016	ND<15000 U	14
	3/24/2017	ND<15000 U	14
	9/20/2017	8000	36
	3/27/2018	ND<15000 U	14
	9/19/2018	ND<15000 U	14
	3/11/2019	9000 J	37
	9/25/2019	ND<15000 U	14
	3/18/2020	ND<15000 U	14
	9/23/2020	ND<15000 U	14
	3/17/2021	9000 J	38
	9/8/2021	5000 J	31
3/15/2022	ND<15000	14	
9/12/2022	ND<15000	14	
3/13/2023	7000 J	35	
GWM-2	9/25/2013	ND<15000	14
	3/18/2014	4000 J	30
	9/16/2014	ND<15000 U	14
	3/18/2015	ND<15000 U	14
	9/15/2015	3000 J	28
	3/16/2016	3000 J	29
	9/22/2016	ND<15000 U	14
	3/24/2017	ND<15000 U	14
	9/21/2017	ND<15000 U	14
	3/28/2018	ND<15000 U	14
	9/21/2018	ND<15000 U	14
	3/12/2019	10000 J	39
	10/1/2019	ND<15000 U	14
	3/18/2020	ND<15000 U	14
	9/23/2020	ND<15000 U	14
	3/17/2021	10000 J	40
	9/9/2021	5000 J	32
3/15/2022	ND<15000	14	
9/12/2022	ND<15000	14	
3/13/2023	6000 J	33	
GWM-17S	11/14/2019	17000	41
	3/26/2020	18000	43
	9/29/2020	20000	45



3/16/2021	24000	47
9/14/2021	22000	46
3/18/2022	18000	44
9/13/2022	17000	42
3/14/2023	26000	48

---

The Wilcoxon Statistic is 320

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 4.41243

The Standard Deviation adjusted for ties is 32.7769

The Z Score adjusted for ties is 4.86623

**4.41243 > 2.326 indicating statistical significance at 1% level**

**4.86623 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chloride

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	29070	2
	3/19/2014	115000	46
	9/8/2014	62900	3
	3/17/2015	308000	59
	9/14/2015	152000	52
	3/17/2016	93400	30
	9/21/2016	109000	40
	3/24/2017	87600	26
	9/20/2017	64600	5
	3/27/2018	164000	54
	9/19/2018	85200	23
	3/11/2019	79400	17
	9/25/2019	177000	56
	3/18/2020	162000	53
	9/23/2020	117000	47
	3/17/2021	98500	33
	9/8/2021	82800	21
3/15/2022	319000	60	
9/12/2022	249000	58	
3/13/2023	217000	57	
GWM-2	9/25/2013	74670	11
	3/18/2014	88200	28
	9/16/2014	89400	29
	3/18/2015	84500	22
	9/15/2015	85300	24
	3/16/2016	77100	14
	9/22/2016	76900	13
	3/24/2017	71100	8
	9/21/2017	82100	18
	3/28/2018	82700	20
	9/21/2018	87700	27
	3/12/2019	86900	25
	10/1/2019	82300	19
	3/18/2020	75700	12
	9/23/2020	64000	4
	3/17/2021	67300	6
	9/9/2021	78500	16
3/15/2022	71500	9	
9/12/2022	69500	7	
3/13/2023	77300	15	
GWM-4	9/18/2013	8930	1
	3/20/2014	74100	10
	9/9/2014	98200	32

3/16/2015	99100	34
9/9/2015	93600	31
3/18/2016	99300	35
9/20/2016	110000	42
3/23/2017	132000	50
9/18/2017	140000	51
3/15/2018	124000	48
9/17/2018	109000	41
3/5/2019	107000	38
9/24/2019	111000	43
3/16/2020	172000	55
9/22/2020	104000	36
3/16/2021	106000	37
9/14/2021	111000	44
3/22/2022	127000	49
9/13/2022	107000	39
3/14/2023	112000	45

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The Wilcoxon Statistic is 551

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 2.36003

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 2.36003

**2.36003 > 2.326 indicating statistical significance at 1% level**

**2.36003 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chloride

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	29070	1
	3/19/2014	115000	52
	9/8/2014	62900	12
	3/17/2015	308000	60
	9/14/2015	152000	54
	3/17/2016	93400	49
	9/21/2016	109000	51
	3/24/2017	87600	44
	9/20/2017	64600	16
	3/27/2018	164000	56
	9/19/2018	85200	41
	3/11/2019	79400	35
	9/25/2019	177000	57
	3/18/2020	162000	55
	9/23/2020	117000	53
	3/17/2021	98500	50
	9/8/2021	82800	39
3/15/2022	319000	61	
9/12/2022	249000	59	
3/13/2023	217000	58	
GWM-2	9/25/2013	74670	28
	3/18/2014	88200	46
	9/16/2014	89400	48
	3/18/2015	84500	40
	9/15/2015	85300	42
	3/16/2016	77100	31
	9/22/2016	76900	30
	3/24/2017	71100	24
	9/21/2017	82100	36
	3/28/2018	82700	38
	9/21/2018	87700	45
	3/12/2019	86900	43
	10/1/2019	82300	37
	3/18/2020	75700	29
	9/23/2020	64000	14
	3/17/2021	67300	21
	9/9/2021	78500	34
3/15/2022	71500	25	
9/12/2022	69500	22	
3/13/2023	77300	32	
GWM-5A	9/19/2013	58970	7
	12/5/2013	57910	5
	3/19/2014	53000	3

9/4/2014	72600	27
3/17/2015	58700	6
9/11/2015	67100	20
3/15/2016	65200	18
9/21/2016	63500	13
3/28/2017	64800	17
9/19/2017	59200	9
3/26/2018	62000	11
9/18/2018	88400	47
3/4/2019	77600	33
9/23/2019	71500	26
3/19/2020	66800	19
9/23/2020	70900	23
3/19/2021	64100	15
9/15/2021	57300	4
3/16/2022	50900	2
9/14/2022	59900	10
3/16/2023	59100	8

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The Wilcoxon Statistic is 92

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is -4.98644

The Standard Deviation adjusted for ties is 65.8787

The Z Score adjusted for ties is -4.98644

-4.98644 < 2.326 indicating no statistical significance at 1% level

-4.98644 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chloride

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	29070	11
	3/19/2014	115000	51
	9/8/2014	62900	22
	3/17/2015	308000	59
	9/14/2015	152000	53
	3/17/2016	93400	48
	9/21/2016	109000	50
	3/24/2017	87600	44
	9/20/2017	64600	24
	3/27/2018	164000	55
	9/19/2018	85200	41
	3/11/2019	79400	35
	9/25/2019	177000	56
	3/18/2020	162000	54
	9/23/2020	117000	52
	3/17/2021	98500	49
	9/8/2021	82800	39
3/15/2022	319000	60	
9/12/2022	249000	58	
3/13/2023	217000	57	
GWM-2	9/25/2013	74670	29
	3/18/2014	88200	46
	9/16/2014	89400	47
	3/18/2015	84500	40
	9/15/2015	85300	42
	3/16/2016	77100	32
	9/22/2016	76900	31
	3/24/2017	71100	27
	9/21/2017	82100	36
	3/28/2018	82700	38
	9/21/2018	87700	45
	3/12/2019	86900	43
	10/1/2019	82300	37
	3/18/2020	75700	30
	9/23/2020	64000	23
	3/17/2021	67300	25
	9/9/2021	78500	34
3/15/2022	71500	28	
9/12/2022	69500	26	
3/13/2023	77300	33	
GWM-14	9/24/2013	25700	4
	3/21/2014	24600	2
	9/8/2014	27000	8

3/19/2015	25900	5
9/14/2015	26100	6
3/21/2016	24800	3
9/23/2016	27700	9
3/27/2017	26400	7
9/20/2017	34800	16
3/16/2018	32900	13
9/20/2018	34200	14
3/5/2019	30000	12
9/25/2019	24500	1
3/25/2020	28600	10
9/28/2020	36700	17
3/18/2021	34700	15
9/15/2021	36900	18
3/22/2022	40200	19
9/14/2022	40900	20
3/16/2023	43900	21

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The Wilcoxon Statistic is 10

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -6.12353

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is -6.12353

-6.12353 < 2.326 indicating no statistical significance at 1% level

-6.12353 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chloride

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	29070	1
	3/19/2014	115000	51
	9/8/2014	62900	10
	3/17/2015	308000	59
	9/14/2015	152000	53
	3/17/2016	93400	46
	9/21/2016	109000	50
	3/24/2017	87600	38
	9/20/2017	64600	12
	3/27/2018	164000	55
	9/19/2018	85200	34
	3/11/2019	79400	27
	9/25/2019	177000	56
	3/18/2020	162000	54
	9/23/2020	117000	52
	3/17/2021	98500	49
	9/8/2021	82800	32
3/15/2022	319000	60	
9/12/2022	249000	58	
3/13/2023	217000	57	
GWM-2	9/25/2013	74670	19
	3/18/2014	88200	40
	9/16/2014	89400	41
	3/18/2015	84500	33
	9/15/2015	85300	35
	3/16/2016	77100	24
	9/22/2016	76900	23
	3/24/2017	71100	17
	9/21/2017	82100	29
	3/28/2018	82700	31
	9/21/2018	87700	39
	3/12/2019	86900	36
	10/1/2019	82300	30
	3/18/2020	75700	20
	9/23/2020	64000	11
	3/17/2021	67300	13
	9/9/2021	78500	26
3/15/2022	71500	18	
9/12/2022	69500	15	
3/13/2023	77300	25	
GWM-6	9/24/2013	53270	7
	3/21/2014	43200	3
	9/17/2014	60000	8



3/19/2015	48400	4
9/15/2015	60700	9
3/21/2016	51600	5
9/26/2016	38400	2
3/31/2017	52300	6
9/21/2017	76200	22
3/30/2018	81900	28
9/26/2018	97400	48
3/13/2019	89700	42
10/3/2019	69300	14
4/3/2020	71000	16
9/30/2020	76000	21
3/22/2021	96700	47
9/16/2021	90500	44
3/24/2022	91800	45
9/16/2022	90200	43
3/17/2023	87400	37

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The Wilcoxon Statistic is 241

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -2.50116

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is -2.50116

-2.50116 < 2.326 indicating no statistical significance at 1% level

-2.50116 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chloride

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	29070	1
	3/19/2014	115000	51
	9/8/2014	62900	21
	3/17/2015	308000	59
	9/14/2015	152000	53
	3/17/2016	93400	48
	9/21/2016	109000	50
	3/24/2017	87600	44
	9/20/2017	64600	23
	3/27/2018	164000	55
	9/19/2018	85200	41
	3/11/2019	79400	35
	9/25/2019	177000	56
	3/18/2020	162000	54
	9/23/2020	117000	52
	3/17/2021	98500	49
	9/8/2021	82800	39
3/15/2022	319000	60	
9/12/2022	249000	58	
3/13/2023	217000	57	
GWM-2	9/25/2013	74670	29
	3/18/2014	88200	46
	9/16/2014	89400	47
	3/18/2015	84500	40
	9/15/2015	85300	42
	3/16/2016	77100	32
	9/22/2016	76900	31
	3/24/2017	71100	27
	9/21/2017	82100	36
	3/28/2018	82700	38
	9/21/2018	87700	45
	3/12/2019	86900	43
	10/1/2019	82300	37
	3/18/2020	75700	30
	9/23/2020	64000	22
	3/17/2021	67300	24
	9/9/2021	78500	34
3/15/2022	71500	28	
9/12/2022	69500	26	
3/13/2023	77300	33	
GWM-3	9/25/2013	46600	7
	3/18/2014	53400	9
	9/16/2014	55400	13

3/18/2015	49400	8
9/15/2015	60100	18
3/16/2016	60800	19
9/22/2016	62200	20
3/29/2017	67500	25
9/21/2017	54400	12
3/28/2018	57600	16
9/20/2018	55600	14
3/12/2019	53700	10
10/1/2019	57400	15
3/18/2020	54000	11
9/24/2020	45400	6
3/17/2021	45200	5
9/9/2021	59600	17
3/15/2022	42500	4
9/16/2022	30800	2
3/15/2023	31200	3

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The Wilcoxon Statistic is 24

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -5.90399

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is -5.90399

-5.90399 < 2.326 indicating no statistical significance at 1% level

-5.90399 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chloride

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	29070	1
	3/19/2014	115000	39
	9/8/2014	62900	2
	3/17/2015	308000	47
	9/14/2015	152000	41
	3/17/2016	93400	30
	9/21/2016	109000	36
	3/24/2017	87600	24
	9/20/2017	64600	4
	3/27/2018	164000	43
	9/19/2018	85200	21
	3/11/2019	79400	15
	9/25/2019	177000	44
	3/18/2020	162000	42
	9/23/2020	117000	40
	3/17/2021	98500	31
	9/8/2021	82800	19
3/15/2022	319000	48	
9/12/2022	249000	46	
3/13/2023	217000	45	
GWM-2	9/25/2013	74670	9
	3/18/2014	88200	27
	9/16/2014	89400	28
	3/18/2015	84500	20
	9/15/2015	85300	22
	3/16/2016	77100	12
	9/22/2016	76900	11
	3/24/2017	71100	7
	9/21/2017	82100	16
	3/28/2018	82700	18
	9/21/2018	87700	26
	3/12/2019	86900	23
	10/1/2019	82300	17
	3/18/2020	75700	10
	9/23/2020	64000	3
	3/17/2021	67300	5
	9/9/2021	78500	14
3/15/2022	71500	8	
9/12/2022	69500	6	
3/13/2023	77300	13	
GWM-17S	11/14/2019	87600	25
	3/26/2020	98900	32
	9/29/2020	92800	29

3/16/2021	101000	33
9/14/2021	105000	35
3/18/2022	110000	37
9/13/2022	104000	34
3/14/2023	110000	38

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The Wilcoxon Statistic is 227

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 1.83967

The Standard Deviation adjusted for ties is 36.1478

The Z Score adjusted for ties is 1.83967

1.83967 < 2.326 indicating no statistical significance at 1% level

1.83967 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Hardness

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	11000	1
	3/19/2014	78000	37
	9/8/2014	25000	3
	3/17/2015	190000	46
	9/14/2015	45000	13
	3/17/2016	52000	23
	9/21/2016	42000	8
	3/24/2017	50000	22
	9/20/2017	41100	7
	3/27/2018	97200	39
	9/19/2018	43400	11
	3/11/2019	30000	5
	9/25/2019	64900	34
	3/18/2020	57500	32
	9/23/2020	46400	17
	3/17/2021	32900	6
9/8/2021	28700	4	
3/15/2022	102000	40	
9/12/2022	72500	36	
3/13/2023	56500	29	
GWM-2	9/25/2013	57200	31
	3/18/2014	69000	35
	9/16/2014	59000	33
	3/18/2015	85000	38
	9/15/2015	54000	26
	3/16/2016	48000	19
	9/22/2016	46000	16
	3/24/2017	53000	25
	9/21/2017	45200	14
	3/28/2018	52300	24
	9/21/2018	54300	27
	3/12/2019	54600	28
	10/1/2019	56900	30
	3/18/2020	47500	18
	9/23/2020	42900	9
	3/17/2021	43000	10
9/9/2021	44700	12	
3/15/2022	45700	15	
9/12/2022	48100	20	
3/13/2023	49100	21	
GWM-4	9/18/2013	14800	2
	3/20/2014	255000	60
	9/9/2014	191000	47

3/16/2015	189000	45
9/9/2015	178000	42
3/18/2016	173000	41
9/20/2016	201000	50
3/23/2017	191000	48
9/18/2017	247000	59
3/15/2018	182000	44
9/17/2018	200000	49
3/5/2019	213000	52
9/24/2019	181000	43
3/16/2020	239000	58
9/22/2020	233000	56
3/16/2021	202000	51
9/14/2021	224000	55
3/22/2022	216000	53
9/13/2022	221000	54
3/14/2023	236000	57

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The Wilcoxon Statistic is 756

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 5.57468

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 5.57468

**5.57468 > 2.326 indicating statistical significance at 1% level**

**5.57468 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Hardness

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	11000	1
	3/19/2014	78000	36
	9/8/2014	25000	2
	3/17/2015	190000	58
	9/14/2015	45000	12
	3/17/2016	52000	22
	9/21/2016	42000	7
	3/24/2017	50000	21
	9/20/2017	41100	6
	3/27/2018	97200	41
	9/19/2018	43400	10
	3/11/2019	30000	4
	9/25/2019	64900	33
	3/18/2020	57500	31
	9/23/2020	46400	16
	3/17/2021	32900	5
	9/8/2021	28700	3
3/15/2022	102000	42	
9/12/2022	72500	35	
3/13/2023	56500	28	
GWM-2	9/25/2013	57200	30
	3/18/2014	69000	34
	9/16/2014	59000	32
	3/18/2015	85000	37
	9/15/2015	54000	25
	3/16/2016	48000	18
	9/22/2016	46000	15
	3/24/2017	53000	24
	9/21/2017	45200	13
	3/28/2018	52300	23
	9/21/2018	54300	26
	3/12/2019	54600	27
	10/1/2019	56900	29
	3/18/2020	47500	17
	9/23/2020	42900	8
	3/17/2021	43000	9
	9/9/2021	44700	11
3/15/2022	45700	14	
9/12/2022	48100	19	
3/13/2023	49100	20	
GWM-5A	9/19/2013	175200	56
	12/5/2013	142900	50
	3/19/2014	196000	59



9/4/2014	223000	61
3/17/2015	189000	57
9/11/2015	165000	54
3/15/2016	134000	49
9/21/2016	93000	39
3/28/2017	113000	45
9/19/2017	109000	44
3/26/2018	122000	46
9/18/2018	169000	55
3/4/2019	196000	60
9/23/2019	145000	51
3/19/2020	150000	52
9/23/2020	130000	47
3/19/2021	156000	53
9/15/2021	104000	43
3/16/2022	92400	38
9/14/2022	130000	48
3/16/2023	95200	40

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The Wilcoxon Statistic is 816

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is 6.00346

The Standard Deviation adjusted for ties is 65.8787

The Z Score adjusted for ties is 6.00346

**6.00346 > 2.326 indicating statistical significance at 1% level**

**6.00346 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Hardness

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	11000	1
	3/19/2014	78000	36
	9/8/2014	25000	2
	3/17/2015	190000	60
	9/14/2015	45000	12
	3/17/2016	52000	22
	9/21/2016	42000	7
	3/24/2017	50000	21
	9/20/2017	41100	6
	3/27/2018	97200	49
	9/19/2018	43400	10
	3/11/2019	30000	4
	9/25/2019	64900	33
	3/18/2020	57500	31
	9/23/2020	46400	16
	3/17/2021	32900	5
9/8/2021	28700	3	
3/15/2022	102000	52	
9/12/2022	72500	35	
3/13/2023	56500	28	
GWM-2	9/25/2013	57200	30
	3/18/2014	69000	34
	9/16/2014	59000	32
	3/18/2015	85000	37
	9/15/2015	54000	25
	3/16/2016	48000	18
	9/22/2016	46000	15
	3/24/2017	53000	24
	9/21/2017	45200	13
	3/28/2018	52300	23
	9/21/2018	54300	26
	3/12/2019	54600	27
	10/1/2019	56900	29
	3/18/2020	47500	17
	9/23/2020	42900	8
	3/17/2021	43000	9
9/9/2021	44700	11	
3/15/2022	45700	14	
9/12/2022	48100	19	
3/13/2023	49100	20	
GWM-14	9/24/2013	91500	45
	3/21/2014	116000	57
	9/8/2014	104000	53

3/19/2015	118000	58
9/14/2015	130000	59
3/21/2016	110000	54
9/23/2016	114000	55
3/27/2017	114000	56
9/20/2017	92500	47
3/16/2018	89300	42
9/20/2018	88200	40
3/5/2019	101000	51
9/25/2019	86500	39
3/25/2020	97300	50
9/28/2020	96100	48
3/18/2021	90700	44
9/15/2021	86200	38
3/22/2022	89000	41
9/14/2022	91600	46
3/16/2023	90200	43

---

The Wilcoxon Statistic is 756

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 5.57468

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 5.57468

**5.57468 > 2.326 indicating statistical significance at 1% level**

**5.57468 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Hardness

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	11000	1
	3/19/2014	78000	43
	9/8/2014	25000	2
	3/17/2015	190000	60
	9/14/2015	45000	12
	3/17/2016	52000	22
	9/21/2016	42000	7
	3/24/2017	50000	21
	9/20/2017	41100	6
	3/27/2018	97200	49
	9/19/2018	43400	10
	3/11/2019	30000	4
	9/25/2019	64900	34
	3/18/2020	57500	31
	9/23/2020	46400	16
	3/17/2021	32900	5
	9/8/2021	28700	3
3/15/2022	102000	52	
9/12/2022	72500	39	
3/13/2023	56500	28	
GWM-2	9/25/2013	57200	30
	3/18/2014	69000	36
	9/16/2014	59000	32
	3/18/2015	85000	45
	9/15/2015	54000	25
	3/16/2016	48000	18
	9/22/2016	46000	15
	3/24/2017	53000	24
	9/21/2017	45200	13
	3/28/2018	52300	23
	9/21/2018	54300	26
	3/12/2019	54600	27
	10/1/2019	56900	29
	3/18/2020	47500	17
	9/23/2020	42900	8
	3/17/2021	43000	9
	9/9/2021	44700	11
3/15/2022	45700	14	
9/12/2022	48100	19	
3/13/2023	49100	20	
GWM-6	9/24/2013	61800	33
	3/21/2014	74000	40
	9/17/2014	67000	35

3/19/2015	76000	42
9/15/2015	70000	37
3/21/2016	70000	38
9/26/2016	75000	41
3/31/2017	101000	51
9/21/2017	104000	54
3/30/2018	120000	59
9/26/2018	117000	57
3/13/2019	118000	58
10/3/2019	113000	56
4/3/2020	98300	50
9/30/2020	104000	55
3/22/2021	102000	53
9/16/2021	94500	48
3/24/2022	94200	47
9/16/2022	92000	46
3/17/2023	79700	44

---

The Wilcoxon Statistic is 734

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 5.2297

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 5.2297

**5.2297 > 2.326 indicating statistical significance at 1% level**

**5.2297 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Hardness

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	11000	1
	3/19/2014	78000	56
	9/8/2014	25000	2
	3/17/2015	190000	60
	9/14/2015	45000	13
	3/17/2016	52000	27
	9/21/2016	42000	7
	3/24/2017	50000	24
	9/20/2017	41100	6
	3/27/2018	97200	58
	9/19/2018	43400	11
	3/11/2019	30000	4
	9/25/2019	64900	51
	3/18/2020	57500	42
	9/23/2020	46400	17
	3/17/2021	32900	5
	9/8/2021	28700	3
3/15/2022	102000	59	
9/12/2022	72500	55	
3/13/2023	56500	36	
GWM-2	9/25/2013	57200	41
	3/18/2014	69000	54
	9/16/2014	59000	46
	3/18/2015	85000	57
	9/15/2015	54000	32
	3/16/2016	48000	20
	9/22/2016	46000	16
	3/24/2017	53000	30
	9/21/2017	45200	14
	3/28/2018	52300	29
	9/21/2018	54300	34
	3/12/2019	54600	35
	10/1/2019	56900	40
	3/18/2020	47500	19
	9/23/2020	42900	8
	3/17/2021	43000	9
	9/9/2021	44700	12
3/15/2022	45700	15	
9/12/2022	48100	21	
3/13/2023	49100	23	
GWM-3	9/25/2013	43200	10
	3/18/2014	59000	47
	9/16/2014	50000	25

3/18/2015	63000	49
9/15/2015	58000	43
3/16/2016	60000	48
9/22/2016	67000	52
3/29/2017	63000	50
9/21/2017	52200	28
3/28/2018	56600	39
9/20/2018	56500	37
3/12/2019	58600	45
10/1/2019	67500	53
3/18/2020	58500	44
9/24/2020	54000	33
3/17/2021	50000	26
9/9/2021	56500	38
3/15/2022	53200	31
9/16/2022	48900	22
3/15/2023	47000	18

---

The Wilcoxon Statistic is 528

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 1.99936

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 1.99936

1.99936 < 2.326 indicating no statistical significance at 1% level

1.99936 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Hardness

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	11000	1
	3/19/2014	78000	36
	9/8/2014	25000	2
	3/17/2015	190000	47
	9/14/2015	45000	12
	3/17/2016	52000	22
	9/21/2016	42000	7
	3/24/2017	50000	21
	9/20/2017	41100	6
	3/27/2018	97200	38
	9/19/2018	43400	10
	3/11/2019	30000	4
	9/25/2019	64900	33
	3/18/2020	57500	31
	9/23/2020	46400	16
	3/17/2021	32900	5
	9/8/2021	28700	3
3/15/2022	102000	39	
9/12/2022	72500	35	
3/13/2023	56500	28	
GWM-2	9/25/2013	57200	30
	3/18/2014	69000	34
	9/16/2014	59000	32
	3/18/2015	85000	37
	9/15/2015	54000	25
	3/16/2016	48000	18
	9/22/2016	46000	15
	3/24/2017	53000	24
	9/21/2017	45200	13
	3/28/2018	52300	23
	9/21/2018	54300	26
	3/12/2019	54600	27
	10/1/2019	56900	29
	3/18/2020	47500	17
	9/23/2020	42900	8
	3/17/2021	43000	9
	9/9/2021	44700	11
3/15/2022	45700	14	
9/12/2022	48100	19	
3/13/2023	49100	20	
GWM-17S	11/14/2019	189000	45
	3/26/2020	186000	44
	9/29/2020	189000	46



3/16/2021	177000	42
9/14/2021	160000	40
3/18/2022	169000	41
9/13/2022	182000	43
3/14/2023	216000	48

---

The Wilcoxon Statistic is 313

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 4.21879

The Standard Deviation adjusted for ties is 36.1478

The Z Score adjusted for ties is 4.21879

**4.21879 > 2.326 indicating statistical significance at 1% level**

**4.21879 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Nitrate-N

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 6

Non detect rank is 3.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	390	15
	3/19/2014	520	20
	9/8/2014	500	18
	3/17/2015	560	22
	9/14/2015	1000	33
	3/17/2016	1200	38
	9/21/2016	800	28
	3/24/2017	620	24
	9/20/2017	280	10
	3/27/2018	400	16
	9/19/2018	280	11
	3/11/2019	400	17
	9/25/2019	380	14
	3/18/2020	640	26
	9/23/2020	500	19
	3/17/2021	800	29
	9/8/2021	880	30
3/15/2022	1000	34	
9/12/2022	1000	35	
3/13/2023	1100	36	
GWM-2	9/25/2013	2650	52
	3/18/2014	3100	58
	9/16/2014	2900	55
	3/18/2015	3400	60
	9/15/2015	2900	56
	3/16/2016	2700	53
	9/22/2016	2400	51
	3/24/2017	2300	50
	9/21/2017	3100	59
	3/28/2018	2900	57
	9/21/2018	2700	54
	3/12/2019	1400	41
	10/1/2019	1400	42
	3/18/2020	1900	46
	9/23/2020	1300	40
	3/17/2021	2000	48
	9/9/2021	2000	49
3/15/2022	1800	44	
9/12/2022	1800	45	
3/13/2023	1900	47	
GWM-4	9/18/2013	ND<200	3.5
	3/20/2014	ND<200 U	3.5
	9/9/2014	ND<200 U	3.5

3/16/2015	700	27
9/9/2015	ND<200 U	3.5
3/18/2016	600	23
9/20/2016	ND<200 U	3.5
3/23/2017	1400	43
9/18/2017	320	12
3/15/2018	1100	37
9/17/2018	100 J	8
3/5/2019	1200	39
9/24/2019	60 J	7
3/16/2020	ND<200 U	3.5
9/22/2020	100 J	9
3/16/2021	920	32
9/14/2021	340	13
3/22/2022	900 J	31
9/13/2022	620 J	25
3/14/2023	530 J	21

---

The Wilcoxon Statistic is 138

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -4.11633

The Standard Deviation adjusted for ties is 63.7394

The Z Score adjusted for ties is -4.11833

-4.11633 < 2.326 indicating no statistical significance at 1% level

-4.11833 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Nitrate-N

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 4

Non detect rank is 2.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	390	23
	3/19/2014	520	28
	9/8/2014	500	26
	3/17/2015	560	29
	9/14/2015	1000	37
	3/17/2016	1200	41
	9/21/2016	800	34
	3/24/2017	620	31
	9/20/2017	280	18
	3/27/2018	400	24
	9/19/2018	280	19
	3/11/2019	400	25
	9/25/2019	380	22
	3/18/2020	640	32
	9/23/2020	500	27
	3/17/2021	800	35
	9/8/2021	880	36
3/15/2022	1000	38	
9/12/2022	1000	39	
3/13/2023	1100	40	
GWM-2	9/25/2013	2650	53
	3/18/2014	3100	59
	9/16/2014	2900	56
	3/18/2015	3400	61
	9/15/2015	2900	57
	3/16/2016	2700	54
	9/22/2016	2400	52
	3/24/2017	2300	51
	9/21/2017	3100	60
	3/28/2018	2900	58
	9/21/2018	2700	55
	3/12/2019	1400	43
	10/1/2019	1400	44
	3/18/2020	1900	47
	9/23/2020	1300	42
	3/17/2021	2000	49
	9/9/2021	2000	50
3/15/2022	1800	45	
9/12/2022	1800	46	
3/13/2023	1900	48	
GWM-5A	9/19/2013	660	33
	12/5/2013	580	30
	3/19/2014	300	20

9/4/2014	300	21
3/17/2015	220	15
9/11/2015	240	17
3/15/2016	220	16
9/21/2016	180 J	14
3/28/2017	160 J	12
9/19/2017	120 J	11
3/26/2018	100 J	9
9/18/2018	160 J	13
3/4/2019	80 J	5
9/23/2019	ND<200 U	2.5
3/19/2020	100 J	10
9/23/2020	80 J	6
3/19/2021	80 J	7
9/15/2021	80 J	8
3/16/2022	ND<1000	2.5
9/14/2022	ND<1000	2.5
3/16/2023	ND<1000	2.5

---

The Wilcoxon Statistic is 26

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is -5.98828

The Standard Deviation adjusted for ties is 65.87

The Z Score adjusted for ties is -5.98907

-5.98828 < 2.326 indicating no statistical significance at 1% level

-5.98907 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Nitrate-N

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 20

Non detect rank is 10.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	390	24
	3/19/2014	520	29
	9/8/2014	500	27
	3/17/2015	560	30
	9/14/2015	1000	36
	3/17/2016	1200	40
	9/21/2016	800	33
	3/24/2017	620	31
	9/20/2017	280	21
	3/27/2018	400	25
	9/19/2018	280	22
	3/11/2019	400	26
	9/25/2019	380	23
	3/18/2020	640	32
	9/23/2020	500	28
	3/17/2021	800	34
	9/8/2021	880	35
3/15/2022	1000	37	
9/12/2022	1000	38	
3/13/2023	1100	39	
GWM-2	9/25/2013	2650	52
	3/18/2014	3100	58
	9/16/2014	2900	55
	3/18/2015	3400	60
	9/15/2015	2900	56
	3/16/2016	2700	53
	9/22/2016	2400	51
	3/24/2017	2300	50
	9/21/2017	3100	59
	3/28/2018	2900	57
	9/21/2018	2700	54
	3/12/2019	1400	42
	10/1/2019	1400	43
	3/18/2020	1900	46
	9/23/2020	1300	41
	3/17/2021	2000	48
	9/9/2021	2000	49
3/15/2022	1800	44	
9/12/2022	1800	45	
3/13/2023	1900	47	
GWM-14	9/24/2013	ND<200	10.5
	3/21/2014	ND<200 U	10.5
	9/8/2014	ND<200 U	10.5

3/19/2015	ND<200 U	10.5
9/14/2015	ND<200 U	10.5
3/21/2016	ND<200 U	10.5
9/23/2016	ND<200 U	10.5
3/27/2017	ND<200 U	10.5
9/20/2017	ND<200 U	10.5
3/16/2018	ND<200 U	10.5
9/20/2018	ND<200 U	10.5
3/5/2019	ND<200 U	10.5
9/25/2019	ND<200 U	10.5
3/25/2020	ND<200 U	10.5
9/28/2020	ND<200 U	10.5
3/18/2021	ND<200 U	10.5
9/15/2021	ND<200 U	10.5
3/22/2022	ND<1000	10.5
9/14/2022	ND<1000	10.5
3/16/2023	ND<1000	10.5

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The Wilcoxon Statistic is 0

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -6.28034

The Standard Deviation adjusted for ties is 62.581

The Z Score adjusted for ties is -6.3997

-6.28034 < 2.326 indicating no statistical significance at 1% level

-6.3997 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Nitrate-N

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 16

Non detect rank is 8.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	390	24
	3/19/2014	520	29
	9/8/2014	500	27
	3/17/2015	560	30
	9/14/2015	1000	36
	3/17/2016	1200	40
	9/21/2016	800	33
	3/24/2017	620	31
	9/20/2017	280	20
	3/27/2018	400	25
	9/19/2018	280	21
	3/11/2019	400	26
	9/25/2019	380	23
	3/18/2020	640	32
	9/23/2020	500	28
	3/17/2021	800	34
	9/8/2021	880	35
3/15/2022	1000	37	
9/12/2022	1000	38	
3/13/2023	1100	39	
GWM-2	9/25/2013	2650	52
	3/18/2014	3100	58
	9/16/2014	2900	55
	3/18/2015	3400	60
	9/15/2015	2900	56
	3/16/2016	2700	53
	9/22/2016	2400	51
	3/24/2017	2300	50
	9/21/2017	3100	59
	3/28/2018	2900	57
	9/21/2018	2700	54
	3/12/2019	1400	42
	10/1/2019	1400	43
	3/18/2020	1900	46
	9/23/2020	1300	41
	3/17/2021	2000	48
	9/9/2021	2000	49
3/15/2022	1800	44	
9/12/2022	1800	45	
3/13/2023	1900	47	
GWM-6	9/24/2013	140	19
	3/21/2014	280	22
	9/17/2014	ND<200 U	8.5



3/19/2015	ND<200 U	8.5
9/15/2015	ND<200 U	8.5
3/21/2016	60 J	18
9/26/2016	ND<200 U	8.5
3/31/2017	ND<200 U	8.5
9/21/2017	ND<200 U	8.5
3/30/2018	ND<200 U	8.5
9/26/2018	ND<200 U	8.5
3/13/2019	ND<200 U	8.5
10/3/2019	ND<200 U	8.5
4/3/2020	ND<200 U	8.5
9/30/2020	ND<200 U	8.5
3/22/2021	ND<200 U	8.5
9/16/2021	40 J	17
3/24/2022	ND<1000	8.5
9/16/2022	ND<1000	8.5
3/17/2023	ND<1000	8.5

---

The Wilcoxon Statistic is 2

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -6.24898

The Standard Deviation adjusted for ties is 63.1651

The Z Score adjusted for ties is -6.30886

-6.24898 < 2.326 indicating no statistical significance at 1% level

-6.30886 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Nitrate-N

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	390	4
	3/19/2014	520	9
	9/8/2014	500	7
	3/17/2015	560	10
	9/14/2015	1000	16
	3/17/2016	1200	20
	9/21/2016	800	13
	3/24/2017	620	11
	9/20/2017	280	1
	3/27/2018	400	5
	9/19/2018	280	2
	3/11/2019	400	6
	9/25/2019	380	3
	3/18/2020	640	12
	9/23/2020	500	8
	3/17/2021	800	14
	9/8/2021	880	15
3/15/2022	1000	17	
9/12/2022	1000	18	
3/13/2023	1100	19	
GWM-2	9/25/2013	2650	41
	3/18/2014	3100	51
	9/16/2014	2900	47
	3/18/2015	3400	58
	9/15/2015	2900	48
	3/16/2016	2700	43
	9/22/2016	2400	38
	3/24/2017	2300	37
	9/21/2017	3100	52
	3/28/2018	2900	49
	9/21/2018	2700	44
	3/12/2019	1400	22
	10/1/2019	1400	23
	3/18/2020	1900	30
	9/23/2020	1300	21
	3/17/2021	2000	32
	9/9/2021	2000	33
3/15/2022	1800	26	
9/12/2022	1800	27	
3/13/2023	1900	31	
GWM-3	9/25/2013	2690	42
	3/18/2014	3100	53
	9/16/2014	3600	59

3/18/2015	3300	56
9/15/2015	2900	50
3/16/2016	2600	40
9/22/2016	2700	45
3/29/2017	2500	39
9/21/2017	2700	46
3/28/2018	3200	55
9/20/2018	3300	57
3/12/2019	4000	60
10/1/2019	3100	54
3/18/2020	2000	34
9/24/2020	1500	24
3/17/2021	1800	28
9/9/2021	2200	36
3/15/2022	1700	25
9/16/2022	1800	29
3/15/2023	2100	35

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The Wilcoxon Statistic is 657

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 4.02224

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 4.02224

**4.02224 > 2.326 indicating statistical significance at 1% level**

**4.02224 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Nitrate-N

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 8

Non detect rank is 4.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	390	12
	3/19/2014	520	17
	9/8/2014	500	15
	3/17/2015	560	18
	9/14/2015	1000	24
	3/17/2016	1200	28
	9/21/2016	800	21
	3/24/2017	620	19
	9/20/2017	280	9
	3/27/2018	400	13
	9/19/2018	280	10
	3/11/2019	400	14
	9/25/2019	380	11
	3/18/2020	640	20
	9/23/2020	500	16
	3/17/2021	800	22
	9/8/2021	880	23
3/15/2022	1000	25	
9/12/2022	1000	26	
3/13/2023	1100	27	
GWM-2	9/25/2013	2650	40
	3/18/2014	3100	46
	9/16/2014	2900	43
	3/18/2015	3400	48
	9/15/2015	2900	44
	3/16/2016	2700	41
	9/22/2016	2400	39
	3/24/2017	2300	38
	9/21/2017	3100	47
	3/28/2018	2900	45
	9/21/2018	2700	42
	3/12/2019	1400	30
	10/1/2019	1400	31
	3/18/2020	1900	34
	9/23/2020	1300	29
	3/17/2021	2000	36
	9/9/2021	2000	37
3/15/2022	1800	32	
9/12/2022	1800	33	
3/13/2023	1900	35	
GWM-17S	11/14/2019	ND<200 U	4.5
	3/26/2020	ND<200 U	4.5
	9/29/2020	ND<200 U	4.5

3/16/2021	ND<200 U	4.5
9/14/2021	ND<200 U	4.5
3/18/2022	ND<1000	4.5
9/13/2022	ND<1000	4.5
3/14/2023	ND<1000	4.5

---

The Wilcoxon Statistic is 0

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is -4.4401

The Standard Deviation adjusted for ties is 36.0653

The Z Score adjusted for ties is -4.45026

-4.4401 < 2.326 indicating no statistical significance at 1% level

-4.45026 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: pH

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	5.18	28
	3/19/2014	5.87	39
	9/8/2014	5.22	31
	3/17/2015	5.85	38
	9/14/2015	5.16	27
	3/17/2016	5.41	36
	9/21/2016	4.89	22
	3/24/2017	5.36	35
	9/20/2017	6.09	40
	3/27/2018	6.37	46
	9/19/2018	5.8	37
	3/11/2019	5.21	29
	9/25/2019	4.93	23
	3/18/2020	5.21	30
	9/23/2020	5.12	26
	3/17/2021	5.07	24
	9/8/2021	5.28	32
	3/15/2022	5.29	33
	9/12/2022	4.83	21
	3/13/2023	5.1	25
GWM-2	9/25/2013	4.27	1
	3/18/2014	4.65	14
	9/16/2014	4.68	16
	3/18/2015	4.52	5
	9/15/2015	4.58	11
	3/16/2016	4.74	19
	9/22/2016	4.47	4
	3/24/2017	4.55	10
	9/21/2017	4.74	20
	3/28/2018	4.53	8
	9/21/2018	4.58	12
	3/12/2019	4.52	6
	10/1/2019	4.52	7
	3/18/2020	4.65	15
	9/23/2020	4.37	3
	3/17/2021	4.68	17
	9/9/2021	4.28	2
	3/15/2022	4.72	18
	9/12/2022	4.54	9
	3/13/2023	4.6	13
GWM-4	9/18/2013	5.29	34
	3/20/2014	6.24	42
	9/9/2014	6.41	49

3/16/2015	6.28	45
9/9/2015	6.26	44
3/18/2016	6.39	48
9/20/2016	6.44	50
3/23/2017	6.53	53
9/18/2017	6.22	41
3/15/2018	6.57	54
9/17/2018	6.62	57
3/5/2019	6.7	60
9/24/2019	6.38	47
3/16/2020	6.68	59
9/22/2020	6.49	52
3/16/2021	6.67	58
9/14/2021	6.57	55
3/22/2022	6.57	56
9/13/2022	6.25	43
3/14/2023	6.45	51

---

The Wilcoxon Statistic is 788

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 6.07648

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 6.07648

**6.07648 > 2.326 indicating statistical significance at 1% level**

**6.07648 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: pH

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	5.18	28
	3/19/2014	5.87	49
	9/8/2014	5.22	31
	3/17/2015	5.85	48
	9/14/2015	5.16	27
	3/17/2016	5.41	36
	9/21/2016	4.89	22
	3/24/2017	5.36	34
	9/20/2017	6.09	57
	3/27/2018	6.37	61
	9/19/2018	5.8	44
	3/11/2019	5.21	29
	9/25/2019	4.93	23
	3/18/2020	5.21	30
	9/23/2020	5.12	26
	3/17/2021	5.07	24
	9/8/2021	5.28	32
3/15/2022	5.29	33	
9/12/2022	4.83	21	
3/13/2023	5.1	25	
GWM-2	9/25/2013	4.27	1
	3/18/2014	4.65	14
	9/16/2014	4.68	16
	3/18/2015	4.52	5
	9/15/2015	4.58	11
	3/16/2016	4.74	19
	9/22/2016	4.47	4
	3/24/2017	4.55	10
	9/21/2017	4.74	20
	3/28/2018	4.53	8
	9/21/2018	4.58	12
	3/12/2019	4.52	6
	10/1/2019	4.52	7
	3/18/2020	4.65	15
	9/23/2020	4.37	3
	3/17/2021	4.68	17
	9/9/2021	4.28	2
3/15/2022	4.72	18	
9/12/2022	4.54	9	
3/13/2023	4.6	13	
GWM-5A	9/19/2013	5.37	35
	12/5/2013	6.11	58
	3/19/2014	6.33	60



9/4/2014	5.98	52
3/17/2015	6.02	53
9/11/2015	5.8	45
3/15/2016	6.06	55
9/21/2016	5.84	47
3/28/2017	5.93	50
9/19/2017	5.79	43
3/26/2018	5.96	51
9/18/2018	6.03	54
3/4/2019	6.11	59
9/23/2019	5.81	46
3/19/2020	5.72	42
9/23/2020	5.66	40
3/19/2021	6.08	56
9/15/2021	5.69	41
3/16/2022	5.61	39
9/14/2022	5.53	38
3/16/2023	5.44	37

---

The Wilcoxon Statistic is 770

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is 5.30521

The Standard Deviation adjusted for ties is 65.8787

The Z Score adjusted for ties is 5.30521

**5.30521 > 2.326 indicating statistical significance at 1% level**

**5.30521 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: pH

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	5.18	28
	3/19/2014	5.87	39
	9/8/2014	5.22	31
	3/17/2015	5.85	38
	9/14/2015	5.16	27
	3/17/2016	5.41	35
	9/21/2016	4.89	22
	3/24/2017	5.36	34
	9/20/2017	6.09	43
	3/27/2018	6.37	59
	9/19/2018	5.8	37
	3/11/2019	5.21	29
	9/25/2019	4.93	23
	3/18/2020	5.21	30
	9/23/2020	5.12	26
	3/17/2021	5.07	24
	9/8/2021	5.28	32
3/15/2022	5.29	33	
9/12/2022	4.83	21	
3/13/2023	5.1	25	
GWM-2	9/25/2013	4.27	1
	3/18/2014	4.65	14
	9/16/2014	4.68	16
	3/18/2015	4.52	5
	9/15/2015	4.58	11
	3/16/2016	4.74	19
	9/22/2016	4.47	4
	3/24/2017	4.55	10
	9/21/2017	4.74	20
	3/28/2018	4.53	8
	9/21/2018	4.58	12
	3/12/2019	4.52	6
	10/1/2019	4.52	7
	3/18/2020	4.65	15
	9/23/2020	4.37	3
	3/17/2021	4.68	17
	9/9/2021	4.28	2
3/15/2022	4.72	18	
9/12/2022	4.54	9	
3/13/2023	4.6	13	
GWM-14	9/24/2013	6.08	42
	3/21/2014	6.1	46
	9/8/2014	6.18	51

3/19/2015	6.31	57
9/14/2015	5.88	40
3/21/2016	6.22	55
9/23/2016	6.13	50
3/27/2017	6.1	47
9/20/2017	6.2	54
3/16/2018	6.31	58
9/20/2018	6.19	53
3/5/2019	6.43	60
9/25/2019	6.26	56
3/25/2020	6.1	48
9/28/2020	6.1	49
3/18/2021	6.18	52
9/15/2021	6.09	44
3/22/2022	6.09	45
9/14/2022	5.78	36
3/16/2023	6.04	41

---

The Wilcoxon Statistic is 774

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 5.85695

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 5.85695

**5.85695 > 2.326 indicating statistical significance at 1% level**

**5.85695 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: pH

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	5.18	28
	3/19/2014	5.87	40
	9/8/2014	5.22	31
	3/17/2015	5.85	39
	9/14/2015	5.16	27
	3/17/2016	5.41	35
	9/21/2016	4.89	22
	3/24/2017	5.36	34
	9/20/2017	6.09	44
	3/27/2018	6.37	51
	9/19/2018	5.8	37
	3/11/2019	5.21	29
	9/25/2019	4.93	23
	3/18/2020	5.21	30
	9/23/2020	5.12	26
	3/17/2021	5.07	24
	9/8/2021	5.28	32
	3/15/2022	5.29	33
	9/12/2022	4.83	21
3/13/2023	5.1	25	
GWM-2	9/25/2013	4.27	1
	3/18/2014	4.65	14
	9/16/2014	4.68	16
	3/18/2015	4.52	5
	9/15/2015	4.58	11
	3/16/2016	4.74	19
	9/22/2016	4.47	4
	3/24/2017	4.55	10
	9/21/2017	4.74	20
	3/28/2018	4.53	8
	9/21/2018	4.58	12
	3/12/2019	4.52	6
	10/1/2019	4.52	7
	3/18/2020	4.65	15
	9/23/2020	4.37	3
	3/17/2021	4.68	17
	9/9/2021	4.28	2
	3/15/2022	4.72	18
	9/12/2022	4.54	9
3/13/2023	4.6	13	
GWM-6	9/24/2013	5.9	41
	3/21/2014	5.82	38
	9/17/2014	6.09	45

3/19/2015	6.1	47
9/15/2015	5.79	36
3/21/2016	6.09	46
9/26/2016	6.22	50
3/31/2017	6.18	48
9/21/2017	5.97	42
3/30/2018	6.47	55
9/26/2018	6.56	56
3/13/2019	6.65	60
10/3/2019	6.62	59
4/3/2020	6.56	57
9/30/2020	6.4	53
3/22/2021	6.58	58
9/16/2021	6.38	52
3/24/2022	6.43	54
9/16/2022	6.05	43
3/17/2023	6.18	49

---

The Wilcoxon Statistic is 779

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 5.93535

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 5.93535

**5.93535 > 2.326 indicating statistical significance at 1% level**

**5.93535 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: pH

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	5.18	38
	3/19/2014	5.87	58
	9/8/2014	5.22	43
	3/17/2015	5.85	57
	9/14/2015	5.16	36
	3/17/2016	5.41	55
	9/21/2016	4.89	24
	3/24/2017	5.36	54
	9/20/2017	6.09	59
	3/27/2018	6.37	60
	9/19/2018	5.8	56
	3/11/2019	5.21	41
	9/25/2019	4.93	25
	3/18/2020	5.21	42
	9/23/2020	5.12	33
	3/17/2021	5.07	30
	9/8/2021	5.28	50
	3/15/2022	5.29	52
9/12/2022	4.83	23	
3/13/2023	5.1	32	
GWM-2	9/25/2013	4.27	1
	3/18/2014	4.65	14
	9/16/2014	4.68	16
	3/18/2015	4.52	5
	9/15/2015	4.58	11
	3/16/2016	4.74	21
	9/22/2016	4.47	4
	3/24/2017	4.55	10
	9/21/2017	4.74	22
	3/28/2018	4.53	8
	9/21/2018	4.58	12
	3/12/2019	4.52	6
	10/1/2019	4.52	7
	3/18/2020	4.65	15
	9/23/2020	4.37	3
	3/17/2021	4.68	17
	9/9/2021	4.28	2
	3/15/2022	4.72	18
9/12/2022	4.54	9	
3/13/2023	4.6	13	
GWM-3	9/25/2013	4.73	20
	3/18/2014	5.12	34
	9/16/2014	5.23	45

3/18/2015	5.07	31
9/15/2015	5.02	28
3/16/2016	5.25	48
9/22/2016	5.14	35
3/29/2017	5.01	27
9/21/2017	5.19	40
3/28/2018	5.33	53
9/20/2018	5.24	46
3/12/2019	5.22	44
10/1/2019	5.18	39
3/18/2020	5.24	47
9/24/2020	5.28	51
3/17/2021	5.17	37
9/9/2021	4.99	26
3/15/2022	5.26	49
9/16/2022	4.72	19
3/15/2023	5.04	29

---

The Wilcoxon Statistic is 538

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 2.15617

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 2.15617

2.15617 < 2.326 indicating no statistical significance at 1% level

2.15617 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: pH

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	5.18	28
	3/19/2014	5.87	38
	9/8/2014	5.22	31
	3/17/2015	5.85	37
	9/14/2015	5.16	27
	3/17/2016	5.41	35
	9/21/2016	4.89	22
	3/24/2017	5.36	34
	9/20/2017	6.09	42
	3/27/2018	6.37	47
	9/19/2018	5.8	36
	3/11/2019	5.21	29
	9/25/2019	4.93	23
	3/18/2020	5.21	30
	9/23/2020	5.12	26
	3/17/2021	5.07	24
	9/8/2021	5.28	32
3/15/2022	5.29	33	
9/12/2022	4.83	21	
3/13/2023	5.1	25	
GWM-2	9/25/2013	4.27	1
	3/18/2014	4.65	14
	9/16/2014	4.68	16
	3/18/2015	4.52	5
	9/15/2015	4.58	11
	3/16/2016	4.74	19
	9/22/2016	4.47	4
	3/24/2017	4.55	10
	9/21/2017	4.74	20
	3/28/2018	4.53	8
	9/21/2018	4.58	12
	3/12/2019	4.52	6
	10/1/2019	4.52	7
	3/18/2020	4.65	15
	9/23/2020	4.37	3
	3/17/2021	4.68	17
	9/9/2021	4.28	2
3/15/2022	4.72	18	
9/12/2022	4.54	9	
3/13/2023	4.6	13	
GWM-17S	11/14/2019	6.41	48
	3/26/2020	6.08	41
	9/29/2020	6.26	44



3/16/2021	6.35	46
9/14/2021	6.22	43
3/18/2022	6.26	45
9/13/2022	5.96	39
3/14/2023	6.07	40

---

The Wilcoxon Statistic is 310

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 4.13579

The Standard Deviation adjusted for ties is 36.1478

The Z Score adjusted for ties is 4.13579

**4.13579 > 2.326 indicating statistical significance at 1% level**

**4.13579 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Specific Conductance

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	171	1
	3/19/2014	220	4
	9/8/2014	227	7
	3/17/2015	786	59
	9/14/2015	431	33
	3/17/2016	311	27
	9/21/2016	332	30
	3/24/2017	281	21
	9/20/2017	295	26
	3/27/2018	494	35
	9/19/2018	330	29
	3/11/2019	263	16
	9/25/2019	520	36
	3/18/2020	471	34
	9/23/2020	321	28
	3/17/2021	289	24
9/8/2021	221	5	
3/15/2022	833	60	
9/12/2022	756	57	
3/13/2023	751.49	56	
GWM-2	9/25/2013	355	31
	3/18/2014	283	22
	9/16/2014	286	23
	3/18/2015	273	19
	9/15/2015	258	15
	3/16/2016	255	13
	9/22/2016	242	9
	3/24/2017	247	11
	9/21/2017	244	10
	3/28/2018	275	20
	9/21/2018	294	25
	3/12/2019	271	18
	10/1/2019	231	8
	3/18/2020	263	17
	9/23/2020	196.4	2
	3/17/2021	221	6
9/9/2021	201	3	
3/15/2022	256	14	
9/12/2022	252.9	12	
3/13/2023	356.68	32	
GWM-4	9/18/2013	735	54
	3/20/2014	659	47
	9/9/2014	591	40

3/16/2015	561	38
9/9/2015	556	37
3/18/2016	584	39
9/20/2016	692	52
3/23/2017	641	44
9/18/2017	667	49
3/15/2018	613	41
9/17/2018	678	50
3/5/2019	621	42
9/24/2019	643	45
3/16/2020	627	43
9/22/2020	650	46
3/16/2021	663	48
9/14/2021	743	55
3/22/2022	687	51
9/13/2022	707	53
3/14/2023	759.99	58

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The Wilcoxon Statistic is 722

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 5.04152

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 5.04152

**5.04152 > 2.326 indicating statistical significance at 1% level**

**5.04152 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Specific Conductance

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	171	1
	3/19/2014	220	4
	9/8/2014	227	7
	3/17/2015	786	60
	9/14/2015	431	49
	3/17/2016	311	30
	9/21/2016	332	36
	3/24/2017	281	22
	9/20/2017	295	27
	3/27/2018	494	55
	9/19/2018	330	35
	3/11/2019	263	16
	9/25/2019	520	57
	3/18/2020	471	53
	9/23/2020	321	31
	3/17/2021	289	25
9/8/2021	221	5	
3/15/2022	833	61	
9/12/2022	756	59	
3/13/2023	751.49	58	
GWM-2	9/25/2013	355	40
	3/18/2014	283	23
	9/16/2014	286	24
	3/18/2015	273	20
	9/15/2015	258	15
	3/16/2016	255	13
	9/22/2016	242	9
	3/24/2017	247	11
	9/21/2017	244	10
	3/28/2018	275	21
	9/21/2018	294	26
	3/12/2019	271	19
	10/1/2019	231	8
	3/18/2020	263	17
	9/23/2020	196.4	2
	3/17/2021	221	6
9/9/2021	201	3	
3/15/2022	256	14	
9/12/2022	252.9	12	
3/13/2023	356.68	41	
GWM-5A	9/19/2013	443	51
	12/5/2013	477	54
	3/19/2014	267	18

9/4/2014	394	48
3/17/2015	376	45
9/11/2015	380	46
3/15/2016	373	44
9/21/2016	371	43
3/28/2017	332	37
9/19/2017	325	33
3/26/2018	306	28
9/18/2018	494	56
3/4/2019	465	52
9/23/2019	438	50
3/19/2020	366	42
9/23/2020	326	34
3/19/2021	390	47
9/15/2021	341	39
3/16/2022	310	29
9/14/2022	321.8	32
3/16/2023	335.3	38

---

The Wilcoxon Statistic is 635

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is 3.25599

The Standard Deviation adjusted for ties is 65.8787

The Z Score adjusted for ties is 3.25599

**3.25599 > 2.326 indicating statistical significance at 1% level**

**3.25599 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Specific Conductance

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	171	1
	3/19/2014	220	4
	9/8/2014	227	7
	3/17/2015	786	59
	9/14/2015	431	50
	3/17/2016	311	27
	9/21/2016	332	30
	3/24/2017	281	21
	9/20/2017	295	26
	3/27/2018	494	53
	9/19/2018	330	29
	3/11/2019	263	16
	9/25/2019	520	54
	3/18/2020	471	52
	9/23/2020	321	28
	3/17/2021	289	24
	9/8/2021	221	5
3/15/2022	833	60	
9/12/2022	756	58	
3/13/2023	751.49	57	
GWM-2	9/25/2013	355	33
	3/18/2014	283	22
	9/16/2014	286	23
	3/18/2015	273	19
	9/15/2015	258	15
	3/16/2016	255	13
	9/22/2016	242	9
	3/24/2017	247	11
	9/21/2017	244	10
	3/28/2018	275	20
	9/21/2018	294	25
	3/12/2019	271	18
	10/1/2019	231	8
	3/18/2020	263	17
	9/23/2020	196.4	2
	3/17/2021	221	6
	9/9/2021	201	3
3/15/2022	256	14	
9/12/2022	252.9	12	
3/13/2023	356.68	34	
GWM-14	9/24/2013	561	56
	3/21/2014	422	49
	9/8/2014	438	51

3/19/2015	385	40
9/14/2015	395	44
3/21/2016	391	43
9/23/2016	405	46
3/27/2017	404	45
9/20/2017	410	47
3/16/2018	387	41
9/20/2018	378	39
3/5/2019	346	31
9/25/2019	373	37
3/25/2020	352	32
9/28/2020	358	35
3/18/2021	375	38
9/15/2021	419	48
3/22/2022	388	42
9/14/2022	360.8	36
3/16/2023	535.45	55

---

The Wilcoxon Statistic is 645

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 3.83407

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 3.83407

**3.83407 > 2.326 indicating statistical significance at 1% level**

**3.83407 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Specific Conductance

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	171	1
	3/19/2014	220	7
	9/8/2014	227	10
	3/17/2015	786	59
	9/14/2015	431	45
	3/17/2016	311	35
	9/21/2016	332	39
	3/24/2017	281	28
	9/20/2017	295	34
	3/27/2018	494	50
	9/19/2018	330	38
	3/11/2019	263	23
	9/25/2019	520	55
	3/18/2020	471	47
	9/23/2020	321	36
	3/17/2021	289	32
	9/8/2021	221	8
3/15/2022	833	60	
9/12/2022	756	58	
3/13/2023	751.49	57	
GWM-2	9/25/2013	355	41
	3/18/2014	283	29
	9/16/2014	286	31
	3/18/2015	273	26
	9/15/2015	258	22
	3/16/2016	255	19
	9/22/2016	242	13
	3/24/2017	247	16
	9/21/2017	244	15
	3/28/2018	275	27
	9/21/2018	294	33
	3/12/2019	271	25
	10/1/2019	231	11
	3/18/2020	263	24
	9/23/2020	196.4	2
	3/17/2021	221	9
	9/9/2021	201	4
3/15/2022	256	21	
9/12/2022	252.9	18	
3/13/2023	356.68	42	
GWM-6	9/24/2013	285	30
	3/21/2014	198.9	3
	9/17/2014	204	5



3/19/2015	231	12
9/15/2015	242	14
3/21/2016	255	20
9/26/2016	219	6
3/31/2017	252	17
9/21/2017	334	40
3/30/2018	410	44
9/26/2018	495	51
3/13/2019	514	53
10/3/2019	435	46
4/3/2020	321	37
9/30/2020	405	43
3/22/2021	518	54
9/16/2021	484	48
3/24/2022	508	52
9/16/2022	484.6	49
3/17/2023	614.9	56

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The Wilcoxon Statistic is 470

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 1.08985

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 1.08985

1.08985 < 2.326 indicating no statistical significance at 1% level

1.08985 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Specific Conductance

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	171	4
	3/19/2014	220	15
	9/8/2014	227	18
	3/17/2015	786	59
	9/14/2015	431	53
	3/17/2016	311	47
	9/21/2016	332	50
	3/24/2017	281	40
	9/20/2017	295	46
	3/27/2018	494	55
	9/19/2018	330	49
	3/11/2019	263	35
	9/25/2019	520	56
	3/18/2020	471	54
	9/23/2020	321	48
	3/17/2021	289	44
	9/8/2021	221	16
3/15/2022	833	60	
9/12/2022	756	58	
3/13/2023	751.49	57	
GWM-2	9/25/2013	355	51
	3/18/2014	283	41
	9/16/2014	286	42
	3/18/2015	273	38
	9/15/2015	258	34
	3/16/2016	255	31
	9/22/2016	242	24
	3/24/2017	247	28
	9/21/2017	244	25
	3/28/2018	275	39
	9/21/2018	294	45
	3/12/2019	271	37
	10/1/2019	231	20
	3/18/2020	263	36
	9/23/2020	196.4	7
	3/17/2021	221	17
	9/9/2021	201	9
3/15/2022	256	33	
9/12/2022	252.9	30	
3/13/2023	356.68	52	
GWM-3	9/25/2013	287	43
	3/18/2014	205	10
	9/16/2014	193.4	6

3/18/2015	216	13
9/15/2015	213	11
3/16/2016	246	27
9/22/2016	251	29
3/29/2017	255	32
9/21/2017	218	14
3/28/2018	236	22
9/20/2018	232	21
3/12/2019	238	23
10/1/2019	126.4	1
3/18/2020	244	26
9/24/2020	191.7	5
3/17/2021	200	8
9/9/2021	214	12
3/15/2022	227	19
9/16/2022	156.3	2
3/15/2023	165.68	3

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The Wilcoxon Statistic is 117

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -4.44563

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is -4.44563

-4.44563 < 2.326 indicating no statistical significance at 1% level

-4.44563 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Specific Conductance

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	171	2
	3/19/2014	220	5
	9/8/2014	227	8
	3/17/2015	786	46
	9/14/2015	431	34
	3/17/2016	311	28
	9/21/2016	332	31
	3/24/2017	281	22
	9/20/2017	295	27
	3/27/2018	494	36
	9/19/2018	330	30
	3/11/2019	263	17
	9/25/2019	520	37
	3/18/2020	471	35
	9/23/2020	321	29
	3/17/2021	289	25
	9/8/2021	221	6
3/15/2022	833	47	
9/12/2022	756	45	
3/13/2023	751.49	44	
GWM-2	9/25/2013	355	32
	3/18/2014	283	23
	9/16/2014	286	24
	3/18/2015	273	20
	9/15/2015	258	16
	3/16/2016	255	14
	9/22/2016	242	10
	3/24/2017	247	12
	9/21/2017	244	11
	3/28/2018	275	21
	9/21/2018	294	26
	3/12/2019	271	19
	10/1/2019	231	9
	3/18/2020	263	18
	9/23/2020	196.4	3
	3/17/2021	221	7
	9/9/2021	201	4
3/15/2022	256	15	
9/12/2022	252.9	13	
3/13/2023	356.68	33	
GWM-17S	11/14/2019	545	38
	3/26/2020	6.23	1
	9/29/2020	641	39

3/16/2021	672	40
9/14/2021	742	43
3/18/2022	673	41
9/13/2022	709	42
3/14/2023	992.44	48

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The Wilcoxon Statistic is 256

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 2.64193

The Standard Deviation adjusted for ties is 36.1478

The Z Score adjusted for ties is 2.64193

**2.64193 > 2.326 indicating statistical significance at 1% level**

**2.64193 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Sulfate

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	17730	28
	3/19/2014	12400	10
	9/8/2014	9200	6
	3/17/2015	15400	18
	9/14/2015	21800	35
	3/17/2016	31600	50
	9/21/2016	17500	27
	3/24/2017	22800	36
	9/20/2017	27300	38
	3/27/2018	27500	40
	9/19/2018	23200	37
	3/11/2019	15600	20
	9/25/2019	8300	4
	3/18/2020	9500	7
	9/23/2020	8600	5
	3/17/2021	9700	8
9/8/2021	10400	9	
3/15/2022	6600	3	
9/12/2022	5700	1	
3/13/2023	6400	2	
GWM-2	9/25/2013	14050	13
	3/18/2014	13300	11
	9/16/2014	20200	29
	3/18/2015	13500	12
	9/15/2015	15400	19
	3/16/2016	20500	30
	9/22/2016	16400	23
	3/24/2017	15300	16
	9/21/2017	15900	21
	3/28/2018	14400	14
	9/21/2018	14700	15
	3/12/2019	16200	22
	10/1/2019	16600	25
	3/18/2020	21100	31
	9/23/2020	21600	34
	3/17/2021	21100	32
9/9/2021	21300	33	
3/15/2022	15300	17	
9/12/2022	16500	24	
3/13/2023	17100	26	
GWM-4	9/18/2013	31230	47
	3/20/2014	32500	54
	9/9/2014	32500	55

3/16/2015	27400	39
9/9/2015	30400	46
3/18/2016	29400	44
9/20/2016	34500	60
3/23/2017	32900	58
9/18/2017	32300	53
3/15/2018	29000	42
9/17/2018	33400	59
3/5/2019	31800	51
9/24/2019	32800	57
3/16/2020	28000	41
9/22/2020	31900	52
3/16/2021	31400	48
9/14/2021	32500	56
3/22/2022	31500	49
9/13/2022	29600	45
3/14/2023	29200	43

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The Wilcoxon Statistic is 789

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 6.09217

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 6.09217

**6.09217 > 2.326 indicating statistical significance at 1% level**

**6.09217 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Sulfate

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	17730	28
	3/19/2014	12400	10
	9/8/2014	9200	6
	3/17/2015	15400	18
	9/14/2015	21800	38
	3/17/2016	31600	61
	9/21/2016	17500	27
	3/24/2017	22800	42
	9/20/2017	27300	51
	3/27/2018	27500	52
	9/19/2018	23200	44
	3/11/2019	15600	20
	9/25/2019	8300	4
	3/18/2020	9500	7
	9/23/2020	8600	5
	3/17/2021	9700	8
	9/8/2021	10400	9
3/15/2022	6600	3	
9/12/2022	5700	1	
3/13/2023	6400	2	
GWM-2	9/25/2013	14050	13
	3/18/2014	13300	11
	9/16/2014	20200	30
	3/18/2015	13500	12
	9/15/2015	15400	19
	3/16/2016	20500	32
	9/22/2016	16400	23
	3/24/2017	15300	16
	9/21/2017	15900	21
	3/28/2018	14400	14
	9/21/2018	14700	15
	3/12/2019	16200	22
	10/1/2019	16600	25
	3/18/2020	21100	34
	9/23/2020	21600	37
	3/17/2021	21100	35
	9/9/2021	21300	36
3/15/2022	15300	17	
9/12/2022	16500	24	
3/13/2023	17100	26	
GWM-5A	9/19/2013	20240	31
	12/5/2013	21060	33
	3/19/2014	23500	45



9/4/2014	30000	60
3/17/2015	26000	48
9/11/2015	29300	56
3/15/2016	26700	49
9/21/2016	20100	29
3/28/2017	24200	46
9/19/2017	22200	39
3/26/2018	24400	47
9/18/2018	29800	59
3/4/2019	29000	55
9/23/2019	29300	57
3/19/2020	26700	50
9/23/2020	28500	54
3/19/2021	28300	53
9/15/2021	29400	58
3/16/2022	22500	41
9/14/2022	22800	43
3/16/2023	22400	40

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The Wilcoxon Statistic is 762

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is 5.18377

The Standard Deviation adjusted for ties is 65.8787

The Z Score adjusted for ties is 5.18377

**5.18377 > 2.326 indicating statistical significance at 1% level**

**5.18377 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Sulfate

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	17730	29
	3/19/2014	12400	11
	9/8/2014	9200	6
	3/17/2015	15400	19
	9/14/2015	21800	42
	3/17/2016	31600	60
	9/21/2016	17500	28
	3/24/2017	22800	44
	9/20/2017	27300	53
	3/27/2018	27500	54
	9/19/2018	23200	46
	3/11/2019	15600	21
	9/25/2019	8300	4
	3/18/2020	9500	7
	9/23/2020	8600	5
	3/17/2021	9700	8
	9/8/2021	10400	9
3/15/2022	6600	3	
9/12/2022	5700	1	
3/13/2023	6400	2	
GWM-2	9/25/2013	14050	14
	3/18/2014	13300	12
	9/16/2014	20200	32
	3/18/2015	13500	13
	9/15/2015	15400	20
	3/16/2016	20500	33
	9/22/2016	16400	24
	3/24/2017	15300	17
	9/21/2017	15900	22
	3/28/2018	14400	15
	9/21/2018	14700	16
	3/12/2019	16200	23
	10/1/2019	16600	26
	3/18/2020	21100	36
	9/23/2020	21600	41
	3/17/2021	21100	37
	9/9/2021	21300	38
3/15/2022	15300	18	
9/12/2022	16500	25	
3/13/2023	17100	27	
GWM-14	9/24/2013	20560	34
	3/21/2014	21500	40
	9/8/2014	22700	43

3/19/2015	27900	55
9/14/2015	25200	51
3/21/2016	29100	57
9/23/2016	29200	58
3/27/2017	28600	56
9/20/2017	25000	50
3/16/2018	30200	59
9/20/2018	24500	48
3/5/2019	12200	10
9/25/2019	24800	49
3/25/2020	22800	45
9/28/2020	21400	39
3/18/2021	25600	52
9/15/2021	23700	47
3/22/2022	20900	35
9/14/2022	18300	30
3/16/2023	19700	31

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The Wilcoxon Statistic is 679

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 4.36723

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 4.36723

**4.36723 > 2.326 indicating statistical significance at 1% level**

**4.36723 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Sulfate

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	17730	48
	3/19/2014	12400	30
	9/8/2014	9200	26
	3/17/2015	15400	38
	9/14/2015	21800	55
	3/17/2016	31600	60
	9/21/2016	17500	47
	3/24/2017	22800	56
	9/20/2017	27300	58
	3/27/2018	27500	59
	9/19/2018	23200	57
	3/11/2019	15600	40
	9/25/2019	8300	22
	3/18/2020	9500	27
	9/23/2020	8600	23
	3/17/2021	9700	28
	9/8/2021	10400	29
3/15/2022	6600	18	
9/12/2022	5700	14	
3/13/2023	6400	17	
GWM-2	9/25/2013	14050	33
	3/18/2014	13300	31
	9/16/2014	20200	49
	3/18/2015	13500	32
	9/15/2015	15400	39
	3/16/2016	20500	50
	9/22/2016	16400	43
	3/24/2017	15300	36
	9/21/2017	15900	41
	3/28/2018	14400	34
	9/21/2018	14700	35
	3/12/2019	16200	42
	10/1/2019	16600	45
	3/18/2020	21100	51
	9/23/2020	21600	54
	3/17/2021	21100	52
	9/9/2021	21300	53
3/15/2022	15300	37	
9/12/2022	16500	44	
3/13/2023	17100	46	
GWM-6	9/24/2013	8840	25
	3/21/2014	8600	24
	9/17/2014	6900	19

3/19/2015	7300	20
9/15/2015	5900	16
3/21/2016	7300	21
9/26/2016	4400	10
3/31/2017	5700	15
9/21/2017	4400	11
3/30/2018	2900	7
9/26/2018	2300	6
3/13/2019	920 J	4
10/3/2019	780 J	3
4/3/2020	520 J	2
9/30/2020	460 J	1
3/22/2021	920 J	5
9/16/2021	3200	9
3/24/2022	3100	8
9/16/2022	4800	12
3/17/2023	5200	13

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The Wilcoxon Statistic is 21

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -5.95103

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is -5.95103

-5.95103 < 2.326 indicating no statistical significance at 1% level

-5.95103 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Sulfate

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	17730	28
	3/19/2014	12400	10
	9/8/2014	9200	6
	3/17/2015	15400	18
	9/14/2015	21800	35
	3/17/2016	31600	52
	9/21/2016	17500	27
	3/24/2017	22800	36
	9/20/2017	27300	42
	3/27/2018	27500	43
	9/19/2018	23200	37
	3/11/2019	15600	20
	9/25/2019	8300	4
	3/18/2020	9500	7
	9/23/2020	8600	5
	3/17/2021	9700	8
9/8/2021	10400	9	
3/15/2022	6600	3	
9/12/2022	5700	1	
3/13/2023	6400	2	
GWM-2	9/25/2013	14050	13
	3/18/2014	13300	11
	9/16/2014	20200	29
	3/18/2015	13500	12
	9/15/2015	15400	19
	3/16/2016	20500	30
	9/22/2016	16400	23
	3/24/2017	15300	16
	9/21/2017	15900	21
	3/28/2018	14400	14
	9/21/2018	14700	15
	3/12/2019	16200	22
	10/1/2019	16600	25
	3/18/2020	21100	31
	9/23/2020	21600	34
	3/17/2021	21100	32
9/9/2021	21300	33	
3/15/2022	15300	17	
9/12/2022	16500	24	
3/13/2023	17100	26	
GWM-3	9/25/2013	26550	41
	3/18/2014	25500	39
	9/16/2014	28100	44

3/18/2015	29500	46
9/15/2015	32000	56
3/16/2016	31600	53
9/22/2016	30600	49
3/29/2017	33200	58
9/21/2017	33300	59
3/28/2018	32400	57
9/20/2018	30800	50
3/12/2019	30400	47
10/1/2019	31300	51
3/18/2020	31800	55
9/24/2020	28600	45
3/17/2021	31600	54
9/9/2021	35000	60
3/15/2022	30500	48
9/16/2022	26200	40
3/15/2023	24200	38

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The Wilcoxon Statistic is 780

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 5.95103

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 5.95103

**5.95103 > 2.326 indicating statistical significance at 1% level**

**5.95103 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Sulfate

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	17730	29
	3/19/2014	12400	10
	9/8/2014	9200	6
	3/17/2015	15400	18
	9/14/2015	21800	38
	3/17/2016	31600	48
	9/21/2016	17500	28
	3/24/2017	22800	41
	9/20/2017	27300	46
	3/27/2018	27500	47
	9/19/2018	23200	44
	3/11/2019	15600	20
	9/25/2019	8300	4
	3/18/2020	9500	7
	9/23/2020	8600	5
	3/17/2021	9700	8
	9/8/2021	10400	9
3/15/2022	6600	3	
9/12/2022	5700	1	
3/13/2023	6400	2	
GWM-2	9/25/2013	14050	13
	3/18/2014	13300	11
	9/16/2014	20200	30
	3/18/2015	13500	12
	9/15/2015	15400	19
	3/16/2016	20500	31
	9/22/2016	16400	23
	3/24/2017	15300	16
	9/21/2017	15900	21
	3/28/2018	14400	14
	9/21/2018	14700	15
	3/12/2019	16200	22
	10/1/2019	16600	25
	3/18/2020	21100	33
	9/23/2020	21600	37
	3/17/2021	21100	34
	9/9/2021	21300	36
3/15/2022	15300	17	
9/12/2022	16500	24	
3/13/2023	17100	27	
GWM-17S	11/14/2019	20700	32
	3/26/2020	23100	42
	9/29/2020	24200	45



3/16/2021	22500	40
9/14/2021	23100	43
3/18/2022	21900	39
9/13/2022	21100	35
3/14/2023	16700	26

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The Wilcoxon Statistic is 266

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 2.91857

The Standard Deviation adjusted for ties is 36.1478

The Z Score adjusted for ties is 2.91857

**2.91857 > 2.326 indicating statistical significance at 1% level**

**2.91857 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Total Dissolved Solids

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	62000	1
	3/19/2014	229000	29
	9/8/2014	130000	4
	3/17/2015	584000	60
	9/14/2015	277000	34
	3/17/2016	239000	31
	9/21/2016	225000	28
	3/24/2017	234000	30
	9/20/2017	199000	24
	3/27/2018	327000	36
	9/19/2018	150000	8
	3/11/2019	143000	5
	9/25/2019	286000	35
	3/18/2020	392000	44
	9/23/2020	264000	33
	3/17/2021	160000	10
9/8/2021	176000	16	
3/15/2022	570000	59	
9/12/2022	464000	53	
3/13/2023	382000	43	
GWM-2	9/25/2013	173000	15
	3/18/2014	201000	25
	9/16/2014	253000	32
	3/18/2015	218000	27
	9/15/2015	171000	13
	3/16/2016	179000	18
	9/22/2016	177000	17
	3/24/2017	168000	12
	9/21/2017	149000	7
	3/28/2018	156000	9
	9/21/2018	184000	20
	3/12/2019	194000	22
	10/1/2019	192000	21
	3/18/2020	208000	26
	9/23/2020	172000	14
	3/17/2021	104000	3
9/9/2021	198000	23	
3/15/2022	146000	6	
9/12/2022	162000	11	
3/13/2023	182000	19	
GWM-4	9/18/2013	100000	2
	3/20/2014	381000	42
	9/9/2014	423000	47

3/16/2015	356000	39
9/9/2015	355000	38
3/18/2016	352000	37
9/20/2016	457000	52
3/23/2017	411000	46
9/18/2017	446000	50
3/15/2018	366000	41
9/17/2018	363000	40
3/5/2019	538000	57
9/24/2019	450000	51
3/16/2020	566000	58
9/22/2020	494000	54
3/16/2021	500000	55
9/14/2021	526000	56
3/22/2022	434000	49
9/13/2022	432000	48
3/14/2023	396000	45

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The Wilcoxon Statistic is 697

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 4.64949

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 4.64949

**4.64949 > 2.326 indicating statistical significance at 1% level**

**4.64949 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Total Dissolved Solids

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	62000	1
	3/19/2014	229000	36
	9/8/2014	130000	4
	3/17/2015	584000	60
	9/14/2015	277000	48
	3/17/2016	239000	38
	9/21/2016	225000	35
	3/24/2017	234000	37
	9/20/2017	199000	25
	3/27/2018	327000	54
	9/19/2018	150000	8
	3/11/2019	143000	5
	9/25/2019	286000	50
	3/18/2020	392000	57
	9/23/2020	264000	43
	3/17/2021	160000	10
9/8/2021	176000	16	
3/15/2022	570000	59	
9/12/2022	464000	58	
3/13/2023	382000	56	
GWM-2	9/25/2013	173000	15
	3/18/2014	201000	26
	9/16/2014	253000	40
	3/18/2015	218000	31
	9/15/2015	171000	13
	3/16/2016	179000	18
	9/22/2016	177000	17
	3/24/2017	168000	12
	9/21/2017	149000	7
	3/28/2018	156000	9
	9/21/2018	184000	20
	3/12/2019	194000	23
	10/1/2019	192000	22
	3/18/2020	208000	29
	9/23/2020	172000	14
	3/17/2021	104000	3
9/9/2021	198000	24	
3/15/2022	146000	6	
9/12/2022	162000	11	
3/13/2023	182000	19	
GWM-5A	9/19/2013	77000	2
	3/19/2014	291000	51
	9/4/2014	256000	41

3/17/2015	266000	45
9/11/2015	281000	49
3/15/2016	266000	46
9/21/2016	257000	42
3/28/2017	205000	28
9/19/2017	215000	30
3/26/2018	202000	27
9/18/2018	300000	52
3/4/2019	346000	55
9/23/2019	305000	53
3/19/2020	246000	39
9/23/2020	266000	47
3/19/2021	264000	44
9/15/2021	220000	33
3/16/2022	220000	34
9/14/2022	190000	21
3/16/2023	218000	32

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The Wilcoxon Statistic is 561

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 2.51684

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 2.51684

**2.51684 > 2.326 indicating statistical significance at 1% level**

**2.51684 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Total Dissolved Solids

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	62000	1
	3/19/2014	229000	32
	9/8/2014	130000	3
	3/17/2015	584000	60
	9/14/2015	277000	45
	3/17/2016	239000	35
	9/21/2016	225000	31
	3/24/2017	234000	33
	9/20/2017	199000	25
	3/27/2018	327000	55
	9/19/2018	150000	7
	3/11/2019	143000	4
	9/25/2019	286000	50
	3/18/2020	392000	57
	9/23/2020	264000	40
	3/17/2021	160000	9
	9/8/2021	176000	16
3/15/2022	570000	59	
9/12/2022	464000	58	
3/13/2023	382000	56	
GWM-2	9/25/2013	173000	15
	3/18/2014	201000	26
	9/16/2014	253000	38
	3/18/2015	218000	29
	9/15/2015	171000	12
	3/16/2016	179000	18
	9/22/2016	177000	17
	3/24/2017	168000	11
	9/21/2017	149000	6
	3/28/2018	156000	8
	9/21/2018	184000	20
	3/12/2019	194000	22
	10/1/2019	192000	21
	3/18/2020	208000	27
	9/23/2020	172000	13
	3/17/2021	104000	2
	9/9/2021	198000	23
3/15/2022	146000	5	
9/12/2022	162000	10	
3/13/2023	182000	19	
GWM-14	9/24/2013	277000	46
	3/21/2014	269000	43
	9/8/2014	291000	51

3/19/2015	314000	54
9/14/2015	278000	47
3/21/2016	239000	36
9/23/2016	283000	48
3/27/2017	266000	42
9/20/2017	236000	34
3/16/2018	251000	37
9/20/2018	172000	14
3/5/2019	311000	53
9/25/2019	214000	28
3/25/2020	198000	24
9/28/2020	284000	49
3/18/2021	276000	44
9/15/2021	264000	41
3/22/2022	258000	39
9/14/2022	220000	30
3/16/2023	300000	52

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The Wilcoxon Statistic is 602

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 3.15977

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 3.15977

**3.15977 > 2.326 indicating statistical significance at 1% level**

**3.15977 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Total Dissolved Solids

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	62000	1
	3/19/2014	229000	41
	9/8/2014	130000	7
	3/17/2015	584000	60
	9/14/2015	277000	51
	3/17/2016	239000	43
	9/21/2016	225000	39
	3/24/2017	234000	42
	9/20/2017	199000	34
	3/27/2018	327000	55
	9/19/2018	150000	12
	3/11/2019	143000	9
	9/25/2019	286000	54
	3/18/2020	392000	57
	9/23/2020	264000	49
	3/17/2021	160000	16
9/8/2021	176000	24	
3/15/2022	570000	59	
9/12/2022	464000	58	
3/13/2023	382000	56	
GWM-2	9/25/2013	173000	23
	3/18/2014	201000	35
	9/16/2014	253000	47
	3/18/2015	218000	38
	9/15/2015	171000	21
	3/16/2016	179000	26
	9/22/2016	177000	25
	3/24/2017	168000	20
	9/21/2017	149000	11
	3/28/2018	156000	15
	9/21/2018	184000	28
	3/12/2019	194000	32
	10/1/2019	192000	31
	3/18/2020	208000	37
	9/23/2020	172000	22
	3/17/2021	104000	2
9/9/2021	198000	33	
3/15/2022	146000	10	
9/12/2022	162000	18	
3/13/2023	182000	27	
GWM-6	9/24/2013	118000	5
	3/21/2014	115000	4
	9/17/2014	126000	6



3/19/2015	191000	30
9/15/2015	153000	13
3/21/2016	132000	8
9/26/2016	155000	14
3/31/2017	160000	17
9/21/2017	164000	19
3/30/2018	203000	36
9/26/2018	243000	44
3/13/2019	278000	52
10/3/2019	110000	3
4/3/2020	250000	46
9/30/2020	258000	48
3/22/2021	244000	45
9/16/2021	228000	40
3/24/2022	184000	29
9/16/2022	264000	50
3/17/2023	282000	53

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The Wilcoxon Statistic is 352

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -0.760541

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is -0.760541

-0.760541 < 2.326 indicating no statistical significance at 1% level

-0.760541 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Total Dissolved Solids

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	62000	1
	3/19/2014	229000	48
	9/8/2014	130000	7
	3/17/2015	584000	60
	9/14/2015	277000	53
	3/17/2016	239000	50
	9/21/2016	225000	47
	3/24/2017	234000	49
	9/20/2017	199000	41
	3/27/2018	327000	55
	9/19/2018	150000	15
	3/11/2019	143000	9
	9/25/2019	286000	54
	3/18/2020	392000	57
	9/23/2020	264000	52
	3/17/2021	160000	19
	9/8/2021	176000	28
3/15/2022	570000	59	
9/12/2022	464000	58	
3/13/2023	382000	56	
GWM-2	9/25/2013	173000	26
	3/18/2014	201000	42
	9/16/2014	253000	51
	3/18/2015	218000	46
	9/15/2015	171000	23
	3/16/2016	179000	32
	9/22/2016	177000	30
	3/24/2017	168000	22
	9/21/2017	149000	14
	3/28/2018	156000	17
	9/21/2018	184000	34
	3/12/2019	194000	39
	10/1/2019	192000	38
	3/18/2020	208000	43
	9/23/2020	172000	24
	3/17/2021	104000	4
	9/9/2021	198000	40
3/15/2022	146000	12	
9/12/2022	162000	20	
3/13/2023	182000	33	
GWM-3	9/25/2013	119000	5
	3/18/2014	93000	3
	9/16/2014	144000	11

3/18/2015	189000	37
9/15/2015	148000	13
3/16/2016	176000	29
9/22/2016	177000	31
3/29/2017	172000	25
9/21/2017	173000	27
3/28/2018	143000	10
9/20/2018	141000	8
3/12/2019	186000	35
10/1/2019	210000	44
3/18/2020	188000	36
9/24/2020	152000	16
3/17/2021	166000	21
9/9/2021	210000	45
3/15/2022	157000	18
9/16/2022	125000	6
3/15/2023	88000	2

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The Wilcoxon Statistic is 212

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -2.95592

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is -2.95592

-2.95592 < 2.326 indicating no statistical significance at 1% level

-2.95592 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Total Dissolved Solids

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	62000	1
	3/19/2014	229000	28
	9/8/2014	130000	3
	3/17/2015	584000	48
	9/14/2015	277000	33
	3/17/2016	239000	30
	9/21/2016	225000	27
	3/24/2017	234000	29
	9/20/2017	199000	23
	3/27/2018	327000	36
	9/19/2018	150000	7
	3/11/2019	143000	4
	9/25/2019	286000	34
	3/18/2020	392000	38
	9/23/2020	264000	32
	3/17/2021	160000	9
	9/8/2021	176000	15
3/15/2022	570000	47	
9/12/2022	464000	43	
3/13/2023	382000	37	
GWM-2	9/25/2013	173000	14
	3/18/2014	201000	24
	9/16/2014	253000	31
	3/18/2015	218000	26
	9/15/2015	171000	12
	3/16/2016	179000	17
	9/22/2016	177000	16
	3/24/2017	168000	11
	9/21/2017	149000	6
	3/28/2018	156000	8
	9/21/2018	184000	19
	3/12/2019	194000	21
	10/1/2019	192000	20
	3/18/2020	208000	25
	9/23/2020	172000	13
	3/17/2021	104000	2
	9/9/2021	198000	22
3/15/2022	146000	5	
9/12/2022	162000	10	
3/13/2023	182000	18	
GWM-17S	11/14/2019	556000	46
	3/26/2020	314000	35
	9/29/2020	436000	42

3/16/2021	402000	40
9/14/2021	490000	44
3/18/2022	408000	41
9/13/2022	394000	39
3/14/2023	492000	45

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The Wilcoxon Statistic is 296

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 3.74849

The Standard Deviation adjusted for ties is 36.1478

The Z Score adjusted for ties is 3.74849

**3.74849 > 2.326 indicating statistical significance at 1% level**

**3.74849 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Turbidity

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 3

Non detect rank is 2

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<0.01	2
	3/19/2014	0.77	13
	9/8/2014	1.13	20
	3/17/2015	1.36	27
	9/14/2015	0.92	18
	3/17/2016	0.53	7
	9/21/2016	1.4	29
	3/24/2017	1.13	21
	9/20/2017	3.19	49
	3/27/2018	2.29	43
	9/19/2018	0.81	14
	3/11/2019	1.67	36
	9/25/2019	2.05	40
	3/18/2020	1.53	34
	9/23/2020	5.36	57
	3/17/2021	0.81	15
	9/8/2021	1.34	26
3/15/2022	1.42	32	
9/12/2022	9.59	59	
3/13/2023	3.69	54	
GWM-2	9/25/2013	ND<0.01	2
	3/18/2014	0.6	9
	9/16/2014	0.82	16
	3/18/2015	0.76	12
	9/15/2015	1.5	33
	3/16/2016	1.23	23
	9/22/2016	1.91	38
	3/24/2017	0.37	4
	9/21/2017	2.13	41
	3/28/2018	3.12	47
	9/21/2018	0.59	8
	3/12/2019	0.83	17
	10/1/2019	0.4	5
	3/18/2020	1.06	19
	9/23/2020	3.3	50
	3/17/2021	1.53	35
	9/9/2021	1.7	37
3/15/2022	1.4	30	
9/12/2022	5.24	56	
3/13/2023	21.41	60	
GWM-4	9/18/2013	ND<0.01	2
	3/20/2014	1.2	22
	9/9/2014	9.01	58

3/16/2015	3.61	53
9/9/2015	2.72	45
3/18/2016	1.36	28
9/20/2016	3.46	52
3/23/2017	2.64	44
9/18/2017	0.73	11
3/15/2018	3.33	51
9/17/2018	4.27	55
3/5/2019	2.85	46
9/24/2019	2.01	39
3/16/2020	2.19	42
9/22/2020	1.41	31
3/16/2021	1.29	25
9/14/2021	0.7	10
3/22/2022	1.23	24
9/13/2022	3.18	48
3/14/2023	0.41	6

---

The Wilcoxon Statistic is 482

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 1.27802

The Standard Deviation adjusted for ties is 63.7669

The Z Score adjusted for ties is 1.27809

1.27802 < 2.326 indicating no statistical significance at 1% level

1.27809 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Turbidity

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 3

Non detect rank is 2

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<0.01	2
	3/19/2014	0.77	14
	9/8/2014	1.13	24
	3/17/2015	1.36	29
	9/14/2015	0.92	21
	3/17/2016	0.53	8
	9/21/2016	1.4	30
	3/24/2017	1.13	25
	9/20/2017	3.19	50
	3/27/2018	2.29	47
	9/19/2018	0.81	15
	3/11/2019	1.67	38
	9/25/2019	2.05	44
	3/18/2020	1.53	35
	9/23/2020	5.36	56
	3/17/2021	0.81	16
	9/8/2021	1.34	28
3/15/2022	1.42	32	
9/12/2022	9.59	60	
3/13/2023	3.69	52	
GWM-2	9/25/2013	ND<0.01	2
	3/18/2014	0.6	11
	9/16/2014	0.82	17
	3/18/2015	0.76	13
	9/15/2015	1.5	33
	3/16/2016	1.23	26
	9/22/2016	1.91	42
	3/24/2017	0.37	5
	9/21/2017	2.13	46
	3/28/2018	3.12	49
	9/21/2018	0.59	10
	3/12/2019	0.83	18
	10/1/2019	0.4	6
	3/18/2020	1.06	22
	9/23/2020	3.3	51
	3/17/2021	1.53	36
	9/9/2021	1.7	39
3/15/2022	1.4	31	
9/12/2022	5.24	55	
3/13/2023	21.41	61	
GWM-5A	9/19/2013	ND<0.01	2
	12/5/2013	0.32	4
	3/19/2014	1.1	23



9/4/2014	9.46	59
3/17/2015	1.87	40
9/11/2015	1.9	41
3/15/2016	0.58	9
9/21/2016	2.05	45
3/28/2017	0.85	19
9/19/2017	0.5	7
3/26/2018	1.93	43
9/18/2018	1.52	34
3/4/2019	7.4	58
9/23/2019	4.33	54
3/19/2020	5.7	57
9/23/2020	2.74	48
3/19/2021	1.28	27
9/15/2021	1.64	37
3/16/2022	0.72	12
9/14/2022	3.78	53
3/16/2023	0.85	20

---

The Wilcoxon Statistic is 461

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is 0.614766

The Standard Deviation adjusted for ties is 65.8752

The Z Score adjusted for ties is 0.614799

0.614766 < 2.326 indicating no statistical significance at 1% level

0.614799 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Turbidity

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 3

Non detect rank is 2

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<0.01	2
	3/19/2014	0.77	12
	9/8/2014	1.13	19
	3/17/2015	1.36	23
	9/14/2015	0.92	17
	3/17/2016	0.53	8
	9/21/2016	1.4	24
	3/24/2017	1.13	20
	9/20/2017	3.19	38
	3/27/2018	2.29	36
	9/19/2018	0.81	13
	3/11/2019	1.67	30
	9/25/2019	2.05	34
	3/18/2020	1.53	28
	9/23/2020	5.36	49
	3/17/2021	0.81	14
	9/8/2021	1.34	22
3/15/2022	1.42	26	
9/12/2022	9.59	58	
3/13/2023	3.69	42	
GWM-2	9/25/2013	ND<0.01	2
	3/18/2014	0.6	10
	9/16/2014	0.82	15
	3/18/2015	0.76	11
	9/15/2015	1.5	27
	3/16/2016	1.23	21
	9/22/2016	1.91	33
	3/24/2017	0.37	4
	9/21/2017	2.13	35
	3/28/2018	3.12	37
	9/21/2018	0.59	9
	3/12/2019	0.83	16
	10/1/2019	0.4	5
	3/18/2020	1.06	18
	9/23/2020	3.3	40
	3/17/2021	1.53	29
	9/9/2021	1.7	31
3/15/2022	1.4	25	
9/12/2022	5.24	47	
3/13/2023	21.41	60	
GWM-14	9/24/2013	ND<0.01	2
	3/21/2014	5.3	48
	9/8/2014	3.47	41

3/19/2015	9.38	57
9/14/2015	4.6	45
3/21/2016	11.76	59
9/23/2016	6	51
3/27/2017	6.86	53
9/20/2017	4.58	44
3/16/2018	7.72	55
9/20/2018	0.5	7
3/5/2019	7.78	56
9/25/2019	0.43	6
3/25/2020	4.02	43
9/28/2020	3.28	39
3/18/2021	5.37	50
9/15/2021	1.74	32
3/22/2022	5.19	46
9/14/2022	6.29	52
3/16/2023	7.59	54

---

The Wilcoxon Statistic is 630

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 3.59885

The Standard Deviation adjusted for ties is 63.7669

The Z Score adjusted for ties is 3.59905

**3.59885 > 2.326 indicating statistical significance at 1% level**

**3.59905 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Turbidity

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 3

Non detect rank is 2

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<0.01	2
	3/19/2014	0.77	17
	9/8/2014	1.13	30
	3/17/2015	1.36	34
	9/14/2015	0.92	26
	3/17/2016	0.53	8
	9/21/2016	1.4	35
	3/24/2017	1.13	31
	9/20/2017	3.19	53
	3/27/2018	2.29	50
	9/19/2018	0.81	18
	3/11/2019	1.67	44
	9/25/2019	2.05	48
	3/18/2020	1.53	39
	9/23/2020	5.36	58
	3/17/2021	0.81	19
	9/8/2021	1.34	33
3/15/2022	1.42	37	
9/12/2022	9.59	59	
3/13/2023	3.69	55	
GWM-2	9/25/2013	ND<0.01	2
	3/18/2014	0.6	12
	9/16/2014	0.82	21
	3/18/2015	0.76	16
	9/15/2015	1.5	38
	3/16/2016	1.23	32
	9/22/2016	1.91	47
	3/24/2017	0.37	5
	9/21/2017	2.13	49
	3/28/2018	3.12	52
	9/21/2018	0.59	11
	3/12/2019	0.83	22
	10/1/2019	0.4	6
	3/18/2020	1.06	29
	9/23/2020	3.3	54
	3/17/2021	1.53	40
	9/9/2021	1.7	46
3/15/2022	1.4	36	
9/12/2022	5.24	57	
3/13/2023	21.41	60	
GWM-6	9/24/2013	ND<0.01	2
	3/21/2014	1.66	43
	9/17/2014	0.7	13

3/19/2015	0.54	9
9/15/2015	0.84	23
3/21/2016	0.47	7
9/26/2016	1.69	45
3/31/2017	0.25	4
9/21/2017	0.74	15
3/30/2018	0.95	27
9/26/2018	1.62	42
3/13/2019	0.81	20
10/3/2019	1.03	28
4/3/2020	0.73	14
9/30/2020	0.86	25
3/22/2021	0.55	10
9/16/2021	1.55	41
3/24/2022	0.84	24
9/16/2022	3.98	56
3/17/2023	2.51	51

---

The Wilcoxon Statistic is 289

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -1.74846

The Standard Deviation adjusted for ties is 63.7669

The Z Score adjusted for ties is -1.74856

-1.74846 < 2.326 indicating no statistical significance at 1% level

-1.74856 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Turbidity

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 3

Non detect rank is 2

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<0.01	2
	3/19/2014	0.77	16
	9/8/2014	1.13	28
	3/17/2015	1.36	33
	9/14/2015	0.92	22
	3/17/2016	0.53	10
	9/21/2016	1.4	36
	3/24/2017	1.13	29
	9/20/2017	3.19	51
	3/27/2018	2.29	49
	9/19/2018	0.81	17
	3/11/2019	1.67	44
	9/25/2019	2.05	47
	3/18/2020	1.53	42
	9/23/2020	5.36	56
	3/17/2021	0.81	18
	9/8/2021	1.34	32
3/15/2022	1.42	39	
9/12/2022	9.59	58	
3/13/2023	3.69	53	
GWM-2	9/25/2013	ND<0.01	2
	3/18/2014	0.6	14
	9/16/2014	0.82	19
	3/18/2015	0.76	15
	9/15/2015	1.5	41
	3/16/2016	1.23	30
	9/22/2016	1.91	46
	3/24/2017	0.37	6
	9/21/2017	2.13	48
	3/28/2018	3.12	50
	9/21/2018	0.59	13
	3/12/2019	0.83	20
	10/1/2019	0.4	8
	3/18/2020	1.06	26
	9/23/2020	3.3	52
	3/17/2021	1.53	43
	9/9/2021	1.7	45
3/15/2022	1.4	37	
9/12/2022	5.24	55	
3/13/2023	21.41	60	
GWM-3	9/25/2013	ND<0.01	2
	3/18/2014	0.55	11
	9/16/2014	0.24	5

3/18/2015	0.18	4
9/15/2015	0.58	12
3/16/2016	0.38	7
9/22/2016	1.4	38
3/29/2017	1.46	40
9/21/2017	0.85	21
3/28/2018	0.94	23
9/20/2018	1.39	34
3/12/2019	1.02	25
10/1/2019	0.44	9
3/18/2020	1.29	31
9/24/2020	0.98	24
3/17/2021	11.4	59
9/9/2021	1.39	35
3/15/2022	1.08	27
9/16/2022	3.98	54
3/15/2023	8.1	57

---

The Wilcoxon Statistic is 308

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -1.45052

The Standard Deviation adjusted for ties is 63.7669

The Z Score adjusted for ties is -1.4506

-1.45052 < 2.326 indicating no statistical significance at 1% level

-1.4506 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Turbidity

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 2

Non detect rank is 1.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<0.01	1.5
	3/19/2014	0.77	9
	9/8/2014	1.13	16
	3/17/2015	1.36	20
	9/14/2015	0.92	14
	3/17/2016	0.53	5
	9/21/2016	1.4	21
	3/24/2017	1.13	17
	9/20/2017	3.19	36
	3/27/2018	2.29	32
	9/19/2018	0.81	10
	3/11/2019	1.67	27
	9/25/2019	2.05	30
	3/18/2020	1.53	25
	9/23/2020	5.36	45
	3/17/2021	0.81	11
	9/8/2021	1.34	19
3/15/2022	1.42	23	
9/12/2022	9.59	47	
3/13/2023	3.69	38	
GWM-2	9/25/2013	ND<0.01	1.5
	3/18/2014	0.6	7
	9/16/2014	0.82	12
	3/18/2015	0.76	8
	9/15/2015	1.5	24
	3/16/2016	1.23	18
	9/22/2016	1.91	29
	3/24/2017	0.37	3
	9/21/2017	2.13	31
	3/28/2018	3.12	35
	9/21/2018	0.59	6
	3/12/2019	0.83	13
	10/1/2019	0.4	4
	3/18/2020	1.06	15
	9/23/2020	3.3	37
	3/17/2021	1.53	26
	9/9/2021	1.7	28
3/15/2022	1.4	22	
9/12/2022	5.24	44	
3/13/2023	21.41	48	
GWM-17S	11/14/2019	5.82	46
	3/26/2020	4.77	43
	9/29/2020	3.1	34



3/16/2021	2.78	33
9/14/2021	3.78	39
3/18/2022	3.81	40
9/13/2022	4.66	42
3/14/2023	4.49	41

---

The Wilcoxon Statistic is 282

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 3.3612

The Standard Deviation adjusted for ties is 36.1469

The Z Score adjusted for ties is 3.36129

**3.3612 > 2.326 indicating statistical significance at 1% level**

**3.36129 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## 6) Patapsco Aquifer Water Quality Parameters Intra-well Statistics

APPENDIX F

## Shapiro-Francia Test of Normality

Parameter: Alkalinity, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	2000	-1.94314	19.2605	-3886.27
5	2000	-1.83843	22.6403	-7563.12
6	3000	-1.75069	25.7052	-12815.2
7	3000	-1.68494	28.5442	-17870
8	3000	-1.61644	31.1571	-22719.3
9	3300	-1.55477	33.5744	-27850.1
10	4000	-1.50626	35.8432	-33875.1
11	4000	-1.4538	37.9567	-39690.3
12	4000	-1.40507	39.931	-45310.6
13	4000	-1.36581	41.7964	-50773.8
14	4000	-1.32251	43.5454	-56063.9
15	4000	-1.28155	45.1878	-61190.1
16	5000	-1.24809	46.7455	-67430.5
17	5000	-1.21073	48.2114	-73484.1
18	5000	-1.17499	49.592	-79359.1
19	5000	-1.1455	50.9042	-85086.6
20	5000	-1.11232	52.1414	-90648.2
21	6000	-1.08032	53.3085	-97130.1
22	6660	-1.05375	54.4189	-104148
23	7000	-1.02365	55.4667	-111314
24	7000	-0.994457	56.4557	-118275
25	8000	-0.970094	57.3968	-126036
26	10000	-0.942375	58.2848	-135459
27	10000	-0.919183	59.1297	-144651
28	10000	-0.892733	59.9267	-153578
29	11000	-0.866894	60.6782	-163114
30	11000	-0.841621	61.3865	-172372
31	11000	-0.820379	62.0596	-181396
32	11000	-0.796056	62.6933	-190153
33	11000	-0.772193	63.2896	-198647
34	11000	-0.752084	63.8552	-206920
35	11000	-0.729003	64.3866	-214939
36	11000	-0.706302	64.8855	-222708
37	11000	-0.687131	65.3576	-230267
38	12000	-0.665079	65.8	-238248
39	12000	-0.643345	66.2139	-245968
40	12000	-0.624956	66.6044	-253467
41	12000	-0.603765	66.969	-260713
42	13000	-0.582841	67.3087	-268289
43	14000	-0.565108	67.628	-276201
44	16000	-0.544642	67.9247	-284915
45	17000	-0.524401	68.1996	-293830
46	17000	-0.507221	68.4569	-302453
47	17000	-0.487364	68.6944	-310738

48	18000	-0.467699	68.9132	-319157
49	18000	-0.450985	69.1166	-327274
50	18000	-0.431644	69.3029	-335044
51	19000	-0.412463	69.473	-342881
52	20000	-0.396142	69.6299	-350804
53	22000	-0.377233	69.7723	-359103
54	22000	-0.358459	69.9007	-366989
55	24000	-0.342466	70.018	-375208
56	25000	-0.323919	70.1229	-383306
57	26000	-0.305481	70.2163	-391248
58	29260	-0.28976	70.3002	-399727
59	37000	-0.271509	70.3739	-409773
60	39000	-0.253347	70.4381	-419653
61	42000	-0.237847	70.4947	-429643
62	42270	-0.219834	70.543	-438935
63	45000	-0.204452	70.5848	-448135
64	47000	-0.186567	70.6196	-456904
65	48000	-0.168741	70.6481	-465004
66	52000	-0.150969	70.6709	-472854
67	53000	-0.135774	70.6893	-480050
68	57000	-0.118085	70.7033	-486781
69	58000	-0.100433	70.7134	-492606
70	61000	-0.0853288	70.7206	-497811
71	61000	-0.0677301	70.7252	-501943
72	62000	-0.0501541	70.7278	-505052
73	70000	-0.0350997	70.729	-507509
74	70000	-0.0175476	70.7293	-508738
75	72000	0	70.7293	-508738
76	73000	0.0175476	70.7296	-507457
77	77000	0.0350997	70.7308	-504754
78	77330	0.0501541	70.7333	-500875
79	78000	0.0677301	70.7379	-495592
80	80000	0.0853288	70.7452	-488766
81	86000	0.100433	70.7553	-480129
82	88000	0.118085	70.7692	-469737
83	90000	0.135774	70.7877	-457518
84	94000	0.150969	70.8105	-443327
85	94000	0.168741	70.8389	-427465
86	98000	0.186567	70.8738	-409181
87	100000	0.201894	70.9145	-388992
88	101000	0.219834	70.9628	-366789
89	101000	0.237847	71.0194	-342766
90	102000	0.253347	71.0836	-316925
91	102390	0.271509	71.1573	-289125
92	105000	0.28976	71.2413	-258700
93	106000	0.305481	71.3346	-226319
94	106000	0.323919	71.4395	-191984
95	113000	0.342466	71.5568	-153285
96	116000	0.358459	71.6853	-111704
97	124000	0.377233	71.8276	-64927.1
98	125000	0.396142	71.9845	-15409.4
99	125000	0.412463	72.1547	36148.5
100	126000	0.431644	72.341	90535.6
101	126000	0.450985	72.5444	147360
102	128000	0.467699	72.7631	207225
103	130000	0.487364	73.0006	270583
104	137000	0.507221	73.2579	340072

105	140000	0.524401	73.5329	413488
106	142000	0.544642	73.8295	490827
107	144000	0.565108	74.1489	572203
108	146000	0.582841	74.4886	657297
109	146000	0.603765	74.8531	745447
110	148000	0.624956	75.2437	837940
111	148000	0.643345	75.6576	933155
112	149000	0.665079	76.0999	1.03225e+006
113	150000	0.687131	76.572	1.13532e+006
114	150000	0.706302	77.0709	1.24127e+006
115	152000	0.729003	77.6024	1.35208e+006
116	152000	0.752084	78.168	1.46639e+006
117	154000	0.772193	78.7643	1.58531e+006
118	157000	0.796056	79.398	1.71029e+006
119	158000	0.820379	80.071	1.83991e+006
120	159000	0.841621	80.7793	1.97373e+006
121	160000	0.866894	81.5308	2.11243e+006
122	160000	0.892733	82.3278	2.25527e+006
123	161000	0.915365	83.1657	2.40264e+006
124	162000	0.942375	84.0538	2.55531e+006
125	163000	0.970094	84.9948	2.71343e+006
126	163000	0.994457	85.9838	2.87553e+006
127	164000	1.02365	87.0317	3.04341e+006
128	168000	1.05375	88.142	3.22044e+006
129	169000	1.08032	89.3091	3.40301e+006
130	170000	1.11232	90.5464	3.59211e+006
131	175000	1.1455	91.8586	3.79257e+006
132	175000	1.17499	93.2392	3.99819e+006
133	176000	1.21073	94.705	4.21128e+006
134	178000	1.24809	96.2627	4.43344e+006
135	178000	1.28155	97.9051	4.66156e+006
136	178190	1.32251	99.6541	4.89721e+006
137	180000	1.36581	101.52	5.14306e+006
138	183000	1.40507	103.494	5.40019e+006
139	188000	1.4538	105.607	5.6735e+006
140	188000	1.50626	107.876	5.95668e+006
141	192000	1.55477	110.293	6.2552e+006
142	192000	1.61644	112.906	6.56555e+006
143	195000	1.68494	115.745	6.89411e+006
144	198000	1.75069	118.81	7.24075e+006
145	199000	1.83843	122.19	7.6066e+006
146	201000	1.94314	125.966	7.99717e+006
147	204000	2.05375	130.184	8.41613e+006
148	209000	2.22621	135.14	8.88141e+006
149	222000	2.51213	141.451	9.4391e+006

---

Data Set Standard Deviation = 68956.9  
 Numerator = 8.90966e+013  
 Denominator = 9.95455e+013  
 W Statistic = 0.895034 = 8.90966e+013 / 9.95455e+013

**5% Critical value of 0.976 exceeds 0.895034**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.895034**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Alkalinity, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 222000

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	29260
	3/20/2014	175000
	9/9/2014	152000
	3/16/2015	160000
	9/9/2015	148000
	3/18/2016	164000
	9/20/2016	192000
	3/23/2017	146000
	9/18/2017	160000
	3/15/2018	162000
	9/17/2018	198000
	3/5/2019	170000
	9/24/2019	169000
	3/16/2020	163000
	9/22/2020	195000
	3/16/2021	188000
	9/14/2021	222000
	3/22/2022	168000
	9/13/2022	178000

---

Date	Count	Mean	Significant
3/14/2023	1	159000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Alkalinity, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 157000

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	77330
	12/5/2013	102390
	3/19/2014	157000
	9/4/2014	106000
	3/17/2015	150000
	9/11/2015	101000
	3/15/2016	101000
	9/21/2016	102000
	3/28/2017	86000
	9/19/2017	90000
	3/26/2018	98000
	9/18/2018	144000
	3/4/2019	124000
	9/23/2019	105000
	3/19/2020	130000
	9/23/2020	77000
	3/19/2021	126000
	9/15/2021	78000
	3/16/2022	70000
	9/14/2022	80000

---

Date	Count	Mean	Significant
3/16/2023	1	57000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Alkalinity, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 209000

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	178190
	3/21/2014	209000
	9/8/2014	199000
	3/19/2015	128000
	9/14/2015	204000
	3/21/2016	178000
	9/23/2016	163000
	3/27/2017	175000
	9/20/2017	149000
	3/16/2018	142000
	9/20/2018	140000
	3/5/2019	154000
	9/25/2019	150000
	3/25/2020	106000
	9/28/2020	158000
	3/18/2021	148000
	9/15/2021	161000
	3/22/2022	116000
	9/14/2022	126000

---

Date	Count	Mean	Significant
3/16/2023	1	125000	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Alkalinity, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 137000

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	42270
	3/21/2014	42000
	9/17/2014	48000
	3/19/2015	45000
	9/15/2015	53000
	3/21/2016	61000
	9/26/2016	62000
	3/31/2017	61000
	9/21/2017	73000
	3/30/2018	94000
	9/26/2018	113000
	3/13/2019	94000
	10/3/2019	125000
	4/3/2020	88000
	9/30/2020	72000
	3/22/2021	100000
	9/16/2021	70000
	3/24/2022	137000
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	39000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Alkalinity, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 20000

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	6660
	3/18/2014	8000
	9/16/2014	10000
	3/18/2015	10000
	9/15/2015	11000
	3/16/2016	12000
	9/22/2016	11000
	3/29/2017	11000
	9/21/2017	11000
	3/28/2018	12000
	9/20/2018	13000
	3/12/2019	11000
	10/1/2019	18000
	3/18/2020	20000
	9/24/2020	17000
	3/17/2021	19000
	9/9/2021	17000
	3/15/2022	18000
	9/16/2022	18000

---

Date	Count	Mean	Significant
3/15/2023	1	14000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Alkalinity, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 201000

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	201000
	3/26/2020	188000
	9/29/2020	183000
	3/16/2021	192000
	9/14/2021	180000
	3/18/2022	152000
	9/13/2022	146000

---

Date	Count	Mean	Significant
3/14/2023	1	176000	FALSE

## Shapiro-Francia Test of Normality

Parameter: Ammonia-N

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	0	-1.55477	33.5744	0
10	0	-1.50626	35.8432	0
11	0	-1.4538	37.9567	0
12	0	-1.40507	39.931	0
13	0	-1.36581	41.7964	0
14	0	-1.32251	43.5454	0
15	0	-1.28155	45.1878	0
16	0	-1.24809	46.7455	0
17	0	-1.21073	48.2114	0
18	0	-1.17499	49.592	0
19	0	-1.1455	50.9042	0
20	0	-1.11232	52.1414	0
21	0	-1.08032	53.3085	0
22	0	-1.05375	54.4189	0
23	0	-1.02365	55.4667	0
24	0	-0.994457	56.4557	0
25	0	-0.970094	57.3968	0
26	0	-0.942375	58.2848	0
27	0	-0.919183	59.1297	0
28	0	-0.892733	59.9267	0
29	0	-0.866894	60.6782	0
30	0	-0.841621	61.3865	0
31	0	-0.820379	62.0596	0
32	0	-0.796056	62.6933	0
33	0	-0.772193	63.2896	0
34	0	-0.752084	63.8552	0
35	0	-0.729003	64.3866	0
36	0	-0.706302	64.8855	0
37	0	-0.687131	65.3576	0
38	0	-0.665079	65.8	0
39	0	-0.643345	66.2139	0
40	0	-0.624956	66.6044	0
41	0	-0.603765	66.969	0
42	0	-0.582841	67.3087	0
43	0	-0.565108	67.628	0
44	0	-0.544642	67.9247	0
45	0	-0.524401	68.1996	0
46	0	-0.507221	68.4569	0
47	0	-0.487364	68.6944	0

48	10	-0.467699	68.9132	-4.67699
49	32	-0.450985	69.1166	-19.1085
50	34	-0.431644	69.3029	-33.7844
51	38	-0.412463	69.473	-49.458
52	41	-0.396142	69.6299	-65.6998
53	44	-0.377233	69.7723	-82.2981
54	45	-0.358459	69.9007	-98.4287
55	48	-0.342466	70.018	-114.867
56	54	-0.323919	70.1229	-132.359
57	54	-0.305481	70.2163	-148.855
58	57	-0.28976	70.3002	-165.371
59	58	-0.271509	70.3739	-181.119
60	59	-0.253347	70.4381	-196.066
61	60	-0.237847	70.4947	-210.337
62	63	-0.219834	70.543	-224.186
63	64	-0.204452	70.5848	-237.271
64	66	-0.186567	70.6196	-249.585
65	66	-0.168741	70.6481	-260.722
66	67	-0.150969	70.6709	-270.837
67	74	-0.135774	70.6893	-280.884
68	74	-0.118085	70.7033	-289.622
69	77	-0.100433	70.7134	-297.355
70	79	-0.0853288	70.7206	-304.096
71	79	-0.0677301	70.7252	-309.447
72	80	-0.0501541	70.7278	-313.459
73	81	-0.0350997	70.729	-316.303
74	84	-0.0175476	70.7293	-317.777
75	85	0	70.7293	-317.777
76	87	0.0175476	70.7296	-316.25
77	87	0.0350997	70.7308	-313.196
78	89	0.0501541	70.7333	-308.733
79	90	0.0677301	70.7379	-302.637
80	92	0.0853288	70.7452	-294.787
81	96	0.100433	70.7553	-285.145
82	100	0.118085	70.7692	-273.336
83	103	0.135774	70.7877	-259.352
84	104	0.150969	70.8105	-243.651
85	111	0.168741	70.8389	-224.921
86	118	0.186567	70.8738	-202.906
87	118	0.201894	70.9145	-179.082
88	119	0.219834	70.9628	-152.922
89	119	0.237847	71.0194	-124.618
90	119	0.253347	71.0836	-94.47
91	124	0.271509	71.1573	-60.8029
92	125	0.28976	71.2413	-24.5828
93	126	0.305481	71.3346	13.9078
94	126	0.323919	71.4395	54.7215
95	128	0.342466	71.5568	98.5572
96	128	0.358459	71.6853	144.44
97	130	0.377233	71.8276	193.48
98	130	0.396142	71.9845	244.979
99	132	0.412463	72.1547	299.424
100	132	0.431644	72.341	356.401
101	133	0.450985	72.5444	416.382
102	134	0.467699	72.7631	479.053
103	137	0.487364	73.0006	545.822
104	139	0.507221	73.2579	616.326

105	149	0.524401	73.5329	694.462
106	149	0.544642	73.8295	775.613
107	152	0.565108	74.1489	861.51
108	158	0.582841	74.4886	953.599
109	165	0.603765	74.8531	1053.22
110	178	0.624956	75.2437	1164.46
111	185	0.643345	75.6576	1283.48
112	186	0.665079	76.0999	1407.19
113	189	0.687131	76.572	1537.05
114	191	0.706302	77.0709	1671.96
115	198	0.729003	77.6024	1816.3
116	203	0.752084	78.168	1968.97
117	209	0.772193	78.7643	2130.36
118	217	0.796056	79.398	2303.1
119	233	0.820379	80.071	2494.25
120	241	0.841621	80.7793	2697.08
121	249	0.866894	81.5308	2912.94
122	254	0.892733	82.3278	3139.69
123	260	0.915365	83.1657	3377.69
124	264	0.942375	84.0538	3626.48
125	287	0.970094	84.9948	3904.89
126	292	0.994457	85.9838	4195.28
127	362	1.02365	87.0317	4565.84
128	415	1.05375	88.142	5003.14
129	427	1.08032	89.3091	5464.44
130	429	1.11232	90.5464	5941.62
131	520	1.1455	91.8586	6537.29
132	548	1.17499	93.2392	7181.18
133	642	1.21073	94.705	7958.47
134	700	1.24809	96.2627	8832.13
135	739	1.28155	97.9051	9779.19
136	840	1.32251	99.6541	10890.1
137	875	1.36581	101.52	12085.2
138	1010	1.40507	103.494	13504.3
139	1140	1.4538	105.607	15161.6
140	1150	1.50626	107.876	16893.8
141	1630	1.55477	110.293	19428.1
142	1650	1.61644	112.906	22095.2
143	1680	1.68494	115.745	24925.9
144	1750	1.75069	118.81	27989.6
145	1950	1.83843	122.19	31574.6
146	2130	1.94314	125.966	35713.4
147	2230	2.05375	130.184	40293.3
148	2590	2.22621	135.14	46059.2
149	2720	2.51213	141.451	52892.2

Data Set Standard Deviation = 509.508  
 Numerator = 2.79758e+009  
 Denominator = 5.4346e+009  
 W Statistic = 0.514772 = 2.79758e+009 / 5.4346e+009

**5% Critical value of 0.976 exceeds 0.514772**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.514772**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Ammonia-N

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 2720

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	ND<0
	3/20/2014	642
	9/9/2014	1630
	3/16/2015	1650
	9/9/2015	1950
	3/18/2016	1680
	9/20/2016	2720
	3/23/2017	2230
	9/18/2017	2590
	3/15/2018	1150
	9/17/2018	1750
	3/5/2019	840
	9/24/2019	2130
	3/16/2020	700
	9/22/2020	1140
	3/16/2021	875
	9/14/2021	1010
	3/22/2022	739
	9/13/2022	415

---

Date	Count	Mean	Significant
3/14/2023	1	520	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Ammonia-N

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 50%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 260

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	260
	9/4/2014	ND<0 U
	3/17/2015	ND<0 U
	9/11/2015	ND<0 U
	3/15/2016	ND<0 U
	9/21/2016	ND<0 U
	3/28/2017	ND<0 U
	9/19/2017	10 J
	3/26/2018	158
	9/18/2018	66 J
	3/4/2019	149
	9/23/2019	118
	3/19/2020	41 J
	9/23/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	87 J
	3/16/2022	186
	9/14/2022	128

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Ammonia-N

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 21.0526%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 254

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	119
	9/8/2014	87 J
	3/19/2015	59 J
	9/14/2015	54 J
	3/21/2016	ND<0 U
	9/23/2016	178
	3/27/2017	85 J
	9/20/2017	104
	3/16/2018	209
	9/20/2018	100
	3/5/2019	ND<0 U
	9/25/2019	165
	3/25/2020	92 J
	9/28/2020	189
	3/18/2021	254
	9/15/2021	137
	3/22/2022	ND<0
	9/14/2022	241

---

Date	Count	Mean	Significant
3/16/2023	1	132	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Ammonia-N

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 26.3158%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 292

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/17/2014	133
	3/19/2015	ND<0 U
	9/15/2015	ND<0 U
	3/21/2016	ND<0 U
	9/26/2016	44 J
	3/31/2017	45 J
	9/21/2017	80 J
	3/30/2018	111
	9/26/2018	79 J
	3/13/2019	128
	10/3/2019	264
	4/3/2020	126
	9/30/2020	292
	3/22/2021	217
	9/16/2021	64 J
	3/24/2022	191
	9/16/2022	79 J

---

Date	Count	Mean	Significant
3/17/2023	1	125	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Ammonia-N

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 42.1053%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 287

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	ND<0
	3/18/2014	130
	9/16/2014	90 J
	3/18/2015	ND<0 U
	9/15/2015	ND<0 U
	3/16/2016	ND<0 U
	9/22/2016	74 J
	3/29/2017	48 J
	9/21/2017	ND<0 U
	3/28/2018	54 J
	9/20/2018	38 J
	3/12/2019	89 J
	10/1/2019	249
	3/18/2020	ND<0 U
	9/24/2020	ND<0 U
	3/17/2021	287
	9/9/2021	ND<0 U
	3/15/2022	77 J
	9/16/2022	84 J

---

Date	Count	Mean	Significant
3/15/2023	1	233	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Ammonia-N

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 14.2857%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 429

Confidence Level = 87.5%

False Positive Rate = 12.5%

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Baseline Measurements	Date	Value
	11/14/2019	185
	3/26/2020	139
	9/29/2020	203
	3/16/2021	427
	9/14/2021	362
	3/18/2022	429
	9/13/2022	ND<0

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Date	Count	Mean	Significant
3/14/2023	1	548	TRUE

## Shapiro-Francia Test of Normality

Parameter: Chemical Oxygen Demand (COD)

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	0	-1.55477	33.5744	0
10	0	-1.50626	35.8432	0
11	0	-1.4538	37.9567	0
12	0	-1.40507	39.931	0
13	0	-1.36581	41.7964	0
14	0	-1.32251	43.5454	0
15	0	-1.28155	45.1878	0
16	0	-1.24809	46.7455	0
17	0	-1.21073	48.2114	0
18	0	-1.17499	49.592	0
19	0	-1.1455	50.9042	0
20	0	-1.11232	52.1414	0
21	0	-1.08032	53.3085	0
22	0	-1.05375	54.4189	0
23	0	-1.02365	55.4667	0
24	0	-0.994457	56.4557	0
25	0	-0.970094	57.3968	0
26	0	-0.942375	58.2848	0
27	0	-0.919183	59.1297	0
28	0	-0.892733	59.9267	0
29	0	-0.866894	60.6782	0
30	0	-0.841621	61.3865	0
31	0	-0.820379	62.0596	0
32	0	-0.796056	62.6933	0
33	0	-0.772193	63.2896	0
34	0	-0.752084	63.8552	0
35	0	-0.729003	64.3866	0
36	0	-0.706302	64.8855	0
37	0	-0.687131	65.3576	0
38	0	-0.665079	65.8	0
39	0	-0.643345	66.2139	0
40	0	-0.624956	66.6044	0
41	0	-0.603765	66.969	0
42	0	-0.582841	67.3087	0
43	0	-0.565108	67.628	0
44	0	-0.544642	67.9247	0
45	0	-0.524401	68.1996	0
46	0	-0.507221	68.4569	0
47	0	-0.487364	68.6944	0

48	0	-0.467699	68.9132	0
49	0	-0.450985	69.1166	0
50	0	-0.431644	69.3029	0
51	0	-0.412463	69.473	0
52	0	-0.396142	69.6299	0
53	0	-0.377233	69.7723	0
54	0	-0.358459	69.9007	0
55	0	-0.342466	70.018	0
56	0	-0.323919	70.1229	0
57	0	-0.305481	70.2163	0
58	1000	-0.28976	70.3002	-289.76
59	1000	-0.271509	70.3739	-561.27
60	2000	-0.253347	70.4381	-1067.96
61	3000	-0.237847	70.4947	-1781.5
62	3000	-0.219834	70.543	-2441
63	3000	-0.204452	70.5848	-3054.36
64	4000	-0.186567	70.6196	-3800.63
65	4000	-0.168741	70.6481	-4475.59
66	5000	-0.150969	70.6709	-5230.44
67	5000	-0.135774	70.6893	-5909.31
68	5000	-0.118085	70.7033	-6499.73
69	5000	-0.100433	70.7134	-7001.9
70	5000	-0.0853288	70.7206	-7428.54
71	5000	-0.0677301	70.7252	-7767.2
72	6000	-0.0501541	70.7278	-8068.12
73	6000	-0.0350997	70.729	-8278.72
74	7000	-0.0175476	70.7293	-8401.55
75	7000	0	70.7293	-8401.55
76	7000	0.0175476	70.7296	-8278.72
77	7000	0.0350997	70.7308	-8033.02
78	7000	0.0501541	70.7333	-7681.94
79	7000	0.0677301	70.7379	-7207.83
80	7000	0.0853288	70.7452	-6610.53
81	7000	0.100433	70.7553	-5907.5
82	7000	0.118085	70.7692	-5080.9
83	8000	0.135774	70.7877	-3994.71
84	8000	0.150969	70.8105	-2786.95
85	9000	0.168741	70.8389	-1268.29
86	9000	0.186567	70.8738	410.816
87	9000	0.201894	70.9145	2227.86
88	9000	0.219834	70.9628	4206.37
89	9000	0.237847	71.0194	6346.99
90	9000	0.253347	71.0836	8627.11
91	10000	0.271509	71.1573	11342.2
92	10000	0.28976	71.2413	14239.8
93	10000	0.305481	71.3346	17294.6
94	11000	0.323919	71.4395	20857.7
95	11000	0.342466	71.5568	24624.8
96	11000	0.358459	71.6853	28567.9
97	11000	0.377233	71.8276	32717.5
98	12000	0.396142	71.9845	37471.2
99	12000	0.412463	72.1547	42420.7
100	12000	0.431644	72.341	47600.4
101	12000	0.450985	72.5444	53012.3
102	12000	0.467699	72.7631	58624.7
103	12000	0.487364	73.0006	64473
104	13000	0.507221	73.2579	71066.9

105	13000	0.524401	73.5329	77884.1
106	13000	0.544642	73.8295	84964.4
107	13000	0.565108	74.1489	92310.8
108	13000	0.582841	74.4886	99887.8
109	14000	0.603765	74.8531	108340
110	16000	0.624956	75.2437	118340
111	16000	0.643345	75.6576	128633
112	16000	0.665079	76.0999	139275
113	16000	0.687131	76.572	150269
114	17000	0.706302	77.0709	162276
115	17000	0.729003	77.6024	174669
116	17000	0.752084	78.168	187454
117	17000	0.772193	78.7643	200582
118	18000	0.796056	79.398	214911
119	18000	0.820379	80.071	229677
120	18000	0.841621	80.7793	244827
121	19000	0.866894	81.5308	261298
122	19000	0.892733	82.3278	278259
123	20000	0.915365	83.1657	296567
124	20000	0.942375	84.0538	315414
125	20000	0.970094	84.9948	334816
126	20000	0.994457	85.9838	354705
127	21000	1.02365	87.0317	376202
128	21000	1.05375	88.142	398331
129	21000	1.08032	89.3091	421017
130	22000	1.11232	90.5464	445488
131	22000	1.1455	91.8586	470690
132	23000	1.17499	93.2392	497714
133	23000	1.21073	94.705	525561
134	24000	1.24809	96.2627	555515
135	24000	1.28155	97.9051	586272
136	25000	1.32251	99.6541	619335
137	25000	1.36581	101.52	653480
138	26000	1.40507	103.494	690012
139	27000	1.4538	105.607	729265
140	27000	1.50626	107.876	769934
141	28000	1.55477	110.293	813467
142	28000	1.61644	112.906	858728
143	29000	1.68494	115.745	907591
144	29000	1.75069	118.81	958361
145	29000	1.83843	122.19	1.01168e+006
146	31000	1.94314	125.966	1.07191e+006
147	33000	2.05375	130.184	1.13969e+006
148	33000	2.22621	135.14	1.21315e+006
149	56000	2.51213	141.451	1.35383e+006

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Data Set Standard Deviation = 10229.9  
 Numerator = 1.83286e+012  
 Denominator = 2.19081e+012  
 W Statistic = 0.83661 = 1.83286e+012 / 2.19081e+012

**5% Critical value of 0.976 exceeds 0.83661**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.83661**  
**Evidence of non-normality at 99% level of significance**

**Non-Parametric Prediction Interval**  
**Intra-Well Comparison for GWM-4**  
**Parameter: Chemical Oxygen Demand (COD)**  
**Original Data (Not Transformed)**  
**Non-Detects Replaced with 0**

Total Percent Non-Detects = 36.8421%  
 Future Samples (k) = 1  
 Recent Dates = 1  
 Baseline Measurements (n) = 19  
**Maximum Baseline Concentration = 25000**  
 Confidence Level = 95%  
 False Positive Rate = 5%

---

<b>Baseline Measurements</b>	<b>Date</b>	<b>Value</b>
	9/18/2013	ND<0
	3/20/2014	ND<0 U
	9/9/2014	25000
	3/16/2015	ND<0 U
	9/9/2015	1000 J
	3/18/2016	13000
	9/20/2016	13000
	3/23/2017	6000 J
	9/18/2017	12000
	3/15/2018	11000
	9/17/2018	ND<0 U
	3/5/2019	16000
	9/24/2019	ND<0 U
	3/16/2020	22000
	9/22/2020	ND<0 U
	3/16/2021	11000 J
	9/14/2021	9000 J
	3/22/2022	ND<0
	9/13/2022	5000 J

---

<b>Date</b>	<b>Count</b>	<b>Mean</b>	<b>Significant</b>
<b>3/14/2023</b>	<b>1</b>	<b>56000</b>	<b>TRUE</b>



**Non-Parametric Prediction Interval**  
**Intra-Well Comparison for GWM-5A**  
**Parameter: Chemical Oxygen Demand (COD)**  
**Original Data (Not Transformed)**  
**Non-Detects Replaced with 0**

Total Percent Non-Detects = 45%  
 Future Samples (k) = 1  
 Recent Dates = 1  
 Baseline Measurements (n) = 20  
**Maximum Baseline Concentration = 11000**  
 Confidence Level = 95.2%  
 False Positive Rate = 4.8%

---

<b>Baseline Measurements</b>	<b>Date</b>	<b>Value</b>
	9/19/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	ND<0 U
	9/4/2014	10000
	3/17/2015	ND<0 U
	9/11/2015	9000
	3/15/2016	1000 J
	9/21/2016	8000
	3/28/2017	5000 J
	9/19/2017	9000
	3/26/2018	ND<0 U
	9/18/2018	ND<0 U
	3/4/2019	9000 J
	9/23/2019	ND<0 U
	3/19/2020	ND<0 U
	9/23/2020	11000 J
	3/19/2021	5000 J
	9/15/2021	7000 J
	3/16/2022	ND<0
	9/14/2022	7000 J

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<b>Date</b>	<b>Count</b>	<b>Mean</b>	<b>Significant</b>
<b>3/16/2023</b>	<b>1</b>	<b>12000</b>	<b>TRUE</b>

**Non-Parametric Prediction Interval**  
**Intra-Well Comparison for GWM-14**  
**Parameter: Chemical Oxygen Demand (COD)**  
**Original Data (Not Transformed)**  
**Non-Detects Replaced with 0**

Total Percent Non-Detects = 5.26316%  
 Future Samples (k) = 1  
 Recent Dates = 1  
 Baseline Measurements (n) = 19  
**Maximum Baseline Concentration = 33000**  
 Confidence Level = 95%  
 False Positive Rate = 5%

---

<b>Baseline Measurements</b>	<b>Date</b>	<b>Value</b>
	9/24/2013	29000
	3/21/2014	13000
	9/8/2014	11000
	3/19/2015	ND<0 U
	9/14/2015	12000
	3/21/2016	16000
	9/23/2016	7000 J
	3/27/2017	20000
	9/20/2017	24000
	3/16/2018	13000
	9/20/2018	19000
	3/5/2019	27000
	9/25/2019	21000
	3/25/2020	17000
	9/28/2020	23000
	3/18/2021	33000
	9/15/2021	20000
	3/22/2022	18000
	9/14/2022	21000

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<b>Date</b>	<b>Count</b>	<b>Mean</b>	<b>Significant</b>
3/16/2023	1	28000	FALSE

**Non-Parametric Prediction Interval**  
**Intra-Well Comparison for GWM-6**  
**Parameter: Chemical Oxygen Demand (COD)**  
**Original Data (Not Transformed)**  
**Non-Detects Replaced with 0**

Total Percent Non-Detects = 0%  
 Future Samples (k) = 1  
 Recent Dates = 1  
 Baseline Measurements (n) = 19  
**Maximum Baseline Concentration = 31000**  
 Confidence Level = 95%  
 False Positive Rate = 5%

---

<b>Baseline Measurements</b>	<b>Date</b>	<b>Value</b>
	9/24/2013	16000
	3/21/2014	3000 J
	9/17/2014	12000
	3/19/2015	2000 J
	9/15/2015	5000
	3/21/2016	13000
	9/26/2016	7000 J
	3/31/2017	14000
	9/21/2017	16000
	3/30/2018	19000
	9/26/2018	27000
	3/13/2019	29000
	10/3/2019	28000
	4/3/2020	23000
	9/30/2020	21000
	3/22/2021	20000
	9/16/2021	25000
	3/24/2022	31000
	9/16/2022	29000

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<b>Date</b>	<b>Count</b>	<b>Mean</b>	<b>Significant</b>
<b>3/17/2023</b>	<b>1</b>	<b>33000</b>	<b>TRUE</b>

**Non-Parametric Prediction Interval**  
**Intra-Well Comparison for GWM-3**  
**Parameter: Chemical Oxygen Demand (COD)**  
**Original Data (Not Transformed)**  
**Non-Detects Replaced with 0**

Total Percent Non-Detects = 68.4211%  
 Future Samples (k) = 1  
 Recent Dates = 1  
 Baseline Measurements (n) = 19  
**Maximum Baseline Concentration = 12000**  
 Confidence Level = 95%  
 False Positive Rate = 5%

---

<b>Baseline Measurements</b>	<b>Date</b>	<b>Value</b>
	9/25/2013	ND<0
	3/18/2014	12000
	9/16/2014	ND<0 U
	3/18/2015	ND<0 U
	9/15/2015	ND<0 U
	3/16/2016	ND<0 U
	9/22/2016	ND<0 U
	3/29/2017	4000 J
	9/21/2017	ND<0 U
	3/28/2018	ND<0 U
	9/20/2018	ND<0 U
	3/12/2019	12000 J
	10/1/2019	7000 J
	3/18/2020	ND<0 U
	9/24/2020	ND<0 U
	3/17/2021	7000 J
	9/9/2021	7000 J
	3/15/2022	ND<0
	9/16/2022	ND<0

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<b>Date</b>	<b>Count</b>	<b>Mean</b>	<b>Significant</b>
<b>3/15/2023</b>	<b>1</b>	<b>17000</b>	<b>TRUE</b>

**Non-Parametric Prediction Interval**  
**Intra-Well Comparison for GWM-17S**  
**Parameter: Chemical Oxygen Demand (COD)**  
**Original Data (Not Transformed)**  
**Non-Detects Replaced with 0**

Total Percent Non-Detects = 0%  
 Future Samples (k) = 1  
 Recent Dates = 1  
 Baseline Measurements (n) = 7  
**Maximum Baseline Concentration = 24000**  
 Confidence Level = 87.5%  
 False Positive Rate = 12.5%

---

<b>Baseline Measurements</b>	<b>Date</b>	<b>Value</b>
	11/14/2019	17000
	3/26/2020	18000
	9/29/2020	20000
	3/16/2021	24000
	9/14/2021	22000
	3/18/2022	18000
	9/13/2022	17000

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<b>Date</b>	<b>Count</b>	<b>Mean</b>	<b>Significant</b>
<b>3/14/2023</b>	<b>1</b>	<b>26000</b>	<b>TRUE</b>

## Shapiro-Francia Test of Normality

Parameter: Chloride

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	8930	-2.51213	6.31081	-22433.4
2	24500	-2.22621	11.2668	-76975.4
3	24600	-2.05375	15.4847	-127498
4	24800	-1.94314	19.2605	-175687
5	25700	-1.83843	22.6403	-222935
6	25900	-1.75069	25.7052	-268278
7	26100	-1.68494	28.5442	-312255
8	26400	-1.61644	31.1571	-354928
9	27000	-1.55477	33.5744	-396907
10	27700	-1.50626	35.8432	-438631
11	28600	-1.4538	37.9567	-480210
12	29070	-1.40507	39.931	-521055
13	30000	-1.36581	41.7964	-562029
14	30800	-1.32251	43.5454	-602762
15	31200	-1.28155	45.1878	-642747
16	32900	-1.24809	46.7455	-683809
17	34200	-1.21073	48.2114	-725216
18	34700	-1.17499	49.592	-765988
19	34800	-1.1455	50.9042	-805851
20	36700	-1.11232	52.1414	-846674
21	36900	-1.08032	53.3085	-886537
22	38400	-1.05375	54.4189	-927001
23	40200	-1.02365	55.4667	-968152
24	40900	-0.994457	56.4557	-1.00883e+006
25	42500	-0.970094	57.3968	-1.05005e+006
26	43200	-0.942375	58.2848	-1.09076e+006
27	43900	-0.919183	59.1297	-1.13112e+006
28	45200	-0.892733	59.9267	-1.17147e+006
29	45400	-0.866894	60.6782	-1.21083e+006
30	46600	-0.841621	61.3865	-1.25005e+006
31	48400	-0.820379	62.0596	-1.28975e+006
32	49400	-0.796056	62.6933	-1.32908e+006
33	50900	-0.772193	63.2896	-1.36838e+006
34	51600	-0.752084	63.8552	-1.40719e+006
35	52300	-0.729003	64.3866	-1.44532e+006
36	53000	-0.706302	64.8855	-1.48275e+006
37	53270	-0.687131	65.3576	-1.51935e+006
38	53400	-0.665079	65.8	-1.55487e+006
39	53700	-0.643345	66.2139	-1.58942e+006
40	54000	-0.624956	66.6044	-1.62316e+006
41	54400	-0.603765	66.969	-1.65601e+006
42	55400	-0.582841	67.3087	-1.6883e+006
43	55600	-0.565108	67.628	-1.71972e+006
44	57300	-0.544642	67.9247	-1.75093e+006
45	57400	-0.524401	68.1996	-1.78103e+006
46	57600	-0.507221	68.4569	-1.81024e+006
47	57910	-0.487364	68.6944	-1.83847e+006

48	58700	-0.467699	68.9132	-1.86592e+006
49	58970	-0.450985	69.1166	-1.89251e+006
50	59100	-0.431644	69.3029	-1.91802e+006
51	59200	-0.412463	69.473	-1.94244e+006
52	59600	-0.396142	69.6299	-1.96605e+006
53	59900	-0.377233	69.7723	-1.98865e+006
54	60000	-0.358459	69.9007	-2.01016e+006
55	60100	-0.342466	70.018	-2.03074e+006
56	60700	-0.323919	70.1229	-2.0504e+006
57	60800	-0.305481	70.2163	-2.06897e+006
58	62000	-0.28976	70.3002	-2.08694e+006
59	62200	-0.271509	70.3739	-2.10383e+006
60	62900	-0.253347	70.4381	-2.11976e+006
61	63500	-0.237847	70.4947	-2.13486e+006
62	64000	-0.219834	70.543	-2.14893e+006
63	64100	-0.204452	70.5848	-2.16204e+006
64	64600	-0.186567	70.6196	-2.17409e+006
65	64800	-0.168741	70.6481	-2.18503e+006
66	65200	-0.150969	70.6709	-2.19487e+006
67	66800	-0.135774	70.6893	-2.20394e+006
68	67100	-0.118085	70.7033	-2.21186e+006
69	67300	-0.100433	70.7134	-2.21862e+006
70	67500	-0.0853288	70.7206	-2.22438e+006
71	69300	-0.0677301	70.7252	-2.22908e+006
72	69500	-0.0501541	70.7278	-2.23256e+006
73	70900	-0.0350997	70.729	-2.23505e+006
74	71000	-0.0175476	70.7293	-2.2363e+006
75	71100	0	70.7293	-2.2363e+006
76	71500	0.0175476	70.7296	-2.23504e+006
77	71500	0.0350997	70.7308	-2.23253e+006
78	72600	0.0501541	70.7333	-2.22889e+006
79	74100	0.0677301	70.7379	-2.22387e+006
80	74670	0.0853288	70.7452	-2.2175e+006
81	75700	0.100433	70.7553	-2.2099e+006
82	76000	0.118085	70.7692	-2.20092e+006
83	76200	0.135774	70.7877	-2.19058e+006
84	76900	0.150969	70.8105	-2.17897e+006
85	77100	0.168741	70.8389	-2.16596e+006
86	77300	0.186567	70.8738	-2.15154e+006
87	77600	0.201894	70.9145	-2.13587e+006
88	78500	0.219834	70.9628	-2.11861e+006
89	79400	0.237847	71.0194	-2.09973e+006
90	81900	0.253347	71.0836	-2.07898e+006
91	82100	0.271509	71.1573	-2.05669e+006
92	82300	0.28976	71.2413	-2.03284e+006
93	82700	0.305481	71.3346	-2.00758e+006
94	82800	0.323919	71.4395	-1.98076e+006
95	84500	0.342466	71.5568	-1.95182e+006
96	85200	0.358459	71.6853	-1.92128e+006
97	85300	0.377233	71.8276	-1.8891e+006
98	86900	0.396142	71.9845	-1.85467e+006
99	87400	0.412463	72.1547	-1.81862e+006
100	87600	0.431644	72.341	-1.78081e+006
101	87600	0.450985	72.5444	-1.74131e+006
102	87700	0.467699	72.7631	-1.70029e+006
103	88200	0.487364	73.0006	-1.6573e+006
104	88400	0.507221	73.2579	-1.61246e+006

105	89400	0.524401	73.5329	-1.56558e+006
106	89700	0.544642	73.8295	-1.51673e+006
107	90200	0.565108	74.1489	-1.46576e+006
108	90500	0.582841	74.4886	-1.41301e+006
109	91800	0.603765	74.8531	-1.35758e+006
110	92800	0.624956	75.2437	-1.29959e+006
111	93400	0.643345	75.6576	-1.2395e+006
112	93600	0.665079	76.0999	-1.17725e+006
113	96700	0.687131	76.572	-1.1108e+006
114	97400	0.706302	77.0709	-1.04201e+006
115	98200	0.729003	77.6024	-970420
116	98500	0.752084	78.168	-896340
117	98900	0.772193	78.7643	-819970
118	99100	0.796056	79.398	-741081
119	99300	0.820379	80.071	-659618
120	101000	0.841621	80.7793	-574614
121	104000	0.866894	81.5308	-484457
122	104000	0.892733	82.3278	-391613
123	105000	0.915365	83.1657	-295499
124	106000	0.942375	84.0538	-195608
125	107000	0.970094	84.9948	-91807.4
126	107000	0.994457	85.9838	14599.5
127	109000	1.02365	87.0317	126178
128	109000	1.05375	88.142	241036
129	110000	1.08032	89.3091	359871
130	110000	1.11232	90.5464	482226
131	110000	1.1455	91.8586	608232
132	111000	1.17499	93.2392	738655
133	111000	1.21073	94.705	873046
134	112000	1.24809	96.2627	1.01283e+006
135	115000	1.28155	97.9051	1.16021e+006
136	117000	1.32251	99.6541	1.31494e+006
137	124000	1.36581	101.52	1.4843e+006
138	127000	1.40507	103.494	1.66275e+006
139	132000	1.4538	105.607	1.85465e+006
140	140000	1.50626	107.876	2.06553e+006
141	152000	1.55477	110.293	2.30185e+006
142	162000	1.61644	112.906	2.56371e+006
143	164000	1.68494	115.745	2.84004e+006
144	172000	1.75069	118.81	3.14116e+006
145	177000	1.83843	122.19	3.46656e+006
146	217000	1.94314	125.966	3.88822e+006
147	249000	2.05375	130.184	4.39961e+006
148	308000	2.22621	135.14	5.08528e+006
149	319000	2.51213	141.451	5.88665e+006

Data Set Standard Deviation = 45768.2  
 Numerator = 3.46526e+013  
 Denominator = 4.38525e+013  
 W Statistic = 0.79021 = 3.46526e+013 / 4.38525e+013

**5% Critical value of 0.976 exceeds 0.79021**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.79021**  
**Evidence of non-normality at 99% level of significance**



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Chloride

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 172000

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	8930
	3/20/2014	74100
	9/9/2014	98200
	3/16/2015	99100
	9/9/2015	93600
	3/18/2016	99300
	9/20/2016	110000
	3/23/2017	132000
	9/18/2017	140000
	3/15/2018	124000
	9/17/2018	109000
	3/5/2019	107000
	9/24/2019	111000
	3/16/2020	172000
	9/22/2020	104000
	3/16/2021	106000
	9/14/2021	111000
	3/22/2022	127000
	9/13/2022	107000

---

Date	Count	Mean	Significant
3/14/2023	1	112000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Chloride

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 88400

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	58970
	12/5/2013	57910
	3/19/2014	53000
	9/4/2014	72600
	3/17/2015	58700
	9/11/2015	67100
	3/15/2016	65200
	9/21/2016	63500
	3/28/2017	64800
	9/19/2017	59200
	3/26/2018	62000
	9/18/2018	88400
	3/4/2019	77600
	9/23/2019	71500
	3/19/2020	66800
	9/23/2020	70900
	3/19/2021	64100
	9/15/2021	57300
	3/16/2022	50900
	9/14/2022	59900

---

Date	Count	Mean	Significant
3/16/2023	1	59100	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Chloride

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 40900

Confidence Level = 95%

False Positive Rate = 5%

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Baseline Measurements	Date	Value
	9/24/2013	25700
	3/21/2014	24600
	9/8/2014	27000
	3/19/2015	25900
	9/14/2015	26100
	3/21/2016	24800
	9/23/2016	27700
	3/27/2017	26400
	9/20/2017	34800
	3/16/2018	32900
	9/20/2018	34200
	3/5/2019	30000
	9/25/2019	24500
	3/25/2020	28600
	9/28/2020	36700
	3/18/2021	34700
	9/15/2021	36900
	3/22/2022	40200
	9/14/2022	40900

---

Date	Count	Mean	Significant
3/16/2023	1	43900	TRUE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Chloride

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 97400

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	53270
	3/21/2014	43200
	9/17/2014	60000
	3/19/2015	48400
	9/15/2015	60700
	3/21/2016	51600
	9/26/2016	38400
	3/31/2017	52300
	9/21/2017	76200
	3/30/2018	81900
	9/26/2018	97400
	3/13/2019	89700
	10/3/2019	69300
	4/3/2020	71000
	9/30/2020	76000
	3/22/2021	96700
	9/16/2021	90500
	3/24/2022	91800
	9/16/2022	90200

---

Date	Count	Mean	Significant
3/17/2023	1	87400	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Chloride

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 67500

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	46600
	3/18/2014	53400
	9/16/2014	55400
	3/18/2015	49400
	9/15/2015	60100
	3/16/2016	60800
	9/22/2016	62200
	3/29/2017	67500
	9/21/2017	54400
	3/28/2018	57600
	9/20/2018	55600
	3/12/2019	53700
	10/1/2019	57400
	3/18/2020	54000
	9/24/2020	45400
	3/17/2021	45200
	9/9/2021	59600
	3/15/2022	42500
	9/16/2022	30800

---

Date	Count	Mean	Significant
3/15/2023	1	31200	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Chloride

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 110000

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	87600
	3/26/2020	98900
	9/29/2020	92800
	3/16/2021	101000
	9/14/2021	105000
	3/18/2022	110000
	9/13/2022	104000

---

Date	Count	Mean	Significant
3/14/2023	1	110000	FALSE

## Shapiro-Francia Test of Normality

Parameter: Hardness

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	11000	-2.51213	6.31081	-27633.5
2	14800	-2.22621	11.2668	-60581.3
3	25000	-2.05375	15.4847	-111925
4	28700	-1.94314	19.2605	-167693
5	30000	-1.83843	22.6403	-222846
6	32900	-1.75069	25.7052	-280443
7	41100	-1.68494	28.5442	-349694
8	42000	-1.61644	31.1571	-417585
9	42900	-1.55477	33.5744	-484284
10	43000	-1.50626	35.8432	-549054
11	43200	-1.4538	37.9567	-611858
12	43400	-1.40507	39.931	-672838
13	44700	-1.36581	41.7964	-733890
14	45000	-1.32251	43.5454	-793402
15	45200	-1.28155	45.1878	-851328
16	45700	-1.24809	46.7455	-908366
17	46000	-1.21073	48.2114	-964060
18	46400	-1.17499	49.592	-1.01858e+006
19	47000	-1.1455	50.9042	-1.07242e+006
20	47500	-1.11232	52.1414	-1.12525e+006
21	48000	-1.08032	53.3085	-1.17711e+006
22	48100	-1.05375	54.4189	-1.22779e+006
23	48900	-1.02365	55.4667	-1.27785e+006
24	49100	-0.994457	56.4557	-1.32668e+006
25	50000	-0.970094	57.3968	-1.37518e+006
26	50000	-0.942375	58.2848	-1.4223e+006
27	50000	-0.919183	59.1297	-1.46826e+006
28	52000	-0.892733	59.9267	-1.51468e+006
29	52200	-0.866894	60.6782	-1.55993e+006
30	52300	-0.841621	61.3865	-1.60395e+006
31	53000	-0.820379	62.0596	-1.64743e+006
32	53200	-0.796056	62.6933	-1.68978e+006
33	54000	-0.772193	63.2896	-1.73148e+006
34	54000	-0.752084	63.8552	-1.77209e+006
35	54300	-0.729003	64.3866	-1.81168e+006
36	54600	-0.706302	64.8855	-1.85024e+006
37	56500	-0.687131	65.3576	-1.88906e+006
38	56500	-0.665079	65.8	-1.92664e+006
39	56500	-0.643345	66.2139	-1.96299e+006
40	56600	-0.624956	66.6044	-1.99836e+006
41	56900	-0.603765	66.969	-2.03272e+006
42	57200	-0.582841	67.3087	-2.06606e+006
43	57500	-0.565108	67.628	-2.09855e+006
44	58000	-0.544642	67.9247	-2.13014e+006
45	58500	-0.524401	68.1996	-2.16082e+006
46	58600	-0.507221	68.4569	-2.19054e+006
47	59000	-0.487364	68.6944	-2.21929e+006

48	59000	-0.467699	68.9132	-2.24689e+006
49	60000	-0.450985	69.1166	-2.27395e+006
50	61800	-0.431644	69.3029	-2.30062e+006
51	63000	-0.412463	69.473	-2.32661e+006
52	63000	-0.396142	69.6299	-2.35156e+006
53	64900	-0.377233	69.7723	-2.37605e+006
54	67000	-0.358459	69.9007	-2.40006e+006
55	67000	-0.342466	70.018	-2.42301e+006
56	67500	-0.323919	70.1229	-2.44487e+006
57	69000	-0.305481	70.2163	-2.46595e+006
58	70000	-0.28976	70.3002	-2.48623e+006
59	70000	-0.271509	70.3739	-2.50524e+006
60	72500	-0.253347	70.4381	-2.52361e+006
61	74000	-0.237847	70.4947	-2.54121e+006
62	75000	-0.219834	70.543	-2.5577e+006
63	76000	-0.204452	70.5848	-2.57323e+006
64	78000	-0.186567	70.6196	-2.58779e+006
65	79700	-0.168741	70.6481	-2.60124e+006
66	85000	-0.150969	70.6709	-2.61407e+006
67	86200	-0.135774	70.6893	-2.62577e+006
68	86500	-0.118085	70.7033	-2.63599e+006
69	88200	-0.100433	70.7134	-2.64484e+006
70	89000	-0.0853288	70.7206	-2.65244e+006
71	89300	-0.0677301	70.7252	-2.65849e+006
72	90200	-0.0501541	70.7278	-2.66301e+006
73	90700	-0.0350997	70.729	-2.66619e+006
74	91500	-0.0175476	70.7293	-2.6678e+006
75	91600	0	70.7293	-2.6678e+006
76	92000	0.0175476	70.7296	-2.66619e+006
77	92400	0.0350997	70.7308	-2.66294e+006
78	92500	0.0501541	70.7333	-2.6583e+006
79	93000	0.0677301	70.7379	-2.652e+006
80	94200	0.0853288	70.7452	-2.64397e+006
81	94500	0.100433	70.7553	-2.63448e+006
82	95200	0.118085	70.7692	-2.62323e+006
83	96100	0.135774	70.7877	-2.61019e+006
84	97200	0.150969	70.8105	-2.59551e+006
85	97300	0.168741	70.8389	-2.57909e+006
86	98300	0.186567	70.8738	-2.56075e+006
87	101000	0.201894	70.9145	-2.54036e+006
88	101000	0.219834	70.9628	-2.51816e+006
89	102000	0.237847	71.0194	-2.4939e+006
90	102000	0.253347	71.0836	-2.46806e+006
91	104000	0.271509	71.1573	-2.43982e+006
92	104000	0.28976	71.2413	-2.40969e+006
93	104000	0.305481	71.3346	-2.37792e+006
94	104000	0.323919	71.4395	-2.34423e+006
95	109000	0.342466	71.5568	-2.3069e+006
96	110000	0.358459	71.6853	-2.26747e+006
97	113000	0.377233	71.8276	-2.22484e+006
98	113000	0.396142	71.9845	-2.18008e+006
99	114000	0.412463	72.1547	-2.13306e+006
100	114000	0.431644	72.341	-2.08385e+006
101	116000	0.450985	72.5444	-2.03153e+006
102	117000	0.467699	72.7631	-1.97681e+006
103	118000	0.487364	73.0006	-1.9193e+006
104	118000	0.507221	73.2579	-1.85945e+006



105	120000	0.524401	73.5329	-1.79652e+006
106	122000	0.544642	73.8295	-1.73008e+006
107	130000	0.565108	74.1489	-1.65661e+006
108	130000	0.582841	74.4886	-1.58084e+006
109	130000	0.603765	74.8531	-1.50236e+006
110	134000	0.624956	75.2437	-1.41861e+006
111	142900	0.643345	75.6576	-1.32668e+006
112	145000	0.665079	76.0999	-1.23024e+006
113	150000	0.687131	76.572	-1.12717e+006
114	156000	0.706302	77.0709	-1.01699e+006
115	160000	0.729003	77.6024	-900348
116	165000	0.752084	78.168	-776254
117	169000	0.772193	78.7643	-645753
118	169000	0.796056	79.398	-511220
119	173000	0.820379	80.071	-369294
120	175200	0.841621	80.7793	-221842
121	177000	0.866894	81.5308	-68401.9
122	178000	0.892733	82.3278	90504.5
123	181000	0.915365	83.1657	256186
124	182000	0.942375	84.0538	427698
125	182000	0.970094	84.9948	604255
126	186000	0.994457	85.9838	789224
127	189000	1.02365	87.0317	982694
128	189000	1.05375	88.142	1.18185e+006
129	189000	1.08032	89.3091	1.38603e+006
130	189000	1.11232	90.5464	1.59626e+006
131	190000	1.1455	91.8586	1.81391e+006
132	191000	1.17499	93.2392	2.03833e+006
133	191000	1.21073	94.705	2.26958e+006
134	196000	1.24809	96.2627	2.5142e+006
135	196000	1.28155	97.9051	2.76539e+006
136	200000	1.32251	99.6541	3.02989e+006
137	201000	1.36581	101.52	3.30442e+006
138	202000	1.40507	103.494	3.58824e+006
139	213000	1.4538	105.607	3.8979e+006
140	216000	1.50626	107.876	4.22325e+006
141	216000	1.55477	110.293	4.55908e+006
142	221000	1.61644	112.906	4.91632e+006
143	223000	1.68494	115.745	5.29206e+006
144	224000	1.75069	118.81	5.68421e+006
145	233000	1.83843	122.19	6.11256e+006
146	236000	1.94314	125.966	6.57114e+006
147	239000	2.05375	130.184	7.06199e+006
148	247000	2.22621	135.14	7.61186e+006
149	255000	2.51213	141.451	8.25246e+006

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Data Set Standard Deviation = 59711.7  
 Numerator = 6.81031e+013  
 Denominator = 7.46424e+013  
 W Statistic = 0.912391 = 6.81031e+013 / 7.46424e+013

**5% Critical value of 0.976 exceeds 0.912391**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.912391**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Hardness

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 255000

Confidence Level = 95%

False Positive Rate = 5%

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Baseline Measurements	Date	Value
	9/18/2013	14800
	3/20/2014	255000
	9/9/2014	191000
	3/16/2015	189000
	9/9/2015	178000
	3/18/2016	173000
	9/20/2016	201000
	3/23/2017	191000
	9/18/2017	247000
	3/15/2018	182000
	9/17/2018	200000
	3/5/2019	213000
	9/24/2019	181000
	3/16/2020	239000
	9/22/2020	233000
	3/16/2021	202000
	9/14/2021	224000
	3/22/2022	216000
	9/13/2022	221000

---

Date	Count	Mean	Significant
3/14/2023	1	236000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Hardness

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 223000

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	175200
	12/5/2013	142900
	3/19/2014	196000
	9/4/2014	223000
	3/17/2015	189000
	9/11/2015	165000
	3/15/2016	134000
	9/21/2016	93000
	3/28/2017	113000
	9/19/2017	109000
	3/26/2018	122000
	9/18/2018	169000
	3/4/2019	196000
	9/23/2019	145000
	3/19/2020	150000
	9/23/2020	130000
	3/19/2021	156000
	9/15/2021	104000
	3/16/2022	92400
	9/14/2022	130000

---

Date	Count	Mean	Significant
3/16/2023	1	95200	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Hardness

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 130000

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	91500
	3/21/2014	116000
	9/8/2014	104000
	3/19/2015	118000
	9/14/2015	130000
	3/21/2016	110000
	9/23/2016	114000
	3/27/2017	114000
	9/20/2017	92500
	3/16/2018	89300
	9/20/2018	88200
	3/5/2019	101000
	9/25/2019	86500
	3/25/2020	97300
	9/28/2020	96100
	3/18/2021	90700
	9/15/2021	86200
	3/22/2022	89000
	9/14/2022	91600

---

Date	Count	Mean	Significant
3/16/2023	1	90200	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Hardness

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 120000

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	61800
	3/21/2014	74000
	9/17/2014	67000
	3/19/2015	76000
	9/15/2015	70000
	3/21/2016	70000
	9/26/2016	75000
	3/31/2017	101000
	9/21/2017	104000
	3/30/2018	120000
	9/26/2018	117000
	3/13/2019	118000
	10/3/2019	113000
	4/3/2020	98300
	9/30/2020	104000
	3/22/2021	102000
	9/16/2021	94500
	3/24/2022	94200
	9/16/2022	92000

---

Date	Count	Mean	Significant
3/17/2023	1	79700	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Hardness

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 67500

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	43200
	3/18/2014	59000
	9/16/2014	50000
	3/18/2015	63000
	9/15/2015	58000
	3/16/2016	60000
	9/22/2016	67000
	3/29/2017	63000
	9/21/2017	52200
	3/28/2018	56600
	9/20/2018	56500
	3/12/2019	58600
	10/1/2019	67500
	3/18/2020	58500
	9/24/2020	54000
	3/17/2021	50000
	9/9/2021	56500
	3/15/2022	53200
	9/16/2022	48900

---

Date	Count	Mean	Significant
3/15/2023	1	47000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Hardness

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 189000

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	189000
	3/26/2020	186000
	9/29/2020	189000
	3/16/2021	177000
	9/14/2021	160000
	3/18/2022	169000
	9/13/2022	182000

---

Date	Count	Mean	Significant
3/14/2023	1	216000	TRUE

## Shapiro-Francia Test of Normality

Parameter: Nitrate-N

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	0	-1.55477	33.5744	0
10	0	-1.50626	35.8432	0
11	0	-1.4538	37.9567	0
12	0	-1.40507	39.931	0
13	0	-1.36581	41.7964	0
14	0	-1.32251	43.5454	0
15	0	-1.28155	45.1878	0
16	0	-1.24809	46.7455	0
17	0	-1.21073	48.2114	0
18	0	-1.17499	49.592	0
19	0	-1.1455	50.9042	0
20	0	-1.11232	52.1414	0
21	0	-1.08032	53.3085	0
22	0	-1.05375	54.4189	0
23	0	-1.02365	55.4667	0
24	0	-0.994457	56.4557	0
25	0	-0.970094	57.3968	0
26	0	-0.942375	58.2848	0
27	0	-0.919183	59.1297	0
28	0	-0.892733	59.9267	0
29	0	-0.866894	60.6782	0
30	0	-0.841621	61.3865	0
31	0	-0.820379	62.0596	0
32	0	-0.796056	62.6933	0
33	0	-0.772193	63.2896	0
34	0	-0.752084	63.8552	0
35	0	-0.729003	64.3866	0
36	0	-0.706302	64.8855	0
37	0	-0.687131	65.3576	0
38	0	-0.665079	65.8	0
39	0	-0.643345	66.2139	0
40	0	-0.624956	66.6044	0
41	0	-0.603765	66.969	0
42	0	-0.582841	67.3087	0
43	0	-0.565108	67.628	0
44	0	-0.544642	67.9247	0
45	0	-0.524401	68.1996	0
46	0	-0.507221	68.4569	0
47	0	-0.487364	68.6944	0



48	0	-0.467699	68.9132	0
49	0	-0.450985	69.1166	0
50	0	-0.431644	69.3029	0
51	0	-0.412463	69.473	0
52	0	-0.396142	69.6299	0
53	0	-0.377233	69.7723	0
54	0	-0.358459	69.9007	0
55	40	-0.342466	70.018	-13.6986
56	60	-0.323919	70.1229	-33.1338
57	60	-0.305481	70.2163	-51.4626
58	80	-0.28976	70.3002	-74.6435
59	80	-0.271509	70.3739	-96.3642
60	80	-0.253347	70.4381	-116.632
61	80	-0.237847	70.4947	-135.66
62	100	-0.219834	70.543	-157.643
63	100	-0.204452	70.5848	-178.088
64	100	-0.186567	70.6196	-196.745
65	100	-0.168741	70.6481	-213.619
66	120	-0.150969	70.6709	-231.735
67	140	-0.135774	70.6893	-250.744
68	160	-0.118085	70.7033	-269.637
69	160	-0.100433	70.7134	-285.707
70	180	-0.0853288	70.7206	-301.066
71	220	-0.0677301	70.7252	-315.966
72	220	-0.0501541	70.7278	-327
73	240	-0.0350997	70.729	-335.424
74	280	-0.0175476	70.7293	-340.338
75	280	0	70.7293	-340.338
76	280	0.0175476	70.7296	-335.424
77	300	0.0350997	70.7308	-324.894
78	300	0.0501541	70.7333	-309.848
79	320	0.0677301	70.7379	-288.175
80	340	0.0853288	70.7452	-259.163
81	380	0.100433	70.7553	-220.998
82	390	0.118085	70.7692	-174.945
83	400	0.135774	70.7877	-120.635
84	400	0.150969	70.8105	-60.2475
85	500	0.168741	70.8389	24.1229
86	500	0.186567	70.8738	117.406
87	520	0.201894	70.9145	222.391
88	530	0.219834	70.9628	338.903
89	560	0.237847	71.0194	472.097
90	580	0.253347	71.0836	619.038
91	600	0.271509	71.1573	781.944
92	620	0.28976	71.2413	961.595
93	620	0.305481	71.3346	1150.99
94	640	0.323919	71.4395	1358.3
95	660	0.342466	71.5568	1584.33
96	700	0.358459	71.6853	1835.25
97	800	0.377233	71.8276	2137.04
98	800	0.396142	71.9845	2453.95
99	880	0.412463	72.1547	2816.92
100	900	0.431644	72.341	3205.4
101	920	0.450985	72.5444	3620.3
102	1000	0.467699	72.7631	4088
103	1000	0.487364	73.0006	4575.37
104	1000	0.507221	73.2579	5082.59

105	1100	0.524401	73.5329	5659.43
106	1100	0.544642	73.8295	6258.53
107	1200	0.565108	74.1489	6936.66
108	1200	0.582841	74.4886	7636.07
109	1300	0.603765	74.8531	8420.97
110	1400	0.624956	75.2437	9295.9
111	1400	0.643345	75.6576	10196.6
112	1400	0.665079	76.0999	11127.7
113	1500	0.687131	76.572	12158.4
114	1700	0.706302	77.0709	13359.1
115	1800	0.729003	77.6024	14671.3
116	1800	0.752084	78.168	16025.1
117	1800	0.772193	78.7643	17415
118	1800	0.796056	79.398	18847.9
119	1900	0.820379	80.071	20406.6
120	1900	0.841621	80.7793	22005.7
121	2000	0.866894	81.5308	23739.5
122	2000	0.892733	82.3278	25525
123	2000	0.915365	83.1657	27355.7
124	2100	0.942375	84.0538	29334.7
125	2200	0.970094	84.9948	31468.9
126	2300	0.994457	85.9838	33756.1
127	2400	1.02365	87.0317	36212.9
128	2500	1.05375	88.142	38847.3
129	2600	1.08032	89.3091	41656.1
130	2650	1.11232	90.5464	44603.8
131	2690	1.1455	91.8586	47685.2
132	2700	1.17499	93.2392	50857.6
133	2700	1.21073	94.705	54126.6
134	2700	1.24809	96.2627	57496.4
135	2700	1.28155	97.9051	60956.6
136	2900	1.32251	99.6541	64791.9
137	2900	1.36581	101.52	68752.7
138	2900	1.40507	103.494	72827.4
139	2900	1.4538	105.607	77043.5
140	3100	1.50626	107.876	81712.9
141	3100	1.55477	110.293	86532.7
142	3100	1.61644	112.906	91543.6
143	3100	1.68494	115.745	96766.9
144	3200	1.75069	118.81	102369
145	3300	1.83843	122.19	108436
146	3300	1.94314	125.966	114848
147	3400	2.05375	130.184	121831
148	3600	2.22621	135.14	129845
149	4000	2.51213	141.451	139894

Data Set Standard Deviation = 1096.78  
 Numerator = 1.95703e+010  
 Denominator = 2.51831e+010  
 W Statistic = 0.77712 = 1.95703e+010 / 2.51831e+010

**5% Critical value of 0.976 exceeds 0.77712**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.77712**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

#### Parameter: Nitrate-N

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 31.5789%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 1400

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	ND<0
	3/20/2014	ND<0 U
	9/9/2014	ND<0 U
	3/16/2015	700
	9/9/2015	ND<0 U
	3/18/2016	600
	9/20/2016	ND<0 U
	3/23/2017	1400
	9/18/2017	320
	3/15/2018	1100
	9/17/2018	100 J
	3/5/2019	1200
	9/24/2019	60 J
	3/16/2020	ND<0 U
	9/22/2020	100 J
	3/16/2021	920
	9/14/2021	340
	3/22/2022	900 J
	9/13/2022	620 J

---

Date	Count	Mean	Significant
3/14/2023	1	530	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

#### Parameter: Nitrate-N

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 15%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 660

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	660
	12/5/2013	580
	3/19/2014	300
	9/4/2014	300
	3/17/2015	220
	9/11/2015	240
	3/15/2016	220
	9/21/2016	180 J
	3/28/2017	160 J
	9/19/2017	120 J
	3/26/2018	100 J
	9/18/2018	160 J
	3/4/2019	80 J
	9/23/2019	ND<0 U
	3/19/2020	100 J
	9/23/2020	80 J
	3/19/2021	80 J
	9/15/2021	80 J
	3/16/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

#### Parameter: Nitrate-N

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/19/2015	ND<0 U
	9/14/2015	ND<0 U
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/27/2017	ND<0 U
	9/20/2017	ND<0 U
	3/16/2018	ND<0 U
	9/20/2018	ND<0 U
	3/5/2019	ND<0 U
	9/25/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/18/2021	ND<0 U
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

#### Parameter: Nitrate-N

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 78.9474%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 280

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	140
	3/21/2014	280
	9/17/2014	ND<0 U
	3/19/2015	ND<0 U
	9/15/2015	ND<0 U
	3/21/2016	60 J
	9/26/2016	ND<0 U
	3/31/2017	ND<0 U
	9/21/2017	ND<0 U
	3/30/2018	ND<0 U
	9/26/2018	ND<0 U
	3/13/2019	ND<0 U
	10/3/2019	ND<0 U
	4/3/2020	ND<0 U
	9/30/2020	ND<0 U
	3/22/2021	ND<0 U
	9/16/2021	40 J
	3/24/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

#### Parameter: Nitrate-N

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 4000

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	2690
	3/18/2014	3100
	9/16/2014	3600
	3/18/2015	3300
	9/15/2015	2900
	3/16/2016	2600
	9/22/2016	2700
	3/29/2017	2500
	9/21/2017	2700
	3/28/2018	3200
	9/20/2018	3300
	3/12/2019	4000
	10/1/2019	3100
	3/18/2020	2000
	9/24/2020	1500
	3/17/2021	1800
	9/9/2021	2200
	3/15/2022	1700
	9/16/2022	1800

---

Date	Count	Mean	Significant
3/15/2023	1	2100	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Nitrate-N

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	ND<0 U
	9/29/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE



## Shapiro-Francia Test of Normality

Parameter: pH

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	4.27	-2.51213	6.31081	-10.7268
2	4.28	-2.22621	11.2668	-20.255
3	4.37	-2.05375	15.4847	-29.2299
4	4.47	-1.94314	19.2605	-37.9157
5	4.52	-1.83843	22.6403	-46.2254
6	4.52	-1.75069	25.7052	-54.1385
7	4.52	-1.68494	28.5442	-61.7544
8	4.53	-1.61644	31.1571	-69.0768
9	4.54	-1.55477	33.5744	-76.1355
10	4.55	-1.50626	35.8432	-82.989
11	4.58	-1.4538	37.9567	-89.6474
12	4.58	-1.40507	39.931	-96.0826
13	4.6	-1.36581	41.7964	-102.365
14	4.65	-1.32251	43.5454	-108.515
15	4.65	-1.28155	45.1878	-114.474
16	4.68	-1.24809	46.7455	-120.315
17	4.68	-1.21073	48.2114	-125.981
18	4.72	-1.17499	49.592	-131.527
19	4.72	-1.1455	50.9042	-136.934
20	4.73	-1.11232	52.1414	-142.195
21	4.74	-1.08032	53.3085	-147.316
22	4.74	-1.05375	54.4189	-152.311
23	4.83	-1.02365	55.4667	-157.255
24	4.89	-0.994457	56.4557	-162.118
25	4.93	-0.970094	57.3968	-166.901
26	4.99	-0.942375	58.2848	-171.603
27	5.01	-0.919183	59.1297	-176.208
28	5.02	-0.892733	59.9267	-180.69
29	5.04	-0.866894	60.6782	-185.059
30	5.07	-0.841621	61.3865	-189.326
31	5.07	-0.820379	62.0596	-193.485
32	5.1	-0.796056	62.6933	-197.545
33	5.12	-0.772193	63.2896	-201.499
34	5.12	-0.752084	63.8552	-205.349
35	5.14	-0.729003	64.3866	-209.096
36	5.16	-0.706302	64.8855	-212.741
37	5.17	-0.687131	65.3576	-216.293
38	5.18	-0.665079	65.8	-219.739
39	5.18	-0.643345	66.2139	-223.071
40	5.19	-0.624956	66.6044	-226.315
41	5.21	-0.603765	66.969	-229.46
42	5.21	-0.582841	67.3087	-232.497
43	5.22	-0.565108	67.628	-235.447
44	5.22	-0.544642	67.9247	-238.29
45	5.23	-0.524401	68.1996	-241.032
46	5.24	-0.507221	68.4569	-243.69
47	5.24	-0.487364	68.6944	-246.244

48	5.25	-0.467699	68.9132	-248.699
49	5.26	-0.450985	69.1166	-251.072
50	5.28	-0.431644	69.3029	-253.351
51	5.28	-0.412463	69.473	-255.528
52	5.29	-0.396142	69.6299	-257.624
53	5.29	-0.377233	69.7723	-259.62
54	5.33	-0.358459	69.9007	-261.53
55	5.36	-0.342466	70.018	-263.366
56	5.37	-0.323919	70.1229	-265.105
57	5.41	-0.305481	70.2163	-266.758
58	5.44	-0.28976	70.3002	-268.334
59	5.53	-0.271509	70.3739	-269.836
60	5.61	-0.253347	70.4381	-271.257
61	5.66	-0.237847	70.4947	-272.603
62	5.69	-0.219834	70.543	-273.854
63	5.72	-0.204452	70.5848	-275.023
64	5.78	-0.186567	70.6196	-276.102
65	5.79	-0.168741	70.6481	-277.079
66	5.79	-0.150969	70.6709	-277.953
67	5.8	-0.135774	70.6893	-278.74
68	5.8	-0.118085	70.7033	-279.425
69	5.81	-0.100433	70.7134	-280.009
70	5.82	-0.0853288	70.7206	-280.505
71	5.84	-0.0677301	70.7252	-280.901
72	5.85	-0.0501541	70.7278	-281.194
73	5.87	-0.0350997	70.729	-281.4
74	5.88	-0.0175476	70.7293	-281.504
75	5.9	0	70.7293	-281.504
76	5.93	0.0175476	70.7296	-281.4
77	5.96	0.0350997	70.7308	-281.19
78	5.96	0.0501541	70.7333	-280.891
79	5.97	0.0677301	70.7379	-280.487
80	5.98	0.0853288	70.7452	-279.977
81	6.02	0.100433	70.7553	-279.372
82	6.03	0.118085	70.7692	-278.66
83	6.04	0.135774	70.7877	-277.84
84	6.05	0.150969	70.8105	-276.927
85	6.06	0.168741	70.8389	-275.904
86	6.07	0.186567	70.8738	-274.772
87	6.08	0.201894	70.9145	-273.544
88	6.08	0.219834	70.9628	-272.208
89	6.08	0.237847	71.0194	-270.761
90	6.09	0.253347	71.0836	-269.219
91	6.09	0.271509	71.1573	-267.565
92	6.09	0.28976	71.2413	-265.8
93	6.09	0.305481	71.3346	-263.94
94	6.09	0.323919	71.4395	-261.967
95	6.1	0.342466	71.5568	-259.878
96	6.1	0.358459	71.6853	-257.692
97	6.1	0.377233	71.8276	-255.391
98	6.1	0.396142	71.9845	-252.974
99	6.1	0.412463	72.1547	-250.458
100	6.11	0.431644	72.341	-247.821
101	6.11	0.450985	72.5444	-245.065
102	6.13	0.467699	72.7631	-242.198
103	6.18	0.487364	73.0006	-239.186
104	6.18	0.507221	73.2579	-236.052

105	6.18	0.524401	73.5329	-232.811
106	6.18	0.544642	73.8295	-229.445
107	6.19	0.565108	74.1489	-225.947
108	6.2	0.582841	74.4886	-222.333
109	6.22	0.603765	74.8531	-218.578
110	6.22	0.624956	75.2437	-214.691
111	6.22	0.643345	75.6576	-210.689
112	6.22	0.665079	76.0999	-206.552
113	6.24	0.687131	76.572	-202.265
114	6.25	0.706302	77.0709	-197.85
115	6.26	0.729003	77.6024	-193.287
116	6.26	0.752084	78.168	-188.579
117	6.26	0.772193	78.7643	-183.745
118	6.26	0.796056	79.398	-178.761
119	6.28	0.820379	80.071	-173.609
120	6.31	0.841621	80.7793	-168.299
121	6.31	0.866894	81.5308	-162.829
122	6.33	0.892733	82.3278	-157.178
123	6.35	0.915365	83.1657	-151.365
124	6.37	0.942375	84.0538	-145.362
125	6.38	0.970094	84.9948	-139.173
126	6.38	0.994457	85.9838	-132.828
127	6.39	1.02365	87.0317	-126.287
128	6.4	1.05375	88.142	-119.543
129	6.41	1.08032	89.3091	-112.618
130	6.41	1.11232	90.5464	-105.488
131	6.43	1.1455	91.8586	-98.1229
132	6.43	1.17499	93.2392	-90.5677
133	6.44	1.21073	94.705	-82.7706
134	6.45	1.24809	96.2627	-74.7205
135	6.47	1.28155	97.9051	-66.4288
136	6.49	1.32251	99.6541	-57.8458
137	6.53	1.36581	101.52	-48.9271
138	6.56	1.40507	103.494	-39.7098
139	6.56	1.4538	105.607	-30.1728
140	6.57	1.50626	107.876	-20.2767
141	6.57	1.55477	110.293	-10.0619
142	6.57	1.61644	112.906	0.558131
143	6.58	1.68494	115.745	11.645
144	6.62	1.75069	118.81	23.2346
145	6.62	1.83843	122.19	35.4049
146	6.65	1.94314	125.966	48.3268
147	6.67	2.05375	130.184	62.0253
148	6.68	2.22621	135.14	76.8964
149	6.7	2.51213	141.451	93.7277

Data Set Standard Deviation = 0.66962  
 Numerator = 8784.87  
 Denominator = 9386.92  
 W Statistic = 0.935863 = 8784.87 / 9386.92

**5% Critical value of 0.976 exceeds 0.935863**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.935863**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: pH

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 6.7

Confidence Level = 95%

False Positive Rate = 5%

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Baseline Measurements	Date	Value
	9/18/2013	5.29
	3/20/2014	6.24
	9/9/2014	6.41
	3/16/2015	6.28
	9/9/2015	6.26
	3/18/2016	6.39
	9/20/2016	6.44
	3/23/2017	6.53
	9/18/2017	6.22
	3/15/2018	6.57
	9/17/2018	6.62
	3/5/2019	6.7
	9/24/2019	6.38
	3/16/2020	6.68
	9/22/2020	6.49
	3/16/2021	6.67
	9/14/2021	6.57
	3/22/2022	6.57
	9/13/2022	6.25

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Date	Count	Mean	Significant
3/14/2023	1	6.45	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: pH

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 6.33

Confidence Level = 95.2%

False Positive Rate = 4.8%

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Baseline Measurements	Date	Value
	9/19/2013	5.37
	12/5/2013	6.11
	3/19/2014	6.33
	9/4/2014	5.98
	3/17/2015	6.02
	9/11/2015	5.8
	3/15/2016	6.06
	9/21/2016	5.84
	3/28/2017	5.93
	9/19/2017	5.79
	3/26/2018	5.96
	9/18/2018	6.03
	3/4/2019	6.11
	9/23/2019	5.81
	3/19/2020	5.72
	9/23/2020	5.66
	3/19/2021	6.08
	9/15/2021	5.69
	3/16/2022	5.61
	9/14/2022	5.53

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Date	Count	Mean	Significant
3/16/2023	1	5.44	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: pH

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 6.43

Confidence Level = 95%

False Positive Rate = 5%

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Baseline Measurements	Date	Value
	9/24/2013	6.08
	3/21/2014	6.1
	9/8/2014	6.18
	3/19/2015	6.31
	9/14/2015	5.88
	3/21/2016	6.22
	9/23/2016	6.13
	3/27/2017	6.1
	9/20/2017	6.2
	3/16/2018	6.31
	9/20/2018	6.19
	3/5/2019	6.43
	9/25/2019	6.26
	3/25/2020	6.1
	9/28/2020	6.1
	3/18/2021	6.18
	9/15/2021	6.09
	3/22/2022	6.09
	9/14/2022	5.78

---

Date	Count	Mean	Significant
3/16/2023	1	6.04	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: pH

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 6.65

Confidence Level = 95%

False Positive Rate = 5%

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Baseline Measurements	Date	Value
	9/24/2013	5.9
	3/21/2014	5.82
	9/17/2014	6.09
	3/19/2015	6.1
	9/15/2015	5.79
	3/21/2016	6.09
	9/26/2016	6.22
	3/31/2017	6.18
	9/21/2017	5.97
	3/30/2018	6.47
	9/26/2018	6.56
	3/13/2019	6.65
	10/3/2019	6.62
	4/3/2020	6.56
	9/30/2020	6.4
	3/22/2021	6.58
	9/16/2021	6.38
	3/24/2022	6.43
	9/16/2022	6.05

---

Date	Count	Mean	Significant
3/17/2023	1	6.18	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: pH

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 5.33

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	4.73
	3/18/2014	5.12
	9/16/2014	5.23
	3/18/2015	5.07
	9/15/2015	5.02
	3/16/2016	5.25
	9/22/2016	5.14
	3/29/2017	5.01
	9/21/2017	5.19
	3/28/2018	5.33
	9/20/2018	5.24
	3/12/2019	5.22
	10/1/2019	5.18
	3/18/2020	5.24
	9/24/2020	5.28
	3/17/2021	5.17
	9/9/2021	4.99
	3/15/2022	5.26
	9/16/2022	4.72

---

Date	Count	Mean	Significant
3/15/2023	1	5.04	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: pH

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 6.41

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	6.41
	3/26/2020	6.08
	9/29/2020	6.26
	3/16/2021	6.35
	9/14/2021	6.22
	3/18/2022	6.26
	9/13/2022	5.96

---

Date	Count	Mean	Significant
3/14/2023	1	6.07	FALSE

## Shapiro-Francia Test of Normality

Parameter: Specific Conductance

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	6.23	-2.51213	6.31081	-15.6506
2	126.4	-2.22621	11.2668	-297.043
3	156.3	-2.05375	15.4847	-618.044
4	165.68	-1.94314	19.2605	-939.983
5	171	-1.83843	22.6403	-1254.35
6	191.7	-1.75069	25.7052	-1589.96
7	193.4	-1.68494	28.5442	-1915.83
8	196.4	-1.61644	31.1571	-2233.3
9	198.9	-1.55477	33.5744	-2542.54
10	200	-1.50626	35.8432	-2843.79
11	201	-1.4538	37.9567	-3136.01
12	204	-1.40507	39.931	-3422.64
13	205	-1.36581	41.7964	-3702.63
14	213	-1.32251	43.5454	-3984.32
15	214	-1.28155	45.1878	-4258.58
16	216	-1.24809	46.7455	-4528.16
17	218	-1.21073	48.2114	-4792.1
18	219	-1.17499	49.592	-5049.42
19	220	-1.1455	50.9042	-5301.44
20	221	-1.11232	52.1414	-5547.26
21	221	-1.08032	53.3085	-5786.01
22	227	-1.05375	54.4189	-6025.21
23	227	-1.02365	55.4667	-6257.58
24	231	-0.994457	56.4557	-6487.3
25	231	-0.970094	57.3968	-6711.39
26	232	-0.942375	58.2848	-6930.02
27	236	-0.919183	59.1297	-7146.95
28	238	-0.892733	59.9267	-7359.42
29	242	-0.866894	60.6782	-7569.21
30	242	-0.841621	61.3865	-7772.88
31	244	-0.820379	62.0596	-7973.05
32	244	-0.796056	62.6933	-8167.29
33	246	-0.772193	63.2896	-8357.25
34	247	-0.752084	63.8552	-8543.01
35	251	-0.729003	64.3866	-8725.99
36	252	-0.706302	64.8855	-8903.98
37	252.9	-0.687131	65.3576	-9077.76
38	255	-0.665079	65.8	-9247.35
39	255	-0.643345	66.2139	-9411.4
40	255	-0.624956	66.6044	-9570.77
41	256	-0.603765	66.969	-9725.33
42	258	-0.582841	67.3087	-9875.71
43	263	-0.565108	67.628	-10024.3
44	263	-0.544642	67.9247	-10167.6
45	267	-0.524401	68.1996	-10307.6
46	271	-0.507221	68.4569	-10445
47	273	-0.487364	68.6944	-10578.1

48	275	-0.467699	68.9132	-10706.7
49	281	-0.450985	69.1166	-10833.4
50	283	-0.431644	69.3029	-10955.6
51	285	-0.412463	69.473	-11073.1
52	286	-0.396142	69.6299	-11186.4
53	287	-0.377233	69.7723	-11294.7
54	289	-0.358459	69.9007	-11398.3
55	294	-0.342466	70.018	-11499
56	295	-0.323919	70.1229	-11594.5
57	306	-0.305481	70.2163	-11688
58	310	-0.28976	70.3002	-11777.8
59	311	-0.271509	70.3739	-11862.3
60	321	-0.253347	70.4381	-11943.6
61	321	-0.237847	70.4947	-12020
62	321.8	-0.219834	70.543	-12090.7
63	325	-0.204452	70.5848	-12157.1
64	326	-0.186567	70.6196	-12218
65	330	-0.168741	70.6481	-12273.7
66	332	-0.150969	70.6709	-12323.8
67	332	-0.135774	70.6893	-12368.8
68	334	-0.118085	70.7033	-12408.3
69	335.3	-0.100433	70.7134	-12442
70	341	-0.0853288	70.7206	-12471.1
71	346	-0.0677301	70.7252	-12494.5
72	352	-0.0501541	70.7278	-12512.2
73	355	-0.0350997	70.729	-12524.6
74	356.68	-0.0175476	70.7293	-12530.9
75	358	0	70.7293	-12530.9
76	360.8	0.0175476	70.7296	-12524.5
77	366	0.0350997	70.7308	-12511.7
78	371	0.0501541	70.7333	-12493.1
79	373	0.0677301	70.7379	-12467.8
80	373	0.0853288	70.7452	-12436
81	375	0.100433	70.7553	-12398.3
82	376	0.118085	70.7692	-12353.9
83	378	0.135774	70.7877	-12302.6
84	380	0.150969	70.8105	-12245.2
85	385	0.168741	70.8389	-12180.3
86	387	0.186567	70.8738	-12108.1
87	388	0.201894	70.9145	-12029.7
88	390	0.219834	70.9628	-11944
89	391	0.237847	71.0194	-11851
90	394	0.253347	71.0836	-11751.2
91	395	0.271509	71.1573	-11643.9
92	404	0.28976	71.2413	-11526.9
93	405	0.305481	71.3346	-11403.2
94	405	0.323919	71.4395	-11272
95	410	0.342466	71.5568	-11131.6
96	410	0.358459	71.6853	-10984.6
97	419	0.377233	71.8276	-10826.5
98	422	0.396142	71.9845	-10659.4
99	431	0.412463	72.1547	-10481.6
100	435	0.431644	72.341	-10293.8
101	438	0.450985	72.5444	-10096.3
102	438	0.467699	72.7631	-9891.44
103	443	0.487364	73.0006	-9675.54
104	465	0.507221	73.2579	-9439.68

105	471	0.524401	73.5329	-9192.69
106	477	0.544642	73.8295	-8932.89
107	484	0.565108	74.1489	-8659.38
108	484.6	0.582841	74.4886	-8376.94
109	494	0.603765	74.8531	-8078.68
110	494	0.624956	75.2437	-7769.95
111	495	0.643345	75.6576	-7451.49
112	508	0.665079	76.0999	-7113.63
113	514	0.687131	76.572	-6760.45
114	518	0.706302	77.0709	-6394.58
115	520	0.729003	77.6024	-6015.5
116	535.45	0.752084	78.168	-5612.8
117	545	0.772193	78.7643	-5191.95
118	556	0.796056	79.398	-4749.35
119	561	0.820379	80.071	-4289.11
120	561	0.841621	80.7793	-3816.96
121	584	0.866894	81.5308	-3310.7
122	591	0.892733	82.3278	-2783.09
123	613	0.915365	83.1657	-2221.97
124	614.9	0.942375	84.0538	-1642.51
125	621	0.970094	84.9948	-1040.08
126	627	0.994457	85.9838	-416.553
127	641	1.02365	87.0317	239.608
128	641	1.05375	88.142	915.058
129	643	1.08032	89.3091	1609.7
130	650	1.11232	90.5464	2332.71
131	659	1.1455	91.8586	3087.6
132	663	1.17499	93.2392	3866.62
133	667	1.21073	94.705	4674.17
134	672	1.24809	96.2627	5512.89
135	673	1.28155	97.9051	6375.37
136	678	1.32251	99.6541	7272.03
137	687	1.36581	101.52	8210.34
138	692	1.40507	103.494	9182.65
139	707	1.4538	105.607	10210.5
140	709	1.50626	107.876	11278.4
141	735	1.55477	110.293	12421.2
142	742	1.61644	112.906	13620.6
143	743	1.68494	115.745	14872.5
144	751.49	1.75069	118.81	16188.1
145	756	1.83843	122.19	17578
146	759.99	1.94314	125.966	19054.7
147	786	2.05375	130.184	20669
148	833	2.22621	135.14	22523.4
149	992.44	2.51213	141.451	25016.5

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Data Set Standard Deviation = 178.989  
 Numerator = 6.25827e+008  
 Denominator = 6.70689e+008  
 W Statistic = 0.933112 = 6.25827e+008 / 6.70689e+008

**5% Critical value of 0.976 exceeds 0.933112**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.933112**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

#### Parameter: Specific Conductance

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 743

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	735
	3/20/2014	659
	9/9/2014	591
	3/16/2015	561
	9/9/2015	556
	3/18/2016	584
	9/20/2016	692
	3/23/2017	641
	9/18/2017	667
	3/15/2018	613
	9/17/2018	678
	3/5/2019	621
	9/24/2019	643
	3/16/2020	627
	9/22/2020	650
	3/16/2021	663
	9/14/2021	743
	3/22/2022	687
	9/13/2022	707

---

Date	Count	Mean	Significant
3/14/2023	1	759.99	TRUE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

#### Parameter: Specific Conductance

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 494

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	443
	12/5/2013	477
	3/19/2014	267
	9/4/2014	394
	3/17/2015	376
	9/11/2015	380
	3/15/2016	373
	9/21/2016	371
	3/28/2017	332
	9/19/2017	325
	3/26/2018	306
	9/18/2018	494
	3/4/2019	465
	9/23/2019	438
	3/19/2020	366
	9/23/2020	326
	3/19/2021	390
	9/15/2021	341
	3/16/2022	310
	9/14/2022	321.8

---

Date	Count	Mean	Significant
3/16/2023	1	335.3	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

#### Parameter: Specific Conductance

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 561

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	561
	3/21/2014	422
	9/8/2014	438
	3/19/2015	385
	9/14/2015	395
	3/21/2016	391
	9/23/2016	405
	3/27/2017	404
	9/20/2017	410
	3/16/2018	387
	9/20/2018	378
	3/5/2019	346
	9/25/2019	373
	3/25/2020	352
	9/28/2020	358
	3/18/2021	375
	9/15/2021	419
	3/22/2022	388
	9/14/2022	360.8

---

Date	Count	Mean	Significant
3/16/2023	1	535.45	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

#### Parameter: Specific Conductance

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 518

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	285
	3/21/2014	198.9
	9/17/2014	204
	3/19/2015	231
	9/15/2015	242
	3/21/2016	255
	9/26/2016	219
	3/31/2017	252
	9/21/2017	334
	3/30/2018	410
	9/26/2018	495
	3/13/2019	514
	10/3/2019	435
	4/3/2020	321
	9/30/2020	405
	3/22/2021	518
	9/16/2021	484
	3/24/2022	508
	9/16/2022	484.6

---

Date	Count	Mean	Significant
3/17/2023	1	614.9	TRUE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

#### Parameter: Specific Conductance

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 287

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	287
	3/18/2014	205
	9/16/2014	193.4
	3/18/2015	216
	9/15/2015	213
	3/16/2016	246
	9/22/2016	251
	3/29/2017	255
	9/21/2017	218
	3/28/2018	236
	9/20/2018	232
	3/12/2019	238
	10/1/2019	126.4
	3/18/2020	244
	9/24/2020	191.7
	3/17/2021	200
	9/9/2021	214
	3/15/2022	227
	9/16/2022	156.3

---

Date	Count	Mean	Significant
3/15/2023	1	165.68	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

#### Parameter: Specific Conductance

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 742

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	545
	3/26/2020	6.23
	9/29/2020	641
	3/16/2021	672
	9/14/2021	742
	3/18/2022	673
	9/13/2022	709

---

Date	Count	Mean	Significant
3/14/2023	1	992.44	TRUE

## Shapiro-Francia Test of Normality

Parameter: Sulfate

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	460	-2.51213	6.31081	-1155.58
2	520	-2.22621	11.2668	-2313.21
3	780	-2.05375	15.4847	-3915.13
4	920	-1.94314	19.2605	-5702.82
5	920	-1.83843	22.6403	-7394.17
6	2300	-1.75069	25.7052	-11420.7
7	2900	-1.68494	28.5442	-16307.1
8	3100	-1.61644	31.1571	-21318
9	3200	-1.55477	33.5744	-26293.3
10	4400	-1.50626	35.8432	-32920.8
11	4400	-1.4538	37.9567	-39317.6
12	4800	-1.40507	39.931	-46061.9
13	5200	-1.36581	41.7964	-53164.1
14	5700	-1.32251	43.5454	-60702.4
15	5700	-1.28155	45.1878	-68007.2
16	5900	-1.24809	46.7455	-75370.9
17	6400	-1.21073	48.2114	-83119.6
18	6600	-1.17499	49.592	-90874.5
19	6900	-1.1455	50.9042	-98778.5
20	7300	-1.11232	52.1414	-106898
21	7300	-1.08032	53.3085	-114785
22	8300	-1.05375	54.4189	-123531
23	8600	-1.02365	55.4667	-132334
24	8600	-0.994457	56.4557	-140887
25	8840	-0.970094	57.3968	-149462
26	9200	-0.942375	58.2848	-158132
27	9500	-0.919183	59.1297	-166864
28	9700	-0.892733	59.9267	-175524
29	10400	-0.866894	60.6782	-184540
30	12200	-0.841621	61.3865	-194807
31	12400	-0.820379	62.0596	-204980
32	13300	-0.796056	62.6933	-215568
33	13500	-0.772193	63.2896	-225992
34	14050	-0.752084	63.8552	-236559
35	14400	-0.729003	64.3866	-247057
36	14700	-0.706302	64.8855	-257439
37	15300	-0.687131	65.3576	-267952
38	15300	-0.665079	65.8	-278128
39	15400	-0.643345	66.2139	-288036
40	15400	-0.624956	66.6044	-297660
41	15600	-0.603765	66.969	-307079
42	15900	-0.582841	67.3087	-316346
43	16200	-0.565108	67.628	-325501
44	16400	-0.544642	67.9247	-334433
45	16500	-0.524401	68.1996	-343085
46	16600	-0.507221	68.4569	-351505
47	16700	-0.487364	68.6944	-359644

48	17100	-0.467699	68.9132	-367642
49	17500	-0.450985	69.1166	-375534
50	17730	-0.431644	69.3029	-383187
51	18300	-0.412463	69.473	-390735
52	19700	-0.396142	69.6299	-398539
53	20100	-0.377233	69.7723	-406122
54	20200	-0.358459	69.9007	-413362
55	20240	-0.342466	70.018	-420294
56	20500	-0.323919	70.1229	-426934
57	20560	-0.305481	70.2163	-433215
58	20700	-0.28976	70.3002	-439213
59	20900	-0.271509	70.3739	-444887
60	21060	-0.253347	70.4381	-450223
61	21100	-0.237847	70.4947	-455242
62	21100	-0.219834	70.543	-459880
63	21100	-0.204452	70.5848	-464194
64	21300	-0.186567	70.6196	-468168
65	21400	-0.168741	70.6481	-471779
66	21500	-0.150969	70.6709	-475025
67	21600	-0.135774	70.6893	-477957
68	21800	-0.118085	70.7033	-480532
69	21900	-0.100433	70.7134	-482731
70	22200	-0.0853288	70.7206	-484626
71	22400	-0.0677301	70.7252	-486143
72	22500	-0.0501541	70.7278	-487271
73	22500	-0.0350997	70.729	-488061
74	22700	-0.0175476	70.7293	-488459
75	22800	0	70.7293	-488459
76	22800	0.0175476	70.7296	-488059
77	22800	0.0350997	70.7308	-487259
78	23100	0.0501541	70.7333	-486100
79	23100	0.0677301	70.7379	-484536
80	23200	0.0853288	70.7452	-482556
81	23500	0.100433	70.7553	-480196
82	23700	0.118085	70.7692	-477397
83	24200	0.135774	70.7877	-474112
84	24200	0.150969	70.8105	-470458
85	24200	0.168741	70.8389	-466375
86	24400	0.186567	70.8738	-461822
87	24500	0.201894	70.9145	-456876
88	24800	0.219834	70.9628	-451424
89	25000	0.237847	71.0194	-445478
90	25200	0.253347	71.0836	-439094
91	25500	0.271509	71.1573	-432170
92	25600	0.28976	71.2413	-424752
93	26000	0.305481	71.3346	-416810
94	26200	0.323919	71.4395	-408323
95	26550	0.342466	71.5568	-399231
96	26700	0.358459	71.6853	-389660
97	26700	0.377233	71.8276	-379588
98	27300	0.396142	71.9845	-368773
99	27400	0.412463	72.1547	-357471
100	27500	0.431644	72.341	-345601
101	27900	0.450985	72.5444	-333019
102	28000	0.467699	72.7631	-319923
103	28100	0.487364	73.0006	-306228
104	28300	0.507221	73.2579	-291874

105	28500	0.524401	73.5329	-276928
106	28600	0.544642	73.8295	-261352
107	28600	0.565108	74.1489	-245190
108	29000	0.582841	74.4886	-228287
109	29000	0.603765	74.8531	-210778
110	29100	0.624956	75.2437	-192592
111	29200	0.643345	75.6576	-173806
112	29200	0.665079	76.0999	-154386
113	29300	0.687131	76.572	-134253
114	29300	0.706302	77.0709	-113558
115	29400	0.729003	77.6024	-92125.6
116	29400	0.752084	78.168	-70014.3
117	29500	0.772193	78.7643	-47234.6
118	29600	0.796056	79.398	-23671.4
119	29800	0.820379	80.071	775.929
120	30000	0.841621	80.7793	26024.6
121	30200	0.866894	81.5308	52204.8
122	30400	0.892733	82.3278	79343.8
123	30400	0.915365	83.1657	107171
124	30500	0.942375	84.0538	135913
125	30600	0.970094	84.9948	165598
126	30800	0.994457	85.9838	196228
127	31230	1.02365	87.0317	228196
128	31300	1.05375	88.142	261178
129	31400	1.08032	89.3091	295101
130	31500	1.11232	90.5464	330139
131	31600	1.1455	91.8586	366337
132	31600	1.17499	93.2392	403466
133	31600	1.21073	94.705	441725
134	31800	1.24809	96.2627	481414
135	31800	1.28155	97.9051	522168
136	31900	1.32251	99.6541	564356
137	32000	1.36581	101.52	608061
138	32300	1.40507	103.494	653445
139	32400	1.4538	105.607	700549
140	32500	1.50626	107.876	749502
141	32500	1.55477	110.293	800032
142	32500	1.61644	112.906	852566
143	32800	1.68494	115.745	907832
144	32900	1.75069	118.81	965430
145	33200	1.83843	122.19	1.02647e+006
146	33300	1.94314	125.966	1.09117e+006
147	33400	2.05375	130.184	1.15977e+006
148	34500	2.22621	135.14	1.23657e+006
149	35000	2.51213	141.451	1.3245e+006

---

Data Set Standard Deviation = 9472.77  
 Numerator = 1.75429e+012  
 Denominator = 1.87854e+012  
 W Statistic = 0.933859 = 1.75429e+012 / 1.87854e+012

**5% Critical value of 0.976 exceeds 0.933859**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.933859**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 34500

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	31230
	3/20/2014	32500
	9/9/2014	32500
	3/16/2015	27400
	9/9/2015	30400
	3/18/2016	29400
	9/20/2016	34500
	3/23/2017	32900
	9/18/2017	32300
	3/15/2018	29000
	9/17/2018	33400
	3/5/2019	31800
	9/24/2019	32800
	3/16/2020	28000
	9/22/2020	31900
	3/16/2021	31400
	9/14/2021	32500
	3/22/2022	31500
	9/13/2022	29600

---

Date	Count	Mean	Significant
3/14/2023	1	29200	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 30000

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	20240
	12/5/2013	21060
	3/19/2014	23500
	9/4/2014	30000
	3/17/2015	26000
	9/11/2015	29300
	3/15/2016	26700
	9/21/2016	20100
	3/28/2017	24200
	9/19/2017	22200
	3/26/2018	24400
	9/18/2018	29800
	3/4/2019	29000
	9/23/2019	29300
	3/19/2020	26700
	9/23/2020	28500
	3/19/2021	28300
	9/15/2021	29400
	3/16/2022	22500
	9/14/2022	22800

---

Date	Count	Mean	Significant
3/16/2023	1	22400	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 30200

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	20560
	3/21/2014	21500
	9/8/2014	22700
	3/19/2015	27900
	9/14/2015	25200
	3/21/2016	29100
	9/23/2016	29200
	3/27/2017	28600
	9/20/2017	25000
	3/16/2018	30200
	9/20/2018	24500
	3/5/2019	12200
	9/25/2019	24800
	3/25/2020	22800
	9/28/2020	21400
	3/18/2021	25600
	9/15/2021	23700
	3/22/2022	20900
	9/14/2022	18300

---

Date	Count	Mean	Significant
3/16/2023	1	19700	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 8840

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	8840
	3/21/2014	8600
	9/17/2014	6900
	3/19/2015	7300
	9/15/2015	5900
	3/21/2016	7300
	9/26/2016	4400
	3/31/2017	5700
	9/21/2017	4400
	3/30/2018	2900
	9/26/2018	2300
	3/13/2019	920 J
	10/3/2019	780 J
	4/3/2020	520 J
	9/30/2020	460 J
	3/22/2021	920 J
	9/16/2021	3200
	3/24/2022	3100
	9/16/2022	4800

---

Date	Count	Mean	Significant
3/17/2023	1	5200	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 35000

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	26550
	3/18/2014	25500
	9/16/2014	28100
	3/18/2015	29500
	9/15/2015	32000
	3/16/2016	31600
	9/22/2016	30600
	3/29/2017	33200
	9/21/2017	33300
	3/28/2018	32400
	9/20/2018	30800
	3/12/2019	30400
	10/1/2019	31300
	3/18/2020	31800
	9/24/2020	28600
	3/17/2021	31600
	9/9/2021	35000
	3/15/2022	30500
	9/16/2022	26200

---

Date	Count	Mean	Significant
3/15/2023	1	24200	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 24200

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	20700
	3/26/2020	23100
	9/29/2020	24200
	3/16/2021	22500
	9/14/2021	23100
	3/18/2022	21900
	9/13/2022	21100

---

Date	Count	Mean	Significant
3/14/2023	1	16700	FALSE

## Shapiro-Francia Test of Normality

Parameter: Total Dissolved Solids

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 148

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	62000	-2.51213	6.31081	-155752
2	77000	-2.22621	11.2668	-327170
3	88000	-2.05375	15.4847	-507900
4	93000	-1.94314	19.2605	-688612
5	100000	-1.83843	22.6403	-872454
6	104000	-1.75069	25.7052	-1.05453e+006
7	110000	-1.68494	28.5442	-1.23987e+006
8	115000	-1.61644	31.1571	-1.42576e+006
9	118000	-1.55477	33.5744	-1.60922e+006
10	119000	-1.49852	35.8199	-1.78755e+006
11	125000	-1.4538	37.9335	-1.96927e+006
12	126000	-1.40507	39.9077	-2.14631e+006
13	130000	-1.35946	41.7558	-2.32304e+006
14	132000	-1.32251	43.5049	-2.49761e+006
15	141000	-1.28155	45.1472	-2.67831e+006
16	143000	-1.24264	46.6914	-2.85601e+006
17	143000	-1.20553	48.1447	-3.0284e+006
18	144000	-1.17499	49.5253	-3.1976e+006
19	146000	-1.14069	50.8265	-3.36414e+006
20	148000	-1.10768	52.0534	-3.52807e+006
21	149000	-1.08032	53.2205	-3.68904e+006
22	150000	-1.04939	54.3217	-3.84645e+006
23	152000	-1.01943	55.3609	-4.0014e+006
24	153000	-0.990356	56.3418	-4.15293e+006
25	155000	-0.966088	57.2751	-4.30267e+006
26	156000	-0.938476	58.1558	-4.44907e+006
27	157000	-0.911562	58.9868	-4.59219e+006
28	160000	-0.889006	59.7771	-4.73443e+006
29	160000	-0.863249	60.5223	-4.87255e+006
30	162000	-0.838054	61.2246	-5.00831e+006
31	164000	-0.813379	61.8862	-5.14171e+006
32	166000	-0.792618	62.5145	-5.27328e+006
33	168000	-0.768821	63.1055	-5.40244e+006
34	171000	-0.745449	63.6612	-5.52992e+006
35	172000	-0.725736	64.1879	-5.65474e+006
36	172000	-0.703089	64.6823	-5.77567e+006
37	172000	-0.680797	65.1457	-5.89277e+006
38	173000	-0.658838	65.5798	-6.00675e+006
39	173000	-0.640266	65.9898	-6.11752e+006
40	176000	-0.618872	66.3728	-6.22644e+006
41	176000	-0.597761	66.7301	-6.33164e+006
42	177000	-0.579873	67.0663	-6.43428e+006
43	177000	-0.559237	67.3791	-6.53327e+006
44	179000	-0.538836	67.6694	-6.62972e+006
45	182000	-0.518658	67.9384	-6.72411e+006
46	184000	-0.501527	68.19	-6.81639e+006
47	184000	-0.481728	68.422	-6.90503e+006

48	186000	-0.462114	68.6356	-6.99098e+006
49	188000	-0.445443	68.834	-7.07473e+006
50	189000	-0.426148	69.0156	-7.15527e+006
51	190000	-0.40701	69.1812	-7.2326e+006
52	191000	-0.390726	69.3339	-7.30723e+006
53	192000	-0.371856	69.4722	-7.37863e+006
54	194000	-0.353118	69.5969	-7.44713e+006
55	198000	-0.334503	69.7088	-7.51336e+006
56	198000	-0.318639	69.8103	-7.57645e+006
57	199000	-0.300232	69.9004	-7.6362e+006
58	201000	-0.281926	69.9799	-7.69287e+006
59	202000	-0.266311	70.0508	-7.74666e+006
60	203000	-0.248174	70.1124	-7.79704e+006
61	205000	-0.230118	70.1654	-7.84422e+006
62	208000	-0.212137	70.2104	-7.88834e+006
63	210000	-0.196779	70.2491	-7.92966e+006
64	210000	-0.17892	70.2811	-7.96724e+006
65	214000	-0.161119	70.3071	-8.00172e+006
66	215000	-0.1459	70.3284	-8.03309e+006
67	218000	-0.128189	70.3448	-8.06103e+006
68	218000	-0.110516	70.357	-8.08512e+006
69	220000	-0.0928787	70.3656	-8.10556e+006
70	220000	-0.0777834	70.3717	-8.12267e+006
71	220000	-0.0601949	70.3753	-8.13591e+006
72	225000	-0.0426257	70.3771	-8.1455e+006
73	228000	-0.0275759	70.3779	-8.15179e+006
74	229000	-0.0100272	70.378	-8.15409e+006
75	234000	0.0100272	70.3781	-8.15174e+006
76	236000	0.0275759	70.3789	-8.14523e+006
77	239000	0.0426257	70.3807	-8.13504e+006
78	239000	0.0601949	70.3843	-8.12066e+006
79	243000	0.0777834	70.3904	-8.10176e+006
80	244000	0.0928787	70.399	-8.07909e+006
81	246000	0.110516	70.4112	-8.05191e+006
82	250000	0.128189	70.4276	-8.01986e+006
83	251000	0.1459	70.4489	-7.98324e+006
84	253000	0.161119	70.4749	-7.94248e+006
85	256000	0.17892	70.5069	-7.89667e+006
86	257000	0.196779	70.5456	-7.8461e+006
87	258000	0.212137	70.5906	-7.79137e+006
88	258000	0.230118	70.6436	-7.732e+006
89	264000	0.248174	70.7052	-7.66648e+006
90	264000	0.266311	70.7761	-7.59617e+006
91	264000	0.281926	70.8556	-7.52175e+006
92	264000	0.300232	70.9457	-7.44248e+006
93	266000	0.318639	71.0472	-7.35773e+006
94	266000	0.334503	71.1591	-7.26875e+006
95	266000	0.353118	71.2838	-7.17482e+006
96	266000	0.371856	71.4221	-7.0759e+006
97	269000	0.390726	71.5748	-6.9708e+006
98	276000	0.40701	71.7404	-6.85846e+006
99	277000	0.426148	71.922	-6.74042e+006
100	277000	0.445443	72.1204	-6.61703e+006
101	278000	0.462114	72.334	-6.48857e+006
102	278000	0.481728	72.566	-6.35465e+006
103	281000	0.501527	72.8176	-6.21372e+006
104	282000	0.518658	73.0866	-6.06746e+006

105	283000	0.538836	73.3769	-5.91496e+006
106	284000	0.559237	73.6897	-5.75614e+006
107	286000	0.579873	74.0259	-5.5903e+006
108	291000	0.597761	74.3832	-5.41635e+006
109	291000	0.618872	74.7662	-5.23626e+006
110	300000	0.640266	75.1762	-5.04418e+006
111	300000	0.658838	75.6103	-4.84653e+006
112	305000	0.680797	76.0737	-4.63888e+006
113	311000	0.703089	76.5681	-4.42022e+006
114	314000	0.725736	77.0948	-4.19234e+006
115	314000	0.745449	77.6505	-3.95827e+006
116	327000	0.768821	78.2415	-3.70687e+006
117	346000	0.792618	78.8698	-3.43262e+006
118	352000	0.813379	79.5314	-3.14631e+006
119	355000	0.838054	80.2337	-2.8488e+006
120	356000	0.863249	80.9789	-2.54148e+006
121	363000	0.889006	81.7692	-2.21878e+006
122	366000	0.911562	82.6002	-1.88514e+006
123	381000	0.938476	83.4809	-1.52758e+006
124	382000	0.966088	84.4142	-1.15854e+006
125	392000	0.990356	85.395	-770320
126	394000	1.01943	86.4343	-368665
127	396000	1.04939	87.5355	46891.6
128	402000	1.08032	88.7026	481180
129	408000	1.10768	89.9295	933114
130	411000	1.14069	91.2307	1.40194e+006
131	423000	1.17499	92.6113	1.89896e+006
132	432000	1.20553	94.0646	2.41974e+006
133	434000	1.24264	95.6088	2.95905e+006
134	436000	1.28155	97.2511	3.51781e+006
135	446000	1.32251	99.0002	4.10764e+006
136	450000	1.35946	100.848	4.7194e+006
137	457000	1.40507	102.823	5.36152e+006
138	464000	1.4538	104.936	6.03609e+006
139	490000	1.49852	107.182	6.77036e+006
140	492000	1.55477	109.599	7.53531e+006
141	494000	1.61644	112.212	8.33383e+006
142	500000	1.68494	115.051	9.1763e+006
143	526000	1.75069	118.116	1.00972e+007
144	538000	1.83843	121.496	1.10862e+007
145	556000	1.94314	125.271	1.21666e+007
146	566000	2.05375	129.489	1.3329e+007
147	570000	2.22621	134.445	1.4598e+007
148	584000	2.51213	140.756	1.60651e+007

Data Set Standard Deviation = 116025  
 Numerator = 2.58086e+014  
 Denominator = 2.7854e+014  
 W Statistic = 0.926569 = 2.58086e+014 / 2.7854e+014

**5% Critical value of 0.976 exceeds 0.926569**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.926569**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

#### Parameter: Total Dissolved Solids

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 566000

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	100000
	3/20/2014	381000
	9/9/2014	423000
	3/16/2015	356000
	9/9/2015	355000
	3/18/2016	352000
	9/20/2016	457000
	3/23/2017	411000
	9/18/2017	446000
	3/15/2018	366000
	9/17/2018	363000
	3/5/2019	538000
	9/24/2019	450000
	3/16/2020	566000
	9/22/2020	494000
	3/16/2021	500000
	9/14/2021	526000
	3/22/2022	434000
	9/13/2022	432000

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Date	Count	Mean	Significant
3/14/2023	1	396000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

#### Parameter: Total Dissolved Solids

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 346000

Confidence Level = 95%

False Positive Rate = 5%

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Baseline Measurements	Date	Value
	9/19/2013	77000
	3/19/2014	291000
	9/4/2014	256000
	3/17/2015	266000
	9/11/2015	281000
	3/15/2016	266000
	9/21/2016	257000
	3/28/2017	205000
	9/19/2017	215000
	3/26/2018	202000
	9/18/2018	300000
	3/4/2019	346000
	9/23/2019	305000
	3/19/2020	246000
	9/23/2020	266000
	3/19/2021	264000
	9/15/2021	220000
	3/16/2022	220000
	9/14/2022	190000

---

Date	Count	Mean	Significant
3/16/2023	1	218000	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

#### Parameter: Total Dissolved Solids

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 314000

Confidence Level = 95%

False Positive Rate = 5%

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Baseline Measurements	Date	Value
	9/24/2013	277000
	3/21/2014	269000
	9/8/2014	291000
	3/19/2015	314000
	9/14/2015	278000
	3/21/2016	239000
	9/23/2016	283000
	3/27/2017	266000
	9/20/2017	236000
	3/16/2018	251000
	9/20/2018	172000
	3/5/2019	311000
	9/25/2019	214000
	3/25/2020	198000
	9/28/2020	284000
	3/18/2021	276000
	9/15/2021	264000
	3/22/2022	258000
	9/14/2022	220000

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Date	Count	Mean	Significant
3/16/2023	1	300000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

#### Parameter: Total Dissolved Solids

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 278000

Confidence Level = 95%

False Positive Rate = 5%

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Baseline Measurements	Date	Value
	9/24/2013	118000
	3/21/2014	115000
	9/17/2014	126000
	3/19/2015	191000
	9/15/2015	153000
	3/21/2016	132000
	9/26/2016	155000
	3/31/2017	160000
	9/21/2017	164000
	3/30/2018	203000
	9/26/2018	243000
	3/13/2019	278000
	10/3/2019	110000
	4/3/2020	250000
	9/30/2020	258000
	3/22/2021	244000
	9/16/2021	228000
	3/24/2022	184000
	9/16/2022	264000

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Date	Count	Mean	Significant
3/17/2023	1	282000	TRUE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

#### Parameter: Total Dissolved Solids

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 210000

Confidence Level = 95%

False Positive Rate = 5%

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Baseline Measurements	Date	Value
	9/25/2013	119000
	3/18/2014	93000
	9/16/2014	144000
	3/18/2015	189000
	9/15/2015	148000
	3/16/2016	176000
	9/22/2016	177000
	3/29/2017	172000
	9/21/2017	173000
	3/28/2018	143000
	9/20/2018	141000
	3/12/2019	186000
	10/1/2019	210000
	3/18/2020	188000
	9/24/2020	152000
	3/17/2021	166000
	9/9/2021	210000
	3/15/2022	157000
	9/16/2022	125000

---

Date	Count	Mean	Significant
3/15/2023	1	88000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

#### Parameter: Total Dissolved Solids

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 556000

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	556000
	3/26/2020	314000
	9/29/2020	436000
	3/16/2021	402000
	9/14/2021	490000
	3/18/2022	408000
	9/13/2022	394000

---

Date	Count	Mean	Significant
3/14/2023	1	492000	FALSE

## Shapiro-Francia Test of Normality

Parameter: Turbidity

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0.18	-1.61644	31.1571	-0.290958
9	0.24	-1.55477	33.5744	-0.664104
10	0.25	-1.50626	35.8432	-1.04067
11	0.32	-1.4538	37.9567	-1.50589
12	0.37	-1.40507	39.931	-2.02576
13	0.38	-1.36581	41.7964	-2.54477
14	0.4	-1.32251	43.5454	-3.07377
15	0.41	-1.28155	45.1878	-3.59921
16	0.43	-1.24809	46.7455	-4.13588
17	0.44	-1.21073	48.2114	-4.66861
18	0.47	-1.17499	49.592	-5.22085
19	0.5	-1.1455	50.9042	-5.7936
20	0.5	-1.11232	52.1414	-6.34976
21	0.53	-1.08032	53.3085	-6.92233
22	0.54	-1.05375	54.4189	-7.49135
23	0.55	-1.02365	55.4667	-8.05436
24	0.55	-0.994457	56.4557	-8.60131
25	0.58	-0.970094	57.3968	-9.16397
26	0.58	-0.942375	58.2848	-9.71055
27	0.59	-0.919183	59.1297	-10.2529
28	0.6	-0.892733	59.9267	-10.7885
29	0.7	-0.866894	60.6782	-11.3953
30	0.7	-0.841621	61.3865	-11.9845
31	0.72	-0.820379	62.0596	-12.5751
32	0.73	-0.796056	62.6933	-13.1563
33	0.73	-0.772193	63.2896	-13.72
34	0.74	-0.752084	63.8552	-14.2765
35	0.76	-0.729003	64.3866	-14.8305
36	0.77	-0.706302	64.8855	-15.3744
37	0.81	-0.687131	65.3576	-15.931
38	0.81	-0.665079	65.8	-16.4697
39	0.81	-0.643345	66.2139	-16.9908
40	0.82	-0.624956	66.6044	-17.5033
41	0.83	-0.603765	66.969	-18.0044
42	0.84	-0.582841	67.3087	-18.494
43	0.84	-0.565108	67.628	-18.9687
44	0.85	-0.544642	67.9247	-19.4316
45	0.85	-0.524401	68.1996	-19.8773
46	0.85	-0.507221	68.4569	-20.3085
47	0.86	-0.487364	68.6944	-20.7276

48	0.92	-0.467699	68.9132	-21.1579
49	0.94	-0.450985	69.1166	-21.5818
50	0.95	-0.431644	69.3029	-21.9919
51	0.98	-0.412463	69.473	-22.3961
52	1.02	-0.396142	69.6299	-22.8002
53	1.03	-0.377233	69.7723	-23.1887
54	1.06	-0.358459	69.9007	-23.5687
55	1.08	-0.342466	70.018	-23.9385
56	1.1	-0.323919	70.1229	-24.2949
57	1.13	-0.305481	70.2163	-24.6401
58	1.13	-0.28976	70.3002	-24.9675
59	1.2	-0.271509	70.3739	-25.2933
60	1.23	-0.253347	70.4381	-25.6049
61	1.23	-0.237847	70.4947	-25.8975
62	1.28	-0.219834	70.543	-26.1788
63	1.29	-0.204452	70.5848	-26.4426
64	1.29	-0.186567	70.6196	-26.6833
65	1.34	-0.168741	70.6481	-26.9094
66	1.36	-0.150969	70.6709	-27.1147
67	1.36	-0.135774	70.6893	-27.2993
68	1.39	-0.118085	70.7033	-27.4635
69	1.39	-0.100433	70.7134	-27.6031
70	1.4	-0.0853288	70.7206	-27.7225
71	1.4	-0.0677301	70.7252	-27.8174
72	1.4	-0.0501541	70.7278	-27.8876
73	1.41	-0.0350997	70.729	-27.9371
74	1.42	-0.0175476	70.7293	-27.962
75	1.46	0	70.7293	-27.962
76	1.5	0.0175476	70.7296	-27.9357
77	1.52	0.0350997	70.7308	-27.8823
78	1.53	0.0501541	70.7333	-27.8056
79	1.53	0.0677301	70.7379	-27.702
80	1.55	0.0853288	70.7452	-27.5697
81	1.62	0.100433	70.7553	-27.407
82	1.64	0.118085	70.7692	-27.2133
83	1.66	0.135774	70.7877	-26.988
84	1.67	0.150969	70.8105	-26.7358
85	1.69	0.168741	70.8389	-26.4507
86	1.7	0.186567	70.8738	-26.1335
87	1.74	0.201894	70.9145	-25.7822
88	1.87	0.219834	70.9628	-25.3711
89	1.9	0.237847	71.0194	-24.9192
90	1.91	0.253347	71.0836	-24.4353
91	1.93	0.271509	71.1573	-23.9113
92	2.01	0.28976	71.2413	-23.3289
93	2.05	0.305481	71.3346	-22.7026
94	2.05	0.323919	71.4395	-22.0386
95	2.13	0.342466	71.5568	-21.3092
96	2.19	0.358459	71.6853	-20.5241
97	2.29	0.377233	71.8276	-19.6603
98	2.51	0.396142	71.9845	-18.666
99	2.64	0.412463	72.1547	-17.5771
100	2.72	0.431644	72.341	-16.403
101	2.74	0.450985	72.5444	-15.1673
102	2.78	0.467699	72.7631	-13.8671
103	2.85	0.487364	73.0006	-12.4781
104	3.1	0.507221	73.2579	-10.9057

105	3.12	0.524401	73.5329	-9.26957
106	3.18	0.544642	73.8295	-7.53761
107	3.19	0.565108	74.1489	-5.73492
108	3.28	0.582841	74.4886	-3.8232
109	3.3	0.603765	74.8531	-1.83078
110	3.33	0.624956	75.2437	0.250324
111	3.46	0.643345	75.6576	2.4763
112	3.47	0.665079	76.0999	4.78412
113	3.61	0.687131	76.572	7.26467
114	3.69	0.706302	77.0709	9.87092
115	3.78	0.729003	77.6024	12.6266
116	3.78	0.752084	78.168	15.4694
117	3.81	0.772193	78.7643	18.4115
118	3.98	0.796056	79.398	21.5798
119	3.98	0.820379	80.071	24.8449
120	4.02	0.841621	80.7793	28.2282
121	4.27	0.866894	81.5308	31.9299
122	4.33	0.892733	82.3278	35.7954
123	4.49	0.915365	83.1657	39.9054
124	4.58	0.942375	84.0538	44.2215
125	4.6	0.970094	84.9948	48.6839
126	4.66	0.994457	85.9838	53.3181
127	4.77	1.02365	87.0317	58.2009
128	5.19	1.05375	88.142	63.6698
129	5.24	1.08032	89.3091	69.3307
130	5.3	1.11232	90.5464	75.226
131	5.36	1.1455	91.8586	81.3659
132	5.37	1.17499	93.2392	87.6756
133	5.7	1.21073	94.705	94.5767
134	5.82	1.24809	96.2627	101.841
135	6	1.28155	97.9051	109.53
136	6.29	1.32251	99.6541	117.848
137	6.86	1.36581	101.52	127.218
138	7.4	1.40507	103.494	137.615
139	7.59	1.4538	105.607	148.65
140	7.72	1.50626	107.876	160.278
141	7.78	1.55477	110.293	172.374
142	8.1	1.61644	112.906	185.467
143	9.01	1.68494	115.745	200.649
144	9.38	1.75069	118.81	217.07
145	9.46	1.83843	122.19	234.462
146	9.59	1.94314	125.966	253.096
147	11.4	2.05375	130.184	276.509
148	11.76	2.22621	135.14	302.689
149	21.41	2.51213	141.451	356.474

Data Set Standard Deviation = 2.90391

Numerator = 127074

Denominator = 176536

W Statistic = 0.719817 = 127074 / 176536

**5% Critical value of 0.976 exceeds 0.719817  
Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.719817  
Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

#### Parameter: Turbidity

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 9.01

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	ND<0
	3/20/2014	1.2
	9/9/2014	9.01
	3/16/2015	3.61
	9/9/2015	2.72
	3/18/2016	1.36
	9/20/2016	3.46
	3/23/2017	2.64
	9/18/2017	0.73
	3/15/2018	3.33
	9/17/2018	4.27
	3/5/2019	2.85
	9/24/2019	2.01
	3/16/2020	2.19
	9/22/2020	1.41
	3/16/2021	1.29
	9/14/2021	0.7
	3/22/2022	1.23
	9/13/2022	3.18

---

Date	Count	Mean	Significant
3/14/2023	1	0.41	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

#### Parameter: Turbidity

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 9.46

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	ND<0
	12/5/2013	0.32
	3/19/2014	1.1
	9/4/2014	9.46
	3/17/2015	1.87
	9/11/2015	1.9
	3/15/2016	0.58
	9/21/2016	2.05
	3/28/2017	0.85
	9/19/2017	0.5
	3/26/2018	1.93
	9/18/2018	1.52
	3/4/2019	7.4
	9/23/2019	4.33
	3/19/2020	5.7
	9/23/2020	2.74
	3/19/2021	1.28
	9/15/2021	1.64
	3/16/2022	0.72
	9/14/2022	3.78

---

Date	Count	Mean	Significant
3/16/2023	1	0.85	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

#### Parameter: Turbidity

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 11.76

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	5.3
	9/8/2014	3.47
	3/19/2015	9.38
	9/14/2015	4.6
	3/21/2016	11.76
	9/23/2016	6
	3/27/2017	6.86
	9/20/2017	4.58
	3/16/2018	7.72
	9/20/2018	0.5
	3/5/2019	7.78
	9/25/2019	0.43
	3/25/2020	4.02
	9/28/2020	3.28
	3/18/2021	5.37
	9/15/2021	1.74
	3/22/2022	5.19
	9/14/2022	6.29

---

Date	Count	Mean	Significant
3/16/2023	1	7.59	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

#### Parameter: Turbidity

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 3.98

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	1.66
	9/17/2014	0.7
	3/19/2015	0.54
	9/15/2015	0.84
	3/21/2016	0.47
	9/26/2016	1.69
	3/31/2017	0.25
	9/21/2017	0.74
	3/30/2018	0.95
	9/26/2018	1.62
	3/13/2019	0.81
	10/3/2019	1.03
	4/3/2020	0.73
	9/30/2020	0.86
	3/22/2021	0.55
	9/16/2021	1.55
	3/24/2022	0.84
	9/16/2022	3.98

---

Date	Count	Mean	Significant
3/17/2023	1	2.51	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

#### Parameter: Turbidity

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 11.4

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	ND<0
	3/18/2014	0.55
	9/16/2014	0.24
	3/18/2015	0.18
	9/15/2015	0.58
	3/16/2016	0.38
	9/22/2016	1.4
	3/29/2017	1.46
	9/21/2017	0.85
	3/28/2018	0.94
	9/20/2018	1.39
	3/12/2019	1.02
	10/1/2019	0.44
	3/18/2020	1.29
	9/24/2020	0.98
	3/17/2021	11.4
	9/9/2021	1.39
	3/15/2022	1.08
	9/16/2022	3.98

---

Date	Count	Mean	Significant
3/15/2023	1	8.1	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Turbidity

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 5.82

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	5.82
	3/26/2020	4.77
	9/29/2020	3.1
	3/16/2021	2.78
	9/14/2021	3.78
	3/18/2022	3.81
	9/13/2022	4.66

---

Date	Count	Mean	Significant
3/14/2023	1	4.49	FALSE

# 7) Patuxent Aquifer Water Quality Parameters Inter-well Statistics

APPENDIX F

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Alkalinity, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 4

Non detect rank is 2.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	13000	21
	4/2/2020	46000	28
	9/30/2020	21000	25
	3/22/2021	26000	26
	9/8/2021	42000	27
	3/14/2022	14000	22
	9/12/2022	14000	23
	3/13/2023	15000	24
SMW-13	9/23/2013	ND<5000	2.5
	3/21/2014	3000 J	6
	9/8/2014	3000 J	7
	3/18/2015	4000 J	10
	9/8/2015	6000	17
	3/14/2016	3000 J	8
	9/26/2016	5000 J	12
	3/30/2017	4000 J	11
	9/20/2017	3000 J	9
	3/30/2018	7000	19
	9/21/2018	5000 J	13
	3/11/2019	7000	20
	10/3/2019	6000	18
	3/23/2020	2000 J	5
	9/25/2020	5000 J	14
	3/23/2021	ND<5000 U	2.5
	9/16/2021	5000	15
	3/23/2022	ND<5000	2.5
9/16/2022	ND<5000	2.5	
3/17/2023	5000	16	

---

The Wilcoxon Statistic is 0

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is -4.09381

The Standard Deviation adjusted for ties is 19.6369

The Z Score adjusted for ties is -4.09942

-4.09381 < 2.326 indicating no statistical significance at 1% level

-4.09942 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Alkalinity, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 5

Non detect rank is 3

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	13000	20
	4/2/2020	46000	28
	9/30/2020	21000	25
	3/22/2021	26000	26
	9/8/2021	42000	27
	3/14/2022	14000	21
	9/12/2022	14000	22
	3/13/2023	15000	23
SMW-32	9/23/2013	ND<5000	3
	12/5/2013	7790	17
	3/19/2014	3000 J	6
	9/8/2014	3000 J	7
	3/18/2015	5000 J	12
	9/8/2015	5000	13
	3/14/2016	3000 J	8
	9/20/2016	6000	14
	3/24/2017	4000 J	9
	9/20/2017	4000 J	10
	3/27/2018	7000	16
	9/18/2018	8000	18
	3/11/2019	4000 J	11
	10/3/2019	6000	15
	3/23/2020	ND<5000 U	3
	9/24/2020	15000	24
	3/23/2021	ND<5000 U	3
	9/16/2021	50000	29
	3/24/2022	ND<5000	3
	9/16/2022	ND<5000	3
3/17/2023	10000	19	

---

The Wilcoxon Statistic is 12

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is -3.53764

The Standard Deviation adjusted for ties is 20.4434

The Z Score adjusted for ties is -3.54638

-3.53764 < 2.326 indicating no statistical significance at 1% level

-3.54638 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Alkalinity, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	13000	1
	4/2/2020	46000	22
	9/30/2020	21000	5
	3/22/2021	26000	9
	9/8/2021	42000	19
	3/14/2022	14000	2
	9/12/2022	14000	3
	3/13/2023	15000	4
GWM-15D	3/21/2016	30000	12
	9/23/2016	23000	6
	3/28/2017	24000	8
	9/21/2017	23000	7
	3/16/2018	32000	13
	9/19/2018	39000	17
	3/5/2019	27000	10
	10/3/2019	39000	18
	3/25/2020	32000	14
	9/28/2020	27000	11
	3/19/2021	35000	15
	9/15/2021	37000	16
	3/22/2022	72000	23
	9/14/2022	42000	20
	3/16/2023	42000	21

---

The Wilcoxon Statistic is 91

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is 1.96877

The Standard Deviation adjusted for ties is 15.4919

The Z Score adjusted for ties is 1.96877

1.96877 < 2.326 indicating no statistical significance at 1% level

1.96877 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Alkalinity, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	13000	1
	4/2/2020	46000	8
	9/30/2020	21000	5
	3/22/2021	26000	6
	9/8/2021	42000	7
	3/14/2022	14000	2
	9/12/2022	14000	3
	3/13/2023	15000	4
GWM-17D	11/14/2019	214000	16
	3/26/2020	191000	15
	9/29/2020	169000	13
	3/16/2021	175000	14
	9/14/2021	155000	11
	3/18/2022	154000	10
	9/13/2022	157000	12
	3/14/2023	150000	9

---

The Wilcoxon Statistic is 64

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 3.30816

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is 3.30816

**3.30816 > 2.326 indicating statistical significance at 1% level**

**3.30816 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Alkalinity, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	13000	2
	4/2/2020	46000	15
	9/30/2020	21000	11
	3/22/2021	26000	12
	9/8/2021	42000	14
	3/14/2022	14000	5
	9/12/2022	14000	6
	3/13/2023	15000	7
GWM-19D	11/14/2019	72000	16
	3/25/2020	36000	13
	9/29/2020	20000	10
	3/22/2021	16000	8
	9/15/2021	18000	9
	3/24/2022	13000	3
	9/15/2022	13000	4
	3/16/2023	11000	1

---

The Wilcoxon Statistic is 28

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -0.472595

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is -0.472595

-0.472595 < 2.326 indicating no statistical significance at 1% level

-0.472595 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Ammonia-N

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 15

Non detect rank is 8

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<100 U	8
	4/2/2020	ND<100 U	8
	9/30/2020	243	29
	3/22/2021	136	27
	9/8/2021	125	23
	3/14/2022	70 J	21
	9/12/2022	ND<100	8
	3/13/2023	130	25
SMW-32	9/23/2013	ND<100	8
	12/5/2013	ND<100	8
	3/19/2014	132	26
	9/8/2014	ND<100 U	8
	3/18/2015	ND<100 U	8
	9/8/2015	ND<100 U	8
	3/14/2016	ND<100 U	8
	9/20/2016	ND<100 U	8
	3/24/2017	ND<100 U	8
	9/20/2017	ND<100 U	8
	3/27/2018	43 J	18
	9/18/2018	31 J	16
	3/11/2019	54 J	19
	10/3/2019	154	28
	3/23/2020	39 J	17
	9/24/2020	ND<100 U	8
	3/23/2021	128	24
	9/16/2021	ND<100 U	8
	3/24/2022	61 J	20
	9/16/2022	ND<100	8
3/17/2023	89 J	22	

---

The Wilcoxon Statistic is 55

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is -1.43945

The Standard Deviation adjusted for ties is 19.0281

The Z Score adjusted for ties is -1.55034

-1.43945 < 2.326 indicating no statistical significance at 1% level

-1.55034 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Ammonia-N

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 14

Non detect rank is 7.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<100 U	7.5
	4/2/2020	ND<100 U	7.5
	9/30/2020	243	28
	3/22/2021	136	26
	9/8/2021	125	24
	3/14/2022	70 J	19
	9/12/2022	ND<100	7.5
	3/13/2023	130	25
SMW-13	9/23/2013	ND<100	7.5
	3/21/2014	ND<100 U	7.5
	9/8/2014	ND<100 U	7.5
	3/18/2015	105	22
	9/8/2015	ND<100 U	7.5
	3/14/2016	ND<100 U	7.5
	9/26/2016	31 J	15
	3/30/2017	ND<100 U	7.5
	9/20/2017	ND<100 U	7.5
	3/30/2018	62 J	18
	9/21/2018	ND<100 U	7.5
	3/11/2019	ND<100 U	7.5
	10/3/2019	238	27
	3/23/2020	38 J	16
	9/25/2020	107	23
	3/23/2021	89 J	21
	9/16/2021	41 J	17
	3/23/2022	ND<100	7.5
	9/16/2022	ND<100	7.5
	3/17/2023	85 J	20

---

The Wilcoxon Statistic is 51.5

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is -1.47479

The Standard Deviation adjusted for ties is 18.3989

The Z Score adjusted for ties is -1.57618

-1.47479 < 2.326 indicating no statistical significance at 1% level

-1.57618 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Ammonia-N

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 10

Non detect rank is 5.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<100 U	5.5
	4/2/2020	ND<100 U	5.5
	9/30/2020	243	23
	3/22/2021	136	21
	9/8/2021	125	18
	3/14/2022	70 J	15
	9/12/2022	ND<100	5.5
	3/13/2023	130	20
GWM-15D	3/21/2016	ND<100 U	5.5
	9/23/2016	33 J	13
	3/28/2017	ND<100 U	5.5
	9/21/2017	ND<100 U	5.5
	3/16/2018	ND<100 U	5.5
	9/19/2018	128	19
	3/5/2019	ND<100 U	5.5
	10/3/2019	189	22
	3/25/2020	29 J	11
	9/28/2020	29 J	12
	3/19/2021	ND<100 U	5.5
	9/15/2021	65 J	14
	3/22/2022	106	17
	9/14/2022	ND<100	5.5
	3/16/2023	85 J	16

---

The Wilcoxon Statistic is 42.5

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is -1.1619

The Standard Deviation adjusted for ties is 14.847

The Z Score adjusted for ties is -1.21236

-1.1619 < 2.326 indicating no statistical significance at 1% level

-1.21236 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Ammonia-N

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 4

Non detect rank is 2.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<100 U	2.5
	4/2/2020	ND<100 U	2.5
	9/30/2020	243	13
	3/22/2021	136	10
	9/8/2021	125	7
	3/14/2022	70 J	5
	9/12/2022	ND<100	2.5
	3/13/2023	130	8
GWM-17D	11/14/2019	159	11
	3/26/2020	106	6
	9/29/2020	135	9
	3/16/2021	263	15
	9/14/2021	186	12
	3/18/2022	253	14
	9/13/2022	ND<100	2.5
	3/14/2023	287	16

---

The Wilcoxon Statistic is 49.5

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 1.78536

The Standard Deviation adjusted for ties is 9.45163

The Z Score adjusted for ties is 1.79863

1.78536 < 2.326 indicating no statistical significance at 1% level

1.79863 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Ammonia-N

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 6

Non detect rank is 3.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<100 U	3.5
	4/2/2020	ND<100 U	3.5
	9/30/2020	243	16
	3/22/2021	136	13
	9/8/2021	125	11
	3/14/2022	70 J	10
	9/12/2022	ND<100	3.5
	3/13/2023	130	12
GWM-19D	11/14/2019	28 J	7
	3/25/2020	197	15
	9/29/2020	ND<100 U	3.5
	3/22/2021	165	14
	9/15/2021	59 J	8
	3/24/2022	64 J	9
	9/15/2022	ND<100	3.5
	3/16/2023	ND<100	3.5

---

The Wilcoxon Statistic is 27.5

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -0.525105

The Standard Deviation adjusted for ties is 9.27362

The Z Score adjusted for ties is -0.539164

-0.525105 < 2.326 indicating no statistical significance at 1% level

-0.539164 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chemical Oxygen Demand (COD)

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 21

Non detect rank is 11

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<15000 U	11
	4/2/2020	9000 J	27
	9/30/2020	ND<15000 U	11
	3/22/2021	ND<15000 U	11
	9/8/2021	ND<15000 U	11
	3/14/2022	ND<15000	11
	9/12/2022	ND<15000	11
	3/13/2023	ND<15000	11
SMW-32	9/23/2013	ND<15000	11
	12/5/2013	ND<15000	11
	3/19/2014	ND<15000 U	11
	9/8/2014	10000	28
	3/18/2015	ND<15000 U	11
	9/8/2015	ND<15000 U	11
	3/14/2016	ND<15000 U	11
	9/20/2016	10000	29
	3/24/2017	ND<15000 U	11
	9/20/2017	5000 J	22
	3/27/2018	ND<15000 U	11
	9/18/2018	ND<15000 U	11
	3/11/2019	8000 J	25
	10/3/2019	ND<15000 U	11
	3/23/2020	ND<15000 U	11
	9/24/2020	ND<15000 U	11
	3/23/2021	5000 J	23
	9/16/2021	5000 J	24
	3/24/2022	ND<15000	11
	9/16/2022	ND<15000	11
3/17/2023	8000 J	26	

---

The Wilcoxon Statistic is 100

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is 0.756323

The Standard Deviation adjusted for ties is 16.1459

The Z Score adjusted for ties is 0.959997

0.756323 < 2.326 indicating no statistical significance at 1% level

0.959997 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chemical Oxygen Demand (COD)

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 21

Non detect rank is 11

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<15000 U	11
	4/2/2020	9000 J	27
	9/30/2020	ND<15000 U	11
	3/22/2021	ND<15000 U	11
	9/8/2021	ND<15000 U	11
	3/14/2022	ND<15000	11
	9/12/2022	ND<15000	11
	3/13/2023	ND<15000	11
SMW-13	9/23/2013	ND<15000	11
	3/21/2014	ND<15000 U	11
	9/8/2014	12000	28
	3/18/2015	ND<15000 U	11
	9/8/2015	ND<15000 U	11
	3/14/2016	ND<15000 U	11
	9/26/2016	ND<15000 U	11
	3/30/2017	ND<15000 U	11
	9/20/2017	4000 J	22
	3/30/2018	ND<15000 U	11
	9/21/2018	ND<15000 U	11
	3/11/2019	ND<15000 U	11
	10/3/2019	7000 J	24
	3/23/2020	ND<15000 U	11
	9/25/2020	8000 J	25
	3/23/2021	8000 J	26
	9/16/2021	ND<15000 U	11
	3/23/2022	6000 J	23
	9/16/2022	ND<15000	11
	3/17/2023	ND<15000	11

---

The Wilcoxon Statistic is 92

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is 0.58483

The Standard Deviation adjusted for ties is 14.9567

The Z Score adjusted for ties is 0.768885

0.58483 < 2.326 indicating no statistical significance at 1% level

0.768885 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chemical Oxygen Demand (COD)

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 13

Non detect rank is 7

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<15000 U	7
	4/2/2020	9000 J	16
	9/30/2020	ND<15000 U	7
	3/22/2021	ND<15000 U	7
	9/8/2021	ND<15000 U	7
	3/14/2022	ND<15000	7
	9/12/2022	ND<15000	7
	3/13/2023	ND<15000	7
GWM-15D	3/21/2016	13000	21
	9/23/2016	ND<15000 U	7
	3/28/2017	ND<15000 U	7
	9/21/2017	11000	18
	3/16/2018	ND<15000 U	7
	9/19/2018	ND<15000 U	7
	3/5/2019	17000	23
	10/3/2019	11000 J	19
	3/25/2020	ND<15000 U	7
	9/28/2020	12000 J	20
	3/19/2021	10000 J	17
	9/15/2021	6000 J	15
	3/22/2022	ND<15000	7
	9/14/2022	5000 J	14
	3/16/2023	14000 J	22

---

The Wilcoxon Statistic is 91

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is 1.96877

The Standard Deviation adjusted for ties is 14.0299

The Z Score adjusted for ties is 2.17393

1.96877 < 2.326 indicating no statistical significance at 1% level

2.17393 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chemical Oxygen Demand (COD)

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 10

Non detect rank is 5.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<15000 U	5.5
	4/2/2020	9000 J	13
	9/30/2020	ND<15000 U	5.5
	3/22/2021	ND<15000 U	5.5
	9/8/2021	ND<15000 U	5.5
	3/14/2022	ND<15000	5.5
	9/12/2022	ND<15000	5.5
	3/13/2023	ND<15000	5.5
GWM-17D	11/14/2019	9000 J	14
	3/26/2020	ND<15000 U	5.5
	9/29/2020	8000 J	12
	3/16/2021	12000 J	15
	9/14/2021	ND<15000 U	5.5
	3/18/2022	ND<15000	5.5
	9/13/2022	6000 J	11
	3/14/2023	12000 J	16

---

The Wilcoxon Statistic is 48.5

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 1.68034

The Standard Deviation adjusted for ties is 8.28654

The Z Score adjusted for ties is 1.93084

1.68034 < 2.326 indicating no statistical significance at 1% level

1.93084 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chemical Oxygen Demand (COD)

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 12

Non detect rank is 6.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<15000 U	6.5
	4/2/2020	9000 J	15
	9/30/2020	ND<15000 U	6.5
	3/22/2021	ND<15000 U	6.5
	9/8/2021	ND<15000 U	6.5
	3/14/2022	ND<15000	6.5
	9/12/2022	ND<15000	6.5
	3/13/2023	ND<15000	6.5
GWM-19D	11/14/2019	15000 J	16
	3/25/2020	ND<15000 U	6.5
	9/29/2020	ND<15000 U	6.5
	3/22/2021	ND<15000 U	6.5
	9/15/2021	ND<15000 U	6.5
	3/24/2022	6000 J	13
	9/15/2022	ND<15000	6.5
	3/16/2023	7000 J	14

---

The Wilcoxon Statistic is 39.5

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 0.735147

The Standard Deviation adjusted for ties is 7.24799

The Z Score adjusted for ties is 0.965785

0.735147 < 2.326 indicating no statistical significance at 1% level

0.965785 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chloride

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	73900	10
	4/2/2020	66600	3
	9/30/2020	73400	9
	3/22/2021	74100	11
	9/8/2021	79100	14
	3/14/2022	72600	7
	9/12/2022	73300	8
	3/13/2023	74700	13
SMW-32	9/23/2013	68110	5
	12/5/2013	66500	2
	3/19/2014	63800	1
	9/8/2014	74300	12
	3/18/2015	71900	6
	9/8/2015	81700	16
	3/14/2016	66800	4
	9/20/2016	82900	18
	3/24/2017	82600	17
	9/20/2017	87300	19
	3/27/2018	92400	21
	9/18/2018	88700	20
	3/11/2019	92600	22
	10/3/2019	94500	23
	3/23/2020	81500	15
	9/24/2020	97300	24
	3/23/2021	120000	29
	9/16/2021	116000	28
	3/24/2022	108000	27
	9/16/2022	103000	26
3/17/2023	101000	25	

---

The Wilcoxon Statistic is 129

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is 2.17138

The Standard Deviation adjusted for ties is 20.4939

The Z Score adjusted for ties is 2.17138

2.17138 < 2.326 indicating no statistical significance at 1% level

2.17138 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chloride

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	73900	13
	4/2/2020	66600	6
	9/30/2020	73400	12
	3/22/2021	74100	14
	9/8/2021	79100	16
	3/14/2022	72600	9
	9/12/2022	73300	11
	3/13/2023	74700	15
SMW-13	9/23/2013	60230	3
	3/21/2014	57600	2
	9/8/2014	67500	7
	3/18/2015	61000	4
	9/8/2015	66000	5
	3/14/2016	53800	1
	9/26/2016	68100	8
	3/30/2017	80000	17
	9/20/2017	81600	18
	3/30/2018	87500	21
	9/21/2018	82300	19
	3/11/2019	83000	20
	10/3/2019	91400	22
	3/23/2020	72700	10
	9/25/2020	94200	23
	3/23/2021	106000	28
	9/16/2021	104000	26
	3/23/2022	103000	25
9/16/2022	105000	27	
3/17/2023	101000	24	

---

The Wilcoxon Statistic is 100

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is 0.991668

The Standard Deviation adjusted for ties is 19.6638

The Z Score adjusted for ties is 0.991668

0.991668 < 2.326 indicating no statistical significance at 1% level

0.991668 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chloride

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	73900	15
	4/2/2020	66600	7
	9/30/2020	73400	14
	3/22/2021	74100	16
	9/8/2021	79100	20
	3/14/2022	72600	11
	9/12/2022	73300	13
	3/13/2023	74700	17
GWM-15D	3/21/2016	65800	6
	9/23/2016	66900	8
	3/28/2017	68000	10
	9/21/2017	58500	3
	3/16/2018	93900	23
	9/19/2018	58300	2
	3/5/2019	57000	1
	10/3/2019	62400	5
	3/25/2020	61700	4
	9/28/2020	67600	9
	3/19/2021	74800	18
	9/15/2021	76700	19
	3/22/2022	82500	22
	9/14/2022	73200	12
	3/16/2023	79600	21

---

The Wilcoxon Statistic is 43

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is -1.12962

The Standard Deviation adjusted for ties is 15.4919

The Z Score adjusted for ties is -1.12962

-1.12962 < 2.326 indicating no statistical significance at 1% level

-1.12962 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chloride

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	73900	7
	4/2/2020	66600	2
	9/30/2020	73400	6
	3/22/2021	74100	8
	9/8/2021	79100	12
	3/14/2022	72600	4
	9/12/2022	73300	5
	3/13/2023	74700	9
GWM-17D	11/14/2019	67800	3
	3/26/2020	65100	1
	9/29/2020	76300	10
	3/16/2021	78200	11
	9/14/2021	87200	13
	3/18/2022	92500	14
	9/13/2022	92700	15
	3/14/2023	99700	16

---

The Wilcoxon Statistic is 47

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 1.5228

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is 1.5228

1.5228 < 2.326 indicating no statistical significance at 1% level

1.5228 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chloride

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	73900	13
	4/2/2020	66600	9
	9/30/2020	73400	12
	3/22/2021	74100	14
	9/8/2021	79100	16
	3/14/2022	72600	10
	9/12/2022	73300	11
	3/13/2023	74700	15
GWM-19D	11/14/2019	32100	1
	3/25/2020	32300	2
	9/29/2020	35500	6
	3/22/2021	36600	8
	9/15/2021	36300	7
	3/24/2022	34900	4
	9/15/2022	34200	3
	3/16/2023	35200	5

---

The Wilcoxon Statistic is 0

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -3.41318

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is -3.41318

-3.41318 < 2.326 indicating no statistical significance at 1% level

-3.41318 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Hardness

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	68700	21
	4/2/2020	77100	27
	9/30/2020	72900	26
	3/22/2021	65200	17
	9/8/2021	62100	12
	3/14/2022	62200	13
	9/12/2022	70000	22
	3/13/2023	65400	18
SMW-13	9/23/2013	38400	1
	3/21/2014	62000	11
	9/8/2014	48000	2
	3/18/2015	82000	28
	9/8/2015	60000	8
	3/14/2016	51000	3
	9/26/2016	52000	4
	3/30/2017	64000	15
	9/20/2017	55100	5
	3/30/2018	60900	9
	9/21/2018	57000	6
	3/11/2019	59100	7
	10/3/2019	61900	10
	3/23/2020	63100	14
	9/25/2020	66300	19
	3/23/2021	64400	16
	9/16/2021	70400	23
	3/23/2022	68400	20
9/16/2022	70900	24	
3/17/2023	72500	25	

---

The Wilcoxon Statistic is 40

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is -2.05962

The Standard Deviation adjusted for ties is 19.6638

The Z Score adjusted for ties is -2.05962

-2.05962 < 2.326 indicating no statistical significance at 1% level

-2.05962 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Hardness

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	68700	17
	4/2/2020	77100	28
	9/30/2020	72900	25
	3/22/2021	65200	12
	9/8/2021	62100	9
	3/14/2022	62200	10
	9/12/2022	70000	20
	3/13/2023	65400	13
SMW-32	9/23/2013	45000	1
	12/5/2013	58600	2
	3/19/2014	67000	15
	9/8/2014	59000	3
	3/18/2015	83000	29
	9/8/2015	70000	21
	3/14/2016	62000	8
	9/20/2016	59000	4
	3/24/2017	59000	5
	9/20/2017	61400	7
	3/27/2018	60100	6
	9/18/2018	64200	11
	3/11/2019	66100	14
	10/3/2019	68500	16
	3/23/2020	68800	18
	9/24/2020	71700	24
	3/23/2021	73100	26
	9/16/2021	76200	27
	3/24/2022	69200	19
	9/16/2022	71100	22
3/17/2023	71100	23	

---

The Wilcoxon Statistic is 70

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is -0.707528

The Standard Deviation adjusted for ties is 20.4939

The Z Score adjusted for ties is -0.707528

-0.707528 < 2.326 indicating no statistical significance at 1% level

-0.707528 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Hardness

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	68700	6
	4/2/2020	77100	9
	9/30/2020	72900	8
	3/22/2021	65200	4
	9/8/2021	62100	2
	3/14/2022	62200	3
	9/12/2022	70000	7
	3/13/2023	65400	5
GWM-15D	3/21/2016	115000	16
	9/23/2016	114000	15
	3/28/2017	93000	11
	9/21/2017	92200	10
	3/16/2018	57900	1
	9/19/2018	98000	12
	3/5/2019	116000	17
	10/3/2019	110000	13
	3/25/2020	112000	14
	9/28/2020	122000	19
	3/19/2021	125000	20
	9/15/2021	117000	18
	3/22/2022	126000	21
	9/14/2022	136000	23
	3/16/2023	127000	22

---

The Wilcoxon Statistic is 112

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is 3.32431

The Standard Deviation adjusted for ties is 15.4919

The Z Score adjusted for ties is 3.32431

**3.32431 > 2.326 indicating statistical significance at 1% level**

**3.32431 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Hardness

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	68700	5
	4/2/2020	77100	8
	9/30/2020	72900	7
	3/22/2021	65200	3
	9/8/2021	62100	1
	3/14/2022	62200	2
	9/12/2022	70000	6
	3/13/2023	65400	4
GWM-17D	11/14/2019	201000	13
	3/26/2020	196000	12
	9/29/2020	201000	14
	3/16/2021	184000	9
	9/14/2021	190000	10
	3/18/2022	190000	11
	9/13/2022	208000	15
	3/14/2023	227000	16

---

The Wilcoxon Statistic is 64

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 3.30816

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is 3.30816

**3.30816 > 2.326 indicating statistical significance at 1% level**

**3.30816 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Hardness

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	68700	13
	4/2/2020	77100	16
	9/30/2020	72900	15
	3/22/2021	65200	11
	9/8/2021	62100	9
	3/14/2022	62200	10
	9/12/2022	70000	14
	3/13/2023	65400	12
GWM-19D	11/14/2019	46400	8
	3/25/2020	41400	6
	9/29/2020	39300	4
	3/22/2021	36500	1
	9/15/2021	36800	2
	3/24/2022	37700	3
	9/15/2022	39500	5
	3/16/2023	43000	7

---

The Wilcoxon Statistic is 0

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -3.41318

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is -3.41318

-3.41318 < 2.326 indicating no statistical significance at 1% level

-3.41318 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Nitrate-N

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	3200	12
	4/2/2020	3100	10
	9/30/2020	3200	13
	3/22/2021	3400	15
	9/8/2021	3400	16
	3/14/2022	2800	3
	9/12/2022	2800	4
	3/13/2023	2900	8
SMW-32	9/23/2013	4220	29
	12/5/2013	3410	18
	3/19/2014	3800	27
	9/8/2014	3600	23
	3/18/2015	3600	24
	9/8/2015	3600	25
	3/14/2016	3100	11
	9/20/2016	3700	26
	3/24/2017	3500	19
	9/20/2017	3500	20
	3/27/2018	3500	21
	9/18/2018	3300	14
	3/11/2019	3400	17
	10/3/2019	3000	9
	3/23/2020	2300	1
	9/24/2020	2800	5
	3/23/2021	3900	28
	9/16/2021	3500	22
	3/24/2022	2800	6
	9/16/2022	2800	7
3/17/2023	2700	2	

---

The Wilcoxon Statistic is 123

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is 1.87861

The Standard Deviation adjusted for ties is 20.4939

The Z Score adjusted for ties is 1.87861

1.87861 < 2.326 indicating no statistical significance at 1% level

1.87861 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Nitrate-N

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 1

Non detect rank is 1

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	3200	9
	4/2/2020	3100	7
	9/30/2020	3200	10
	3/22/2021	3400	14
	9/8/2021	3400	15
	3/14/2022	2800	3
	9/12/2022	2800	4
	3/13/2023	2900	5
SMW-13	9/23/2013	3710	26
	3/21/2014	3800	27
	9/8/2014	3700	20
	3/18/2015	3700	21
	9/8/2015	3700	22
	3/14/2016	3100	8
	9/26/2016	3500	18
	3/30/2017	3700	23
	9/20/2017	3700	24
	3/30/2018	3700	25
	9/21/2018	3300	12
	3/11/2019	3400	16
	10/3/2019	3300	13
	3/23/2020	2500	2
	9/25/2020	3400	17
	3/23/2021	4300	28
	9/16/2021	3600	19
	3/23/2022	ND<1000	1
	9/16/2022	3200	11
	3/17/2023	3000	6

---

The Wilcoxon Statistic is 129

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is 2.46646

The Standard Deviation adjusted for ties is 19.6638

The Z Score adjusted for ties is 2.46646

**2.46646 > 2.326 indicating statistical significance at 1% level**

**2.46646 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Nitrate-N

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 7

Non detect rank is 4

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	3200	20
	4/2/2020	3100	19
	9/30/2020	3200	21
	3/22/2021	3400	22
	9/8/2021	3400	23
	3/14/2022	2800	16
	9/12/2022	2800	17
	3/13/2023	2900	18
GWM-15D	3/21/2016	180 J	15
	9/23/2016	100 J	10
	3/28/2017	80 J	8
	9/21/2017	ND<200 U	4
	3/16/2018	ND<200 U	4
	9/19/2018	80 J	9
	3/5/2019	ND<200 U	4
	10/3/2019	100 J	11
	3/25/2020	ND<200 U	4
	9/28/2020	120 J	14
	3/19/2021	100 J	12
	9/15/2021	100 J	13
	3/22/2022	ND<1000	4
	9/14/2022	ND<1000	4
	3/16/2023	ND<1000	4

---

The Wilcoxon Statistic is 0

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is -3.90526

The Standard Deviation adjusted for ties is 15.2761

The Z Score adjusted for ties is -3.96043

-3.90526 < 2.326 indicating no statistical significance at 1% level

-3.96043 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Nitrate-N

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 6

Non detect rank is 3.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	3200	13
	4/2/2020	3100	12
	9/30/2020	3200	14
	3/22/2021	3400	15
	9/8/2021	3400	16
	3/14/2022	2800	9
	9/12/2022	2800	10
	3/13/2023	2900	11
GWM-17D	11/14/2019	120 J	8
	3/26/2020	ND<200 U	3.5
	9/29/2020	60 J	7
	3/16/2021	ND<200 U	3.5
	9/14/2021	ND<200 U	3.5
	3/18/2022	ND<1000	3.5
	9/13/2022	ND<1000	3.5
	3/14/2023	ND<1000	3.5

---

The Wilcoxon Statistic is 0

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -3.41318

The Standard Deviation adjusted for ties is 9.27362

The Z Score adjusted for ties is -3.50457

-3.41318 < 2.326 indicating no statistical significance at 1% level

-3.50457 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Nitrate-N

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	3200	13
	4/2/2020	3100	12
	9/30/2020	3200	14
	3/22/2021	3400	15
	9/8/2021	3400	16
	3/14/2022	2800	9
	9/12/2022	2800	10
	3/13/2023	2900	11
GWM-19D	11/14/2019	1600	6
	3/25/2020	1200	1
	9/29/2020	1500	4
	3/22/2021	1900	8
	9/15/2021	1700	7
	3/24/2022	1400	3
	9/15/2022	1500	5
	3/16/2023	1300	2

---

The Wilcoxon Statistic is 0

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -3.41318

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is -3.41318

-3.41318 < 2.326 indicating no statistical significance at 1% level

-3.41318 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: pH

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	5.17	13
	4/2/2020	6.14	26
	9/30/2020	5.61	19
	3/22/2021	5.85	22
	9/8/2021	5.95	23
	3/14/2022	5.4	18
	9/12/2022	5.16	12
	3/13/2023	5.15	10
SMW-13	9/23/2013	4.17	1
	3/21/2014	4.83	3
	9/8/2014	5.96	24
	3/18/2015	5.22	15
	9/8/2015	6.02	25
	3/14/2016	6.5	28
	9/26/2016	5.21	14
	3/30/2017	6.27	27
	9/20/2017	5.12	8
	3/30/2018	5.25	16
	9/21/2018	4.91	4
	3/11/2019	5.71	21
	10/3/2019	5.13	9
	3/23/2020	5.01	7
	9/25/2020	5.15	11
	3/23/2021	4.94	5
	9/16/2021	5.35	17
	3/23/2022	5.62	20
9/16/2022	4.94	6	
3/17/2023	4.74	2	

---

The Wilcoxon Statistic is 53

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is -1.39851

The Standard Deviation adjusted for ties is 19.6638

The Z Score adjusted for ties is -1.39851

-1.39851 < 2.326 indicating no statistical significance at 1% level

-1.39851 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: pH

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	5.17	11
	4/2/2020	6.14	28
	9/30/2020	5.61	21
	3/22/2021	5.85	25
	9/8/2021	5.95	26
	3/14/2022	5.4	14
	9/12/2022	5.16	9
	3/13/2023	5.15	8
SMW-32	9/23/2013	3.72	1
	12/5/2013	5.16	10
	3/19/2014	5.55	18
	9/8/2014	5.6	20
	3/18/2015	4.7	4
	9/8/2015	5.74	23
	3/14/2016	6.28	29
	9/20/2016	5.84	24
	3/24/2017	6.11	27
	9/20/2017	5.4	15
	3/27/2018	5.58	19
	9/18/2018	5.29	12
	3/11/2019	5.52	17
	10/3/2019	5.14	7
	3/23/2020	5.29	13
	9/24/2020	5.05	6
	3/23/2021	5.43	16
	9/16/2021	5.62	22
	3/24/2022	4.31	2
	9/16/2022	4.77	5
3/17/2023	4.54	3	

---

The Wilcoxon Statistic is 62

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is -1.09789

The Standard Deviation adjusted for ties is 20.4939

The Z Score adjusted for ties is -1.09789

-1.09789 < 2.326 indicating no statistical significance at 1% level

-1.09789 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: pH

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	5.17	15
	4/2/2020	6.14	23
	9/30/2020	5.61	20
	3/22/2021	5.85	21
	9/8/2021	5.95	22
	3/14/2022	5.4	19
	9/12/2022	5.16	14
	3/13/2023	5.15	13
GWM-15D	3/21/2016	4.99	6
	9/23/2016	5.05	9
	3/28/2017	4.87	2
	9/21/2017	4.8	1
	3/16/2018	5.27	17
	9/19/2018	5.06	11
	3/5/2019	5.29	18
	10/3/2019	4.94	4
	3/25/2020	4.87	3
	9/28/2020	5.11	12
	3/19/2021	4.94	5
	9/15/2021	5.05	10
	3/22/2022	5.03	8
	9/14/2022	5	7
	3/16/2023	5.2	16

---

The Wilcoxon Statistic is 9

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is -3.32431

The Standard Deviation adjusted for ties is 15.4919

The Z Score adjusted for ties is -3.32431

-3.32431 < 2.326 indicating no statistical significance at 1% level

-3.32431 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: pH

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	5.17	3
	4/2/2020	6.14	16
	9/30/2020	5.61	6
	3/22/2021	5.85	9
	9/8/2021	5.95	14
	3/14/2022	5.4	4
	9/12/2022	5.16	2
	3/13/2023	5.15	1
GWM-17D	11/14/2019	6	15
	3/26/2020	5.87	12
	9/29/2020	5.86	11
	3/16/2021	5.71	8
	9/14/2021	5.65	7
	3/18/2022	5.87	13
	9/13/2022	5.47	5
	3/14/2023	5.85	10

---

The Wilcoxon Statistic is 45

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 1.31276

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is 1.31276

1.31276 < 2.326 indicating no statistical significance at 1% level

1.31276 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: pH

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	5.17	9
	4/2/2020	6.14	16
	9/30/2020	5.61	12
	3/22/2021	5.85	14
	9/8/2021	5.95	15
	3/14/2022	5.4	10
	9/12/2022	5.16	8
	3/13/2023	5.15	7
GWM-19D	11/14/2019	5.66	13
	3/25/2020	5.52	11
	9/29/2020	4.66	2
	3/22/2021	5.02	6
	9/15/2021	4.89	4
	3/24/2022	4.42	1
	9/15/2022	4.91	5
	3/16/2023	4.84	3

---

The Wilcoxon Statistic is 9

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -2.46799

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is -2.46799

-2.46799 < 2.326 indicating no statistical significance at 1% level

-2.46799 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Specific Conductance

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	278	17
	4/2/2020	239	8
	9/30/2020	256	11
	3/22/2021	276	15
	9/8/2021	254	10
	3/14/2022	145.1	1
	9/12/2022	289	21
	3/13/2023	329.77	25
SMW-13	9/23/2013	260	13
	3/21/2014	203	2
	9/8/2014	208	4
	3/18/2015	204	3
	9/8/2015	214	5
	3/14/2016	221	6
	9/26/2016	238	7
	3/30/2017	251	9
	9/20/2017	259	12
	3/30/2018	269	14
	9/21/2018	278	18
	3/11/2019	280	19
	10/3/2019	276	16
	3/23/2020	285	20
	9/25/2020	289	22
	3/23/2021	305	23
	9/16/2021	312	24
	3/23/2022	335	26
9/16/2022	367	27	
3/17/2023	404.12	28	

---

The Wilcoxon Statistic is 88

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is 0.381411

The Standard Deviation adjusted for ties is 19.6638

The Z Score adjusted for ties is 0.381411

0.381411 < 2.326 indicating no statistical significance at 1% level

0.381411 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Specific Conductance

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	278	14
	4/2/2020	239	5
	9/30/2020	256	10
	3/22/2021	276	12
	9/8/2021	254	9
	3/14/2022	145.1	1
	9/12/2022	289	17
	3/13/2023	329.77	25
SMW-32	9/23/2013	295	20
	12/5/2013	212	3
	3/19/2014	210	2
	9/8/2014	250	6
	3/18/2015	221	4
	9/8/2015	278	15
	3/14/2016	253	8
	9/20/2016	276	13
	3/24/2017	266	11
	9/20/2017	290	18
	3/27/2018	251	7
	9/18/2018	293	19
	3/11/2019	279	16
	10/3/2019	302	22
	3/23/2020	380	28
	9/24/2020	298	21
	3/23/2021	327	24
	9/16/2021	344	26
3/24/2022	315	23	
9/16/2022	363	27	
3/17/2023	394.71	29	

---

The Wilcoxon Statistic is 111

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is 1.29307

The Standard Deviation adjusted for ties is 20.4939

The Z Score adjusted for ties is 1.29307

1.29307 < 2.326 indicating no statistical significance at 1% level

1.29307 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Specific Conductance

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	278	7
	4/2/2020	239	2
	9/30/2020	256	4
	3/22/2021	276	6
	9/8/2021	254	3
	3/14/2022	145.1	1
	9/12/2022	289	11
	3/13/2023	329.77	20
GWM-15D	3/21/2016	315	18
	9/23/2016	308	17
	3/28/2017	295	13
	9/21/2017	283	9
	3/16/2018	280	8
	9/19/2018	283	10
	3/5/2019	272	5
	10/3/2019	302	14
	3/25/2020	292	12
	9/28/2020	303	16
	3/19/2021	329	19
	9/15/2021	378	23
	3/22/2022	355	22
	9/14/2022	331	21
	3/16/2023	302.52	15

---

The Wilcoxon Statistic is 102

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is 2.67881

The Standard Deviation adjusted for ties is 15.4919

The Z Score adjusted for ties is 2.67881

**2.67881 > 2.326 indicating statistical significance at 1% level**

**2.67881 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Specific Conductance

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	278	6
	4/2/2020	239	2
	9/30/2020	256	4
	3/22/2021	276	5
	9/8/2021	254	3
	3/14/2022	145.1	1
	9/12/2022	289	7
	3/13/2023	329.77	8
GWM-17D	11/14/2019	373	9
	3/26/2020	401	10
	9/29/2020	429	11
	3/16/2021	448	12
	9/14/2021	491	14
	3/18/2022	487	13
	9/13/2022	534	15
	3/14/2023	651.76	16

---

The Wilcoxon Statistic is 64

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 3.30816

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is 3.30816

**3.30816 > 2.326 indicating statistical significance at 1% level**

**3.30816 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Specific Conductance

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	278	14
	4/2/2020	239	10
	9/30/2020	256	12
	3/22/2021	276	13
	9/8/2021	254	11
	3/14/2022	145.1	3
	9/12/2022	289	15
	3/13/2023	329.77	16
GWM-19D	11/14/2019	173.3	8
	3/25/2020	166.8	7
	9/29/2020	143.1	2
	3/22/2021	150.5	4
	9/15/2021	164.5	6
	3/24/2022	154.5	5
	9/15/2022	141.8	1
	3/16/2023	193	9

---

The Wilcoxon Statistic is 6

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -2.78306

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is -2.78306

-2.78306 < 2.326 indicating no statistical significance at 1% level

-2.78306 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Sulfate

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 9

Non detect rank is 5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	20400	27
	4/2/2020	14900	21
	9/30/2020	15800	23
	3/22/2021	20400	28
	9/8/2021	20300	26
	3/14/2022	15200	22
	9/12/2022	15800	24
	3/13/2023	16000	25
SMW-13	9/23/2013	ND<2000	5
	3/21/2014	280 J	10
	9/8/2014	450 J	16
	3/18/2015	280 J	11
	9/8/2015	420 J	14
	3/14/2016	440 J	15
	9/26/2016	300 J	12
	3/30/2017	400 J	13
	9/20/2017	ND<2000 U	5
	3/30/2018	ND<2000 U	5
	9/21/2018	ND<2000 U	5
	3/11/2019	640 J	18
	10/3/2019	ND<2000 U	5
	3/23/2020	ND<2000 U	5
	9/25/2020	ND<2000 U	5
	3/23/2021	980 J	19
	9/16/2021	560 J	17
	3/23/2022	10600	20
	9/16/2022	ND<2000	5
	3/17/2023	ND<2000	5

---

The Wilcoxon Statistic is 0

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is -4.09381

The Standard Deviation adjusted for ties is 19.3383

The Z Score adjusted for ties is -4.16273

-4.09381 < 2.326 indicating no statistical significance at 1% level

-4.16273 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Sulfate

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 1

Non detect rank is 1

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	20400	28
	4/2/2020	14900	22
	9/30/2020	15800	24
	3/22/2021	20400	29
	9/8/2021	20300	27
	3/14/2022	15200	23
	9/12/2022	15800	25
	3/13/2023	16000	26
SMW-32	9/23/2013	1480	9
	12/5/2013	1640	11
	3/19/2014	700 J	3
	9/8/2014	12000 J	21
	3/18/2015	780 J	4
	9/8/2015	4100	20
	3/14/2016	2200	14
	9/20/2016	520 J	2
	3/24/2017	1200 J	6
	9/20/2017	1500 J	10
	3/27/2018	1400 J	8
	9/18/2018	2300	15
	3/11/2019	2500	16
	10/3/2019	1300 J	7
	3/23/2020	1100 J	5
	9/24/2020	1700 J	12
	3/23/2021	3500	19
	9/16/2021	2500	17
	3/24/2022	ND<2000	1
	9/16/2022	3000	18
3/17/2023	1900 J	13	

---

The Wilcoxon Statistic is 0

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is -4.12318

The Standard Deviation adjusted for ties is 20.4939

The Z Score adjusted for ties is -4.12318

-4.12318 < 2.326 indicating no statistical significance at 1% level

-4.12318 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Sulfate

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	20400	7
	4/2/2020	14900	1
	9/30/2020	15800	3
	3/22/2021	20400	8
	9/8/2021	20300	6
	3/14/2022	15200	2
	9/12/2022	15800	4
	3/13/2023	16000	5
GWM-15D	3/21/2016	61900	20
	9/23/2016	63000	22
	3/28/2017	60300	16
	9/21/2017	55000	11
	3/16/2018	54100	10
	9/19/2018	53300	9
	3/5/2019	55200	12
	10/3/2019	58000	14
	3/25/2020	56400	13
	9/28/2020	60900	17
	3/19/2021	64000	23
	9/15/2021	61800	19
	3/22/2022	61900	21
	9/14/2022	58900	15
	3/16/2023	61700	18

---

The Wilcoxon Statistic is 120

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is 3.84071

The Standard Deviation adjusted for ties is 15.4919

The Z Score adjusted for ties is 3.84071

**3.84071 > 2.326 indicating statistical significance at 1% level**

**3.84071 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Sulfate

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	20400	13
	4/2/2020	14900	1
	9/30/2020	15800	3
	3/22/2021	20400	14
	9/8/2021	20300	12
	3/14/2022	15200	2
	9/12/2022	15800	4
	3/13/2023	16000	5
GWM-17D	11/14/2019	17500	8
	3/26/2020	16700	6
	9/29/2020	21800	16
	3/16/2021	20100	11
	9/14/2021	21300	15
	3/18/2022	19100	10
	9/13/2022	17300	7
	3/14/2023	18900	9

---

The Wilcoxon Statistic is 46

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 1.41778

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is 1.41778

1.41778 < 2.326 indicating no statistical significance at 1% level

1.41778 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Sulfate

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	20400	15
	4/2/2020	14900	9
	9/30/2020	15800	11
	3/22/2021	20400	16
	9/8/2021	20300	14
	3/14/2022	15200	10
	9/12/2022	15800	12
	3/13/2023	16000	13
GWM-19D	11/14/2019	3600	2
	3/25/2020	3100	1
	9/29/2020	7000	5
	3/22/2021	6200	3
	9/15/2021	6600	4
	3/24/2022	7300	6
	9/15/2022	7600	7
	3/16/2023	10100	8

---

The Wilcoxon Statistic is 0

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -3.41318

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is -3.41318

-3.41318 < 2.326 indicating no statistical significance at 1% level

-3.41318 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Total Dissolved Solids

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	184000	15
	4/2/2020	322000	28
	9/30/2020	172000	12
	3/22/2021	204000	19
	9/8/2021	226000	22
	3/14/2022	158000	9
	9/12/2022	194000	18
	3/13/2023	176000	14
SMW-13	9/23/2013	131000	3
	3/21/2014	127000	2
	9/8/2014	144000	4
	3/18/2015	175000	13
	9/8/2015	185000	16
	3/14/2016	124000	1
	9/26/2016	191000	17
	3/30/2017	153000	6
	9/20/2017	148000	5
	3/30/2018	164000	10
	9/21/2018	155000	7
	3/11/2019	211000	20
	10/3/2019	166000	11
	3/23/2020	222000	21
	9/25/2020	234000	23
	3/23/2021	250000	25
	9/16/2021	266000	27
	3/23/2022	156000	8
	9/16/2022	246000	24
	3/17/2023	262000	26

---

The Wilcoxon Statistic is 59

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is -1.09338

The Standard Deviation adjusted for ties is 19.6638

The Z Score adjusted for ties is -1.09338

-1.09338 < 2.326 indicating no statistical significance at 1% level

-1.09338 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Total Dissolved Solids

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	184000	11
	4/2/2020	322000	28
	9/30/2020	172000	7
	3/22/2021	204000	17
	9/8/2021	226000	23
	3/14/2022	158000	4
	9/12/2022	194000	15
	3/13/2023	176000	8
SMW-32	9/23/2013	138000	3
	3/19/2014	127000	2
	9/8/2014	224000	22
	3/18/2015	202000	16
	9/8/2015	231000	24
	3/14/2016	165000	5
	9/20/2016	192000	14
	3/24/2017	206000	18
	9/20/2017	100000	1
	3/27/2018	180000	9
	9/18/2018	190000	13
	3/11/2019	180000	10
	10/3/2019	186000	12
	3/23/2020	218000	21
	9/24/2020	210000	19
	3/23/2021	306000	27
	9/16/2021	302000	26
	3/24/2022	166000	6
9/16/2022	210000	20	
3/17/2023	270000	25	

---

The Wilcoxon Statistic is 83

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is 0.127137

The Standard Deviation adjusted for ties is 19.6638

The Z Score adjusted for ties is 0.127137

0.127137 < 2.326 indicating no statistical significance at 1% level

0.127137 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Total Dissolved Solids

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	184000	5
	4/2/2020	322000	23
	9/30/2020	172000	2
	3/22/2021	204000	10
	9/8/2021	226000	14
	3/14/2022	158000	1
	9/12/2022	194000	7
	3/13/2023	176000	3
GWM-15D	3/21/2016	196000	8
	9/23/2016	260000	18
	3/28/2017	208000	11
	9/21/2017	191000	6
	3/16/2018	199000	9
	9/19/2018	213000	12
	3/5/2019	268000	20
	10/3/2019	260000	19
	3/25/2020	222000	13
	9/28/2020	280000	21
	3/19/2021	252000	15
	9/15/2021	256000	16
	3/22/2022	258000	17
	9/14/2022	182000	4
	3/16/2023	288000	22

---

The Wilcoxon Statistic is 91

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is 1.96877

The Standard Deviation adjusted for ties is 15.4919

The Z Score adjusted for ties is 1.96877

1.96877 < 2.326 indicating no statistical significance at 1% level

1.96877 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Total Dissolved Solids

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	184000	4
	4/2/2020	322000	11
	9/30/2020	172000	2
	3/22/2021	204000	6
	9/8/2021	226000	7
	3/14/2022	158000	1
	9/12/2022	194000	5
	3/13/2023	176000	3
GWM-17D	11/14/2019	506000	16
	3/26/2020	268000	8
	9/29/2020	354000	14
	3/16/2021	352000	13
	9/14/2021	410000	15
	3/18/2022	320000	10
	9/13/2022	312000	9
	3/14/2023	344000	12

---

The Wilcoxon Statistic is 61

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 2.9931

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is 2.9931

**2.9931 > 2.326 indicating statistical significance at 1% level**

**2.9931 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Total Dissolved Solids

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	184000	11
	4/2/2020	322000	16
	9/30/2020	172000	9
	3/22/2021	204000	13
	9/8/2021	226000	14
	3/14/2022	158000	8
	9/12/2022	194000	12
	3/13/2023	176000	10
GWM-19D	11/14/2019	270000	15
	3/25/2020	104000	3
	9/29/2020	120000	5
	3/22/2021	109000	4
	9/15/2021	128000	6
	3/24/2022	80000	1
	9/15/2022	94000	2
	3/16/2023	142000	7

---

The Wilcoxon Statistic is 7

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -2.67804

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is -2.67804

-2.67804 < 2.326 indicating no statistical significance at 1% level

-2.67804 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Turbidity

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 1

Non detect rank is 1

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	4.94	25
	4/2/2020	3.01	23
	9/30/2020	0.44	12
	3/22/2021	0.45	13
	9/8/2021	0.54	15
	3/14/2022	0.41	11
	9/12/2022	7.74	26
	3/13/2023	16.23	27
SMW-13	9/23/2013	17	28
	3/21/2014	ND<0.01	1
	9/8/2014	3.25	24
	3/18/2015	0.03	2
	9/8/2015	0.96	17
	3/14/2016	0.31	9
	9/26/2016	1.59	19
	3/30/2017	0.24	6
	9/20/2017	0.16	3
	3/30/2018	1.84	21
	9/21/2018	0.23	5
	3/11/2019	0.2	4
	10/3/2019	0.45	14
	3/23/2020	0.28	8
	9/25/2020	0.4	10
	3/23/2021	0.26	7
	9/16/2021	2.06	22
	3/23/2022	1.7	20
9/16/2022	1.11	18	
3/17/2023	0.6	16	

---

The Wilcoxon Statistic is 44

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is -1.8562

The Standard Deviation adjusted for ties is 19.6638

The Z Score adjusted for ties is -1.8562

-1.8562 < 2.326 indicating no statistical significance at 1% level

-1.8562 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Turbidity

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	4.94	27
	4/2/2020	3.01	25
	9/30/2020	0.44	4
	3/22/2021	0.45	5
	9/8/2021	0.54	7
	3/14/2022	0.41	2
	9/12/2022	7.74	28
	3/13/2023	16.23	29
SMW-32	9/23/2013	0.43	3
	12/5/2013	0.88	9
	3/19/2014	0.5	6
	9/8/2014	1.9	19
	3/18/2015	1.28	14
	9/8/2015	0.81	8
	3/14/2016	2.35	23
	9/20/2016	1.63	17
	3/24/2017	0.39	1
	9/20/2017	1.44	16
	3/27/2018	2.36	24
	9/18/2018	2.21	21
	3/11/2019	1.13	12
	10/3/2019	0.94	10
	3/23/2020	1.35	15
	9/24/2020	1.88	18
	3/23/2021	2.2	20
	9/16/2021	2.32	22
	3/24/2022	0.94	11
	9/16/2022	1.2	13
3/17/2023	4.54	26	

---

The Wilcoxon Statistic is 77

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is -0.365963

The Standard Deviation adjusted for ties is 20.4939

The Z Score adjusted for ties is -0.365963

-0.365963 < 2.326 indicating no statistical significance at 1% level

-0.365963 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Turbidity

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	4.94	19
	4/2/2020	3.01	15
	9/30/2020	0.44	2
	3/22/2021	0.45	3
	9/8/2021	0.54	4
	3/14/2022	0.41	1
	9/12/2022	7.74	20
	3/13/2023	16.23	23
GWM-15D	3/21/2016	14.3	21
	9/23/2016	1.6	7
	3/28/2017	0.77	5
	9/21/2017	1.79	10
	3/16/2018	1.68	9
	9/19/2018	3	14
	3/5/2019	3.44	18
	10/3/2019	1.26	6
	3/25/2020	3.35	17
	9/28/2020	2.33	11
	3/19/2021	2.85	13
	9/15/2021	3.13	16
	3/22/2022	1.6	8
	9/14/2022	2.54	12
	3/16/2023	15.85	22

---

The Wilcoxon Statistic is 69

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is 0.548673

The Standard Deviation adjusted for ties is 15.4919

The Z Score adjusted for ties is 0.548673

0.548673 < 2.326 indicating no statistical significance at 1% level

0.548673 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Turbidity

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	4.94	8
	4/2/2020	3.01	5
	9/30/2020	0.44	2
	3/22/2021	0.45	3
	9/8/2021	0.54	4
	3/14/2022	0.41	1
	9/12/2022	7.74	12
	3/13/2023	16.23	15
GWM-17D	11/14/2019	10.36	13
	3/26/2020	5.37	9
	9/29/2020	5.44	10
	3/16/2021	3.15	6
	9/14/2021	5.68	11
	3/18/2022	13.48	14
	9/13/2022	21.85	16
	3/14/2023	3.48	7

---

The Wilcoxon Statistic is 50

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 1.83787

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is 1.83787

1.83787 < 2.326 indicating no statistical significance at 1% level

1.83787 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Turbidity

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	4.94	13
	4/2/2020	3.01	12
	9/30/2020	0.44	5
	3/22/2021	0.45	6
	9/8/2021	0.54	8
	3/14/2022	0.41	2
	9/12/2022	7.74	14
	3/13/2023	16.23	16
GWM-19D	11/14/2019	2.97	11
	3/25/2020	0.65	9
	9/29/2020	0.28	1
	3/22/2021	0.43	4
	9/15/2021	0.46	7
	3/24/2022	0.7	10
	9/15/2022	9.98	15
	3/16/2023	0.41	3

---

The Wilcoxon Statistic is 24

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -0.892679

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is -0.892679

-0.892679 < 2.326 indicating no statistical significance at 1% level

-0.892679 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## 8) Patuxent Aquifer Water Quality Parameters Intra-well Statistics

APPENDIX F

## Shapiro-Francia Test of Normality

Parameter: Alkalinity, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 80

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.25713	5.09463	0
2	0	-1.97737	9.00462	0
3	0	-1.78661	12.1966	0
4	0	-1.65463	14.9344	0
5	0	-1.54643	17.3258	0
6	0	-1.44663	19.4186	0
7	0	-1.36581	21.284	0
8	0	-1.29303	22.9559	0
9	0	-1.22123	24.4473	0
10	2000	-1.16012	25.7932	-2320.24
11	3000	-1.10306	27.01	-5629.43
12	3000	-1.04505	28.1021	-8764.58
13	3000	-0.994457	29.091	-11747.9
14	3000	-0.946291	29.9865	-14586.8
15	3000	-0.896473	30.7902	-17276.2
16	3000	-0.852385	31.5167	-19833.4
17	3000	-0.809896	32.1727	-22263.1
18	4000	-0.765456	32.7586	-25324.9
19	4000	-0.725736	33.2853	-28227.9
20	4000	-0.687131	33.7574	-30976.4
21	4000	-0.646431	34.1753	-33562.1
22	4000	-0.609791	34.5472	-36001.3
23	5000	-0.573953	34.8766	-38871
24	5000	-0.53594	35.1638	-41550.7
25	5000	-0.501527	35.4153	-44058.4
26	5000	-0.467699	35.6341	-46396.9
27	5000	-0.431644	35.8204	-48555.1
28	5000	-0.398855	35.9795	-50549.4
29	5000	-0.363809	36.1118	-52368.4
30	6000	-0.331854	36.222	-54359.5
31	6000	-0.300232	36.3121	-56160.9
32	6000	-0.266311	36.383	-57758.8
33	6000	-0.235269	36.4384	-59170.4
34	7000	-0.204452	36.4802	-60601.6
35	7000	-0.171285	36.5095	-61800.6
36	7000	-0.140835	36.5293	-62786.4
37	7790	-0.110516	36.5416	-63647.3
38	8000	-0.0777834	36.5476	-64269.6
39	10000	-0.0476439	36.5499	-64746
40	11000	-0.0175476	36.5502	-64939.1
41	13000	0.0175476	36.5505	-64710.9
42	13000	0.0476439	36.5528	-64091.6
43	13000	0.0777834	36.5588	-63080.4
44	14000	0.110516	36.571	-61533.2
45	14000	0.140835	36.5909	-59561.5
46	15000	0.171285	36.6202	-56992.2
47	15000	0.204452	36.662	-53925.4

48	16000	0.235269	36.7174	-50161.1
49	18000	0.266311	36.7883	-45367.5
50	20000	0.300232	36.8784	-39362.9
51	21000	0.331854	36.9885	-32393.9
52	23000	0.363809	37.1209	-24026.3
53	23000	0.398855	37.28	-14852.6
54	24000	0.431644	37.4663	-4493.17
55	26000	0.467699	37.685	7666.99
56	27000	0.501527	37.9366	21208.2
57	27000	0.53594	38.2238	35678.6
58	30000	0.573953	38.5532	52897.2
59	32000	0.609791	38.9251	72410.5
60	32000	0.646431	39.343	93096.3
61	35000	0.687131	39.8151	117146
62	36000	0.725736	40.3418	143272
63	37000	0.765456	40.9277	171594
64	39000	0.809896	41.5836	203180
65	39000	0.852385	42.3102	236423
66	42000	0.896473	43.1139	274075
67	42000	0.946291	44.0093	313819
68	42000	0.994457	44.9983	355587
69	46000	1.04505	46.0904	403659
70	50000	1.10306	47.3072	458812
71	72000	1.16012	48.653	542341
72	72000	1.22123	50.1444	630269
73	150000	1.29303	51.8164	824224
74	154000	1.36581	53.6818	1.03456e+006
75	155000	1.44663	55.7745	1.25879e+006
76	157000	1.54643	58.166	1.50158e+006
77	169000	1.65463	60.9038	1.78121e+006
78	175000	1.78661	64.0958	2.09386e+006
79	191000	1.97737	68.0058	2.47154e+006
80	214000	2.25713	73.1004	2.95457e+006

Data Set Standard Deviation = 49851.8  
 Numerator = 8.72947e+012  
 Denominator = 1.43518e+013  
 W Statistic = 0.608247 = 8.72947e+012 / 1.43518e+013

**5% Critical value of 0.97 exceeds 0.608247**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.958 exceeds 0.608247**  
**Evidence of non-normality at 99% level of significance**



## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Alkalinity, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 21.0526%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 7000

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	3/21/2014	3000 J
	9/8/2014	3000 J
	3/18/2015	4000 J
	9/8/2015	6000
	3/14/2016	3000 J
	9/26/2016	5000 J
	3/30/2017	4000 J
	9/20/2017	3000 J
	3/30/2018	7000
	9/21/2018	5000 J
	3/11/2019	7000
	10/3/2019	6000
	3/23/2020	2000 J
	9/25/2020	5000 J
	3/23/2021	ND<0 U
	9/16/2021	5000
	3/23/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	5000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Alkalinity, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 25%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 50000

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	12/5/2013	7790
	3/19/2014	3000 J
	9/8/2014	3000 J
	3/18/2015	5000 J
	9/8/2015	5000
	3/14/2016	3000 J
	9/20/2016	6000
	3/24/2017	4000 J
	9/20/2017	4000 J
	3/27/2018	7000
	9/18/2018	8000
	3/11/2019	4000 J
	10/3/2019	6000
	3/23/2020	ND<0 U
	9/24/2020	15000
	3/23/2021	ND<0 U
	9/16/2021	50000
	3/24/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	10000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Alkalinity, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 72000

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	30000
	9/23/2016	23000
	3/28/2017	24000
	9/21/2017	23000
	3/16/2018	32000
	9/19/2018	39000
	3/5/2019	27000
	10/3/2019	39000
	3/25/2020	32000
	9/28/2020	27000
	3/19/2021	35000
	9/15/2021	37000
	3/22/2022	72000
	9/14/2022	42000

---

Date	Count	Mean	Significant
3/16/2023	1	42000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Alkalinity, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 214000

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	214000
	3/26/2020	191000
	9/29/2020	169000
	3/16/2021	175000
	9/14/2021	155000
	3/18/2022	154000
	9/13/2022	157000

---

Date	Count	Mean	Significant
3/14/2023	1	150000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Alkalinity, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 72000

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	72000
	3/25/2020	36000
	9/29/2020	20000
	3/22/2021	16000
	9/15/2021	18000
	3/24/2022	13000
	9/15/2022	13000

---

Date	Count	Mean	Significant
3/16/2023	1	11000	FALSE

## Shapiro-Francia Test of Normality

Parameter: Ammonia-N

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 80

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.25713	5.09463	0
2	0	-1.97737	9.00462	0
3	0	-1.78661	12.1966	0
4	0	-1.65463	14.9344	0
5	0	-1.54643	17.3258	0
6	0	-1.44663	19.4186	0
7	0	-1.36581	21.284	0
8	0	-1.29303	22.9559	0
9	0	-1.22123	24.4473	0
10	0	-1.16012	25.7932	0
11	0	-1.10306	27.01	0
12	0	-1.04505	28.1021	0
13	0	-0.994457	29.091	0
14	0	-0.946291	29.9865	0
15	0	-0.896473	30.7902	0
16	0	-0.852385	31.5167	0
17	0	-0.809896	32.1727	0
18	0	-0.765456	32.7586	0
19	0	-0.725736	33.2853	0
20	0	-0.687131	33.7574	0
21	0	-0.646431	34.1753	0
22	0	-0.609791	34.5472	0
23	0	-0.573953	34.8766	0
24	0	-0.53594	35.1638	0
25	0	-0.501527	35.4153	0
26	0	-0.467699	35.6341	0
27	0	-0.431644	35.8204	0
28	0	-0.398855	35.9795	0
29	0	-0.363809	36.1118	0
30	0	-0.331854	36.222	0
31	0	-0.300232	36.3121	0
32	0	-0.266311	36.383	0
33	0	-0.235269	36.4384	0
34	0	-0.204452	36.4802	0
35	0	-0.171285	36.5095	0
36	0	-0.140835	36.5293	0
37	0	-0.110516	36.5416	0
38	28	-0.0777834	36.5476	-2.17794
39	29	-0.0476439	36.5499	-3.55961
40	29	-0.0175476	36.5502	-4.06849
41	31	0.0175476	36.5505	-3.52451
42	31	0.0476439	36.5528	-2.04755
43	33	0.0777834	36.5588	0.5193
44	38	0.110516	36.571	4.71891
45	39	0.140835	36.5909	10.2115
46	41	0.171285	36.6202	17.2342
47	43	0.204452	36.662	26.0256

48	54	0.235269	36.7174	38.7302
49	59	0.266311	36.7883	54.4425
50	61	0.300232	36.8784	72.7567
51	62	0.331854	36.9885	93.3317
52	64	0.363809	37.1209	116.615
53	65	0.398855	37.28	142.541
54	70	0.431644	37.4663	172.756
55	85	0.467699	37.685	212.511
56	85	0.501527	37.9366	255.14
57	89	0.53594	38.2238	302.839
58	89	0.573953	38.5532	353.921
59	105	0.609791	38.9251	417.949
60	106	0.646431	39.343	486.471
61	106	0.687131	39.8151	559.306
62	107	0.725736	40.3418	636.96
63	125	0.765456	40.9277	732.642
64	128	0.809896	41.5836	836.309
65	128	0.852385	42.3102	945.414
66	130	0.896473	43.1139	1061.96
67	132	0.946291	44.0093	1186.87
68	135	0.994457	44.9983	1321.12
69	136	1.04505	46.0904	1463.24
70	154	1.10306	47.3072	1633.12
71	159	1.16012	48.653	1817.58
72	165	1.22123	50.1444	2019.08
73	186	1.29303	51.8164	2259.58
74	189	1.36581	53.6818	2517.72
75	197	1.44663	55.7745	2802.71
76	238	1.54643	58.166	3170.76
77	243	1.65463	60.9038	3572.83
78	253	1.78661	64.0958	4024.84
79	263	1.97737	68.0058	4544.89
80	287	2.25713	73.1004	5192.69

---

Data Set Standard Deviation = 76.5373  
 Numerator = 2.6964e+007  
 Denominator = 3.38293e+007  
 W Statistic = 0.79706 = 2.6964e+007 / 3.38293e+007

**5% Critical value of 0.97 exceeds 0.79706**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.958 exceeds 0.79706**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Ammonia-N

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 60%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 154

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	132
	9/8/2014	ND<0 U
	3/18/2015	ND<0 U
	9/8/2015	ND<0 U
	3/14/2016	ND<0 U
	9/20/2016	ND<0 U
	3/24/2017	ND<0 U
	9/20/2017	ND<0 U
	3/27/2018	43 J
	9/18/2018	31 J
	3/11/2019	54 J
	10/3/2019	154
	3/23/2020	39 J
	9/24/2020	ND<0 U
	3/23/2021	128
	9/16/2021	ND<0 U
	3/24/2022	61 J
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	89	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Ammonia-N

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 57.8947%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 238

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/18/2015	105
	9/8/2015	ND<0 U
	3/14/2016	ND<0 U
	9/26/2016	31 J
	3/30/2017	ND<0 U
	9/20/2017	ND<0 U
	3/30/2018	62 J
	9/21/2018	ND<0 U
	3/11/2019	ND<0 U
	10/3/2019	238
	3/23/2020	38 J
	9/25/2020	107
	3/23/2021	89 J
	9/16/2021	41 J
	3/23/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	85	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Ammonia-N

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 50%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 189

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	ND<0 U
	9/23/2016	33 J
	3/28/2017	ND<0 U
	9/21/2017	ND<0 U
	3/16/2018	ND<0 U
	9/19/2018	128
	3/5/2019	ND<0 U
	10/3/2019	189
	3/25/2020	29 J
	9/28/2020	29 J
	3/19/2021	ND<0 U
	9/15/2021	65 J
	3/22/2022	106
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	85	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Ammonia-N

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 14.2857%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 263

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	159
	3/26/2020	106
	9/29/2020	135
	3/16/2021	263
	9/14/2021	186
	3/18/2022	253
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	287	TRUE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Ammonia-N

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 28.5714%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 197

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	28 J
	3/25/2020	197
	9/29/2020	ND<0 U
	3/22/2021	165
	9/15/2021	59 J
	3/24/2022	64 J
	9/15/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Shapiro-Francia Test of Normality

Parameter: Chemical Oxygen Demand (COD)

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 80

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.25713	5.09463	0
2	0	-1.97737	9.00462	0
3	0	-1.78661	12.1966	0
4	0	-1.65463	14.9344	0
5	0	-1.54643	17.3258	0
6	0	-1.44663	19.4186	0
7	0	-1.36581	21.284	0
8	0	-1.29303	22.9559	0
9	0	-1.22123	24.4473	0
10	0	-1.16012	25.7932	0
11	0	-1.10306	27.01	0
12	0	-1.04505	28.1021	0
13	0	-0.994457	29.091	0
14	0	-0.946291	29.9865	0
15	0	-0.896473	30.7902	0
16	0	-0.852385	31.5167	0
17	0	-0.809896	32.1727	0
18	0	-0.765456	32.7586	0
19	0	-0.725736	33.2853	0
20	0	-0.687131	33.7574	0
21	0	-0.646431	34.1753	0
22	0	-0.609791	34.5472	0
23	0	-0.573953	34.8766	0
24	0	-0.53594	35.1638	0
25	0	-0.501527	35.4153	0
26	0	-0.467699	35.6341	0
27	0	-0.431644	35.8204	0
28	0	-0.398855	35.9795	0
29	0	-0.363809	36.1118	0
30	0	-0.331854	36.222	0
31	0	-0.300232	36.3121	0
32	0	-0.266311	36.383	0
33	0	-0.235269	36.4384	0
34	0	-0.204452	36.4802	0
35	0	-0.171285	36.5095	0
36	0	-0.140835	36.5293	0
37	0	-0.110516	36.5416	0
38	0	-0.0777834	36.5476	0
39	0	-0.0476439	36.5499	0
40	0	-0.0175476	36.5502	0
41	0	0.0175476	36.5505	0
42	0	0.0476439	36.5528	0
43	0	0.0777834	36.5588	0
44	0	0.110516	36.571	0
45	0	0.140835	36.5909	0
46	0	0.171285	36.6202	0
47	0	0.204452	36.662	0

48	0	0.235269	36.7174	0
49	0	0.266311	36.7883	0
50	4000	0.300232	36.8784	1200.93
51	5000	0.331854	36.9885	2860.2
52	5000	0.363809	37.1209	4679.25
53	5000	0.398855	37.28	6673.52
54	5000	0.431644	37.4663	8831.74
55	6000	0.467699	37.685	11637.9
56	6000	0.501527	37.9366	14647.1
57	6000	0.53594	38.2238	17862.7
58	6000	0.573953	38.5532	21306.5
59	7000	0.609791	38.9251	25575
60	7000	0.646431	39.343	30100
61	8000	0.687131	39.8151	35597.1
62	8000	0.725736	40.3418	41402.9
63	8000	0.765456	40.9277	47526.6
64	8000	0.809896	41.5836	54005.8
65	8000	0.852385	42.3102	60824.8
66	9000	0.896473	43.1139	68893.1
67	9000	0.946291	44.0093	77409.7
68	10000	0.994457	44.9983	87354.3
69	10000	1.04505	46.0904	97804.8
70	10000	1.10306	47.3072	108835
71	11000	1.16012	48.653	121597
72	11000	1.22123	50.1444	135030
73	12000	1.29303	51.8164	150547
74	12000	1.36581	53.6818	166936
75	12000	1.44663	55.7745	184296
76	12000	1.54643	58.166	202853
77	13000	1.65463	60.9038	224363
78	14000	1.78661	64.0958	249376
79	15000	1.97737	68.0058	279036
80	17000	2.25713	73.1004	317408

Data Set Standard Deviation = 4857.45  
 Numerator = 1.00748e+011  
 Denominator = 1.36258e+011  
 W Statistic = 0.739387 = 1.00748e+011 / 1.36258e+011

**5% Critical value of 0.97 exceeds 0.739387**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.958 exceeds 0.739387**  
**Evidence of non-normality at 99% level of significance**

**Non-Parametric Prediction Interval**  
**Intra-Well Comparison for SMW-32**  
**Parameter: Chemical Oxygen Demand (COD)**  
**Original Data (Not Transformed)**  
**Non-Detects Replaced with 0**

Total Percent Non-Detects = 70%  
 Future Samples (k) = 1  
 Recent Dates = 1  
 Baseline Measurements (n) = 20  
**Maximum Baseline Concentration = 10000**  
 Confidence Level = 95.2%  
 False Positive Rate = 4.8%

---

<b>Baseline Measurements</b>	<b>Date</b>	<b>Value</b>
	9/23/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	ND<0 U
	9/8/2014	10000
	3/18/2015	ND<0 U
	9/8/2015	ND<0 U
	3/14/2016	ND<0 U
	9/20/2016	10000
	3/24/2017	ND<0 U
	9/20/2017	5000 J
	3/27/2018	ND<0 U
	9/18/2018	ND<0 U
	3/11/2019	8000 J
	10/3/2019	ND<0 U
	3/23/2020	ND<0 U
	9/24/2020	ND<0 U
	3/23/2021	5000 J
	9/16/2021	5000 J
	3/24/2022	ND<0
	9/16/2022	ND<0

---

<b>Date</b>	<b>Count</b>	<b>Mean</b>	<b>Significant</b>
3/17/2023	1	8000	FALSE

**Non-Parametric Prediction Interval**  
**Intra-Well Comparison for SMW-13**  
**Parameter: Chemical Oxygen Demand (COD)**  
**Original Data (Not Transformed)**  
**Non-Detects Replaced with 0**

Total Percent Non-Detects = 68.4211%  
 Future Samples (k) = 1  
 Recent Dates = 1  
 Baseline Measurements (n) = 19  
**Maximum Baseline Concentration = 12000**  
 Confidence Level = 95%  
 False Positive Rate = 5%

---

<b>Baseline Measurements</b>	<b>Date</b>	<b>Value</b>
	9/23/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	12000
	3/18/2015	ND<0 U
	9/8/2015	ND<0 U
	3/14/2016	ND<0 U
	9/26/2016	ND<0 U
	3/30/2017	ND<0 U
	9/20/2017	4000 J
	3/30/2018	ND<0 U
	9/21/2018	ND<0 U
	3/11/2019	ND<0 U
	10/3/2019	7000 J
	3/23/2020	ND<0 U
	9/25/2020	8000 J
	3/23/2021	8000 J
	9/16/2021	ND<0 U
	3/23/2022	6000 J
	9/16/2022	ND<0

---

<b>Date</b>	<b>Count</b>	<b>Mean</b>	<b>Significant</b>
3/17/2023	1	0	FALSE



**Non-Parametric Prediction Interval**  
**Intra-Well Comparison for GWM-15D**  
**Parameter: Chemical Oxygen Demand (COD)**  
**Original Data (Not Transformed)**  
**Non-Detects Replaced with 0**

Total Percent Non-Detects = 42.8571%  
 Future Samples (k) = 1  
 Recent Dates = 1  
 Baseline Measurements (n) = 14  
**Maximum Baseline Concentration = 17000**  
 Confidence Level = 93.3%  
 False Positive Rate = 6.7%

---

<b>Baseline Measurements</b>	<b>Date</b>	<b>Value</b>
	3/21/2016	13000
	9/23/2016	ND<0 U
	3/28/2017	ND<0 U
	9/21/2017	11000
	3/16/2018	ND<0 U
	9/19/2018	ND<0 U
	3/5/2019	17000
	10/3/2019	11000 J
	3/25/2020	ND<0 U
	9/28/2020	12000 J
	3/19/2021	10000 J
	9/15/2021	6000 J
	3/22/2022	ND<0
	9/14/2022	5000 J

---

<b>Date</b>	<b>Count</b>	<b>Mean</b>	<b>Significant</b>
3/16/2023	1	14000	FALSE

**Non-Parametric Prediction Interval**  
**Intra-Well Comparison for GWM-17D**  
**Parameter: Chemical Oxygen Demand (COD)**  
**Original Data (Not Transformed)**  
**Non-Detects Replaced with 0**

Total Percent Non-Detects = 42.8571%  
 Future Samples (k) = 1  
 Recent Dates = 1  
 Baseline Measurements (n) = 7  
**Maximum Baseline Concentration = 12000**  
 Confidence Level = 87.5%  
 False Positive Rate = 12.5%

---

<b>Baseline Measurements</b>	<b>Date</b>	<b>Value</b>
	11/14/2019	9000 J
	3/26/2020	ND<0 U
	9/29/2020	8000 J
	3/16/2021	12000 J
	9/14/2021	ND<0 U
	3/18/2022	ND<0
	9/13/2022	6000 J

---

<b>Date</b>	<b>Count</b>	<b>Mean</b>	<b>Significant</b>
3/14/2023	1	12000	FALSE

**Non-Parametric Prediction Interval**  
**Intra-Well Comparison for GWM-19D**  
**Parameter: Chemical Oxygen Demand (COD)**  
**Original Data (Not Transformed)**  
**Non-Detects Replaced with 0**

Total Percent Non-Detects = 71.4286%  
 Future Samples (k) = 1  
 Recent Dates = 1  
 Baseline Measurements (n) = 7  
**Maximum Baseline Concentration = 15000**  
 Confidence Level = 87.5%  
 False Positive Rate = 12.5%

---

<b>Baseline Measurements</b>	<b>Date</b>	<b>Value</b>
	11/14/2019	15000 J
	3/25/2020	ND<0 U
	9/29/2020	ND<0 U
	3/22/2021	ND<0 U
	9/15/2021	ND<0 U
	3/24/2022	6000 J
	9/15/2022	ND<0

---

<b>Date</b>	<b>Count</b>	<b>Mean</b>	<b>Significant</b>
3/16/2023	1	7000	FALSE

## Shapiro-Francia Test of Normality

Parameter: Chloride

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 80

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	32100	-2.25713	5.09463	-72453.9
2	32300	-1.97737	9.00462	-136323
3	34200	-1.78661	12.1966	-197425
4	34900	-1.65463	14.9344	-255171
5	35200	-1.54643	17.3258	-309606
6	35500	-1.44663	19.4186	-360961
7	36300	-1.36581	21.284	-410540
8	36600	-1.29303	22.9559	-457865
9	53800	-1.22123	24.4473	-523567
10	57000	-1.16012	25.7932	-589694
11	57600	-1.10306	27.01	-653230
12	58300	-1.04505	28.1021	-714157
13	58500	-0.994457	29.091	-772333
14	60230	-0.946291	29.9865	-829328
15	61000	-0.896473	30.7902	-884013
16	61700	-0.852385	31.5167	-936605
17	62400	-0.809896	32.1727	-987142
18	63800	-0.765456	32.7586	-1.03598e+006
19	65100	-0.725736	33.2853	-1.08322e+006
20	65800	-0.687131	33.7574	-1.12844e+006
21	66000	-0.646431	34.1753	-1.1711e+006
22	66500	-0.609791	34.5472	-1.21165e+006
23	66600	-0.573953	34.8766	-1.24988e+006
24	66800	-0.53594	35.1638	-1.28568e+006
25	66900	-0.501527	35.4153	-1.31923e+006
26	67500	-0.467699	35.6341	-1.3508e+006
27	67600	-0.431644	35.8204	-1.37998e+006
28	67800	-0.398855	35.9795	-1.40702e+006
29	68000	-0.363809	36.1118	-1.43176e+006
30	68100	-0.331854	36.222	-1.45436e+006
31	68110	-0.300232	36.3121	-1.47481e+006
32	71900	-0.266311	36.383	-1.49396e+006
33	72600	-0.235269	36.4384	-1.51104e+006
34	72700	-0.204452	36.4802	-1.5259e+006
35	73200	-0.171285	36.5095	-1.53844e+006
36	73300	-0.140835	36.5293	-1.54876e+006
37	73400	-0.110516	36.5416	-1.55687e+006
38	73900	-0.0777834	36.5476	-1.56262e+006
39	74100	-0.0476439	36.5499	-1.56615e+006
40	74300	-0.0175476	36.5502	-1.56746e+006
41	74700	0.0175476	36.5505	-1.56615e+006
42	74800	0.0476439	36.5528	-1.56258e+006
43	76300	0.0777834	36.5588	-1.55665e+006
44	76700	0.110516	36.571	-1.54817e+006
45	78200	0.140835	36.5909	-1.53716e+006
46	79100	0.171285	36.6202	-1.52361e+006
47	79600	0.204452	36.662	-1.50733e+006

48	80000	0.235269	36.7174	-1.48851e+006
49	81500	0.266311	36.7883	-1.46681e+006
50	81600	0.300232	36.8784	-1.44231e+006
51	81700	0.331854	36.9885	-1.4152e+006
52	82300	0.363809	37.1209	-1.38526e+006
53	82500	0.398855	37.28	-1.35235e+006
54	82600	0.431644	37.4663	-1.3167e+006
55	82900	0.467699	37.685	-1.27792e+006
56	83000	0.501527	37.9366	-1.2363e+006
57	87200	0.53594	38.2238	-1.18956e+006
58	87300	0.573953	38.5532	-1.13946e+006
59	87500	0.609791	38.9251	-1.0861e+006
60	88700	0.646431	39.343	-1.02876e+006
61	91400	0.687131	39.8151	-965958
62	92400	0.725736	40.3418	-898900
63	92500	0.765456	40.9277	-828095
64	92600	0.809896	41.5836	-753099
65	92700	0.852385	42.3102	-674083
66	93900	0.896473	43.1139	-589904
67	94200	0.946291	44.0093	-500763
68	94500	0.994457	44.9983	-406787
69	97300	1.04505	46.0904	-305104
70	99700	1.10306	47.3072	-195129
71	101000	1.16012	48.653	-77956.4
72	101000	1.22123	50.1444	45387.6
73	103000	1.29303	51.8164	178570
74	103000	1.36581	53.6818	319248
75	104000	1.44663	55.7745	469698
76	105000	1.54643	58.166	632073
77	106000	1.65463	60.9038	807464
78	108000	1.78661	64.0958	1.00042e+006
79	116000	1.97737	68.0058	1.22979e+006
80	120000	2.25713	73.1004	1.50065e+006

Data Set Standard Deviation = 20029.5  
 Numerator = 2.25194e+012  
 Denominator = 2.3168e+012  
 W Statistic = 0.972007 = 2.25194e+012 / 2.3168e+012

5% Critical value of 0.97 is less than 0.972007  
 Data is normally distributed at 95% level of significance

1% Critical value of 0.958 is less than 0.972007  
 Data is normally distributed at 99% level of significance

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Chloride

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 120000

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	68110
	12/5/2013	66500
	3/19/2014	63800
	9/8/2014	74300
	3/18/2015	71900
	9/8/2015	81700
	3/14/2016	66800
	9/20/2016	82900
	3/24/2017	82600
	9/20/2017	87300
	3/27/2018	92400
	9/18/2018	88700
	3/11/2019	92600
	10/3/2019	94500
	3/23/2020	81500
	9/24/2020	97300
	3/23/2021	120000
	9/16/2021	116000
	3/24/2022	108000
	9/16/2022	103000

---

Date	Count	Mean	Significant
3/17/2023	1	101000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Chloride

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 106000

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	60230
	3/21/2014	57600
	9/8/2014	67500
	3/18/2015	61000
	9/8/2015	66000
	3/14/2016	53800
	9/26/2016	68100
	3/30/2017	80000
	9/20/2017	81600
	3/30/2018	87500
	9/21/2018	82300
	3/11/2019	83000
	10/3/2019	91400
	3/23/2020	72700
	9/25/2020	94200
	3/23/2021	106000
	9/16/2021	104000
	3/23/2022	103000
	9/16/2022	105000

---

Date	Count	Mean	Significant
3/17/2023	1	101000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Chloride

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 93900

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	65800
	9/23/2016	66900
	3/28/2017	68000
	9/21/2017	58500
	3/16/2018	93900
	9/19/2018	58300
	3/5/2019	57000
	10/3/2019	62400
	3/25/2020	61700
	9/28/2020	67600
	3/19/2021	74800
	9/15/2021	76700
	3/22/2022	82500
	9/14/2022	73200

---

Date	Count	Mean	Significant
3/16/2023	1	79600	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Chloride

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 92700

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	67800
	3/26/2020	65100
	9/29/2020	76300
	3/16/2021	78200
	9/14/2021	87200
	3/18/2022	92500
	9/13/2022	92700

---

Date	Count	Mean	Significant
3/14/2023	1	99700	TRUE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Chloride

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 36600

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	32100
	3/25/2020	32300
	9/29/2020	35500
	3/22/2021	36600
	9/15/2021	36300
	3/24/2022	34900
	9/15/2022	34200

---

Date	Count	Mean	Significant
3/16/2023	1	35200	FALSE

# Shapiro-Francia Test of Normality

Parameter: Hardness

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 80

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	36500	-2.25713	5.09463	-82385.2
2	36800	-1.97737	9.00462	-155152
3	37700	-1.78661	12.1966	-222508
4	38400	-1.65463	14.9344	-286045
5	39300	-1.54643	17.3258	-346820
6	39500	-1.44663	19.4186	-403962
7	41400	-1.36581	21.284	-460506
8	43000	-1.29303	22.9559	-516107
9	45000	-1.22123	24.4473	-571062
10	46400	-1.16012	25.7932	-624892
11	48000	-1.10306	27.01	-677839
12	51000	-1.04505	28.1021	-731136
13	52000	-0.994457	29.091	-782848
14	55100	-0.946291	29.9865	-834989
15	57000	-0.896473	30.7902	-886088
16	57900	-0.852385	31.5167	-935441
17	58600	-0.809896	32.1727	-982901
18	59000	-0.765456	32.7586	-1.02806e+006
19	59000	-0.725736	33.2853	-1.07088e+006
20	59000	-0.687131	33.7574	-1.11142e+006
21	59100	-0.646431	34.1753	-1.14963e+006
22	60000	-0.609791	34.5472	-1.18621e+006
23	60100	-0.573953	34.8766	-1.22071e+006
24	60900	-0.53594	35.1638	-1.25335e+006
25	61400	-0.501527	35.4153	-1.28414e+006
26	61900	-0.467699	35.6341	-1.31309e+006
27	62000	-0.431644	35.8204	-1.33985e+006
28	62000	-0.398855	35.9795	-1.36458e+006
29	62100	-0.363809	36.1118	-1.38717e+006
30	62200	-0.331854	36.222	-1.40782e+006
31	63100	-0.300232	36.3121	-1.42676e+006
32	64000	-0.266311	36.383	-1.4438e+006
33	64200	-0.235269	36.4384	-1.45891e+006
34	64400	-0.204452	36.4802	-1.47208e+006
35	65200	-0.171285	36.5095	-1.48324e+006
36	65400	-0.140835	36.5293	-1.49245e+006
37	66100	-0.110516	36.5416	-1.49976e+006
38	66300	-0.0777834	36.5476	-1.50492e+006
39	67000	-0.0476439	36.5499	-1.50811e+006
40	68400	-0.0175476	36.5502	-1.50931e+006
41	68500	0.0175476	36.5505	-1.50811e+006
42	68700	0.0476439	36.5528	-1.50483e+006
43	68800	0.0777834	36.5588	-1.49948e+006
44	69200	0.110516	36.571	-1.49183e+006
45	70000	0.140835	36.5909	-1.48198e+006
46	70000	0.171285	36.6202	-1.46999e+006
47	70400	0.204452	36.662	-1.45559e+006

48	70900	0.235269	36.7174	-1.43891e+006
49	71100	0.266311	36.7883	-1.41998e+006
50	71100	0.300232	36.8784	-1.39863e+006
51	71700	0.331854	36.9885	-1.37484e+006
52	72500	0.363809	37.1209	-1.34846e+006
53	72900	0.398855	37.28	-1.31938e+006
54	73100	0.431644	37.4663	-1.28783e+006
55	76200	0.467699	37.685	-1.25219e+006
56	77100	0.501527	37.9366	-1.21352e+006
57	82000	0.53594	38.2238	-1.16958e+006
58	83000	0.573953	38.5532	-1.12194e+006
59	92200	0.609791	38.9251	-1.06572e+006
60	93000	0.646431	39.343	-1.0056e+006
61	98000	0.687131	39.8151	-938259
62	110000	0.725736	40.3418	-858428
63	112000	0.765456	40.9277	-772697
64	114000	0.809896	41.5836	-680369
65	115000	0.852385	42.3102	-582345
66	116000	0.896473	43.1139	-478354
67	117000	0.946291	44.0093	-367638
68	122000	0.994457	44.9983	-246314
69	125000	1.04505	46.0904	-115683
70	126000	1.10306	47.3072	23303.2
71	127000	1.16012	48.653	170638
72	136000	1.22123	50.1444	336725
73	184000	1.29303	51.8164	574644
74	190000	1.36581	53.6818	834147
75	190000	1.44663	55.7745	1.10901e+006
76	196000	1.54643	58.166	1.41211e+006
77	201000	1.65463	60.9038	1.74469e+006
78	201000	1.78661	64.0958	2.1038e+006
79	208000	1.97737	68.0058	2.51509e+006
80	227000	2.25713	73.1004	3.02746e+006

Data Set Standard Deviation = 45294.2  
 Numerator = 9.1655e+012  
 Denominator = 1.18476e+013  
 W Statistic = 0.773614 = 9.1655e+012 / 1.18476e+013

**5% Critical value of 0.97 exceeds 0.773614**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.958 exceeds 0.773614**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Hardness

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 82000

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	38400
	3/21/2014	62000
	9/8/2014	48000
	3/18/2015	82000
	9/8/2015	60000
	3/14/2016	51000
	9/26/2016	52000
	3/30/2017	64000
	9/20/2017	55100
	3/30/2018	60900
	9/21/2018	57000
	3/11/2019	59100
	10/3/2019	61900
	3/23/2020	63100
	9/25/2020	66300
	3/23/2021	64400
	9/16/2021	70400
	3/23/2022	68400
	9/16/2022	70900

---

Date	Count	Mean	Significant
3/17/2023	1	72500	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Hardness

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 83000

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	45000
	12/5/2013	58600
	3/19/2014	67000
	9/8/2014	59000
	3/18/2015	83000
	9/8/2015	70000
	3/14/2016	62000
	9/20/2016	59000
	3/24/2017	59000
	9/20/2017	61400
	3/27/2018	60100
	9/18/2018	64200
	3/11/2019	66100
	10/3/2019	68500
	3/23/2020	68800
	9/24/2020	71700
	3/23/2021	73100
	9/16/2021	76200
	3/24/2022	69200
	9/16/2022	71100

---

Date	Count	Mean	Significant
3/17/2023	1	71100	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Hardness

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 136000

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	115000
	9/23/2016	114000
	3/28/2017	93000
	9/21/2017	92200
	3/16/2018	57900
	9/19/2018	98000
	3/5/2019	116000
	10/3/2019	110000
	3/25/2020	112000
	9/28/2020	122000
	3/19/2021	125000
	9/15/2021	117000
	3/22/2022	126000
	9/14/2022	136000

---

Date	Count	Mean	Significant
3/16/2023	1	127000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Hardness

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 208000

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	201000
	3/26/2020	196000
	9/29/2020	201000
	3/16/2021	184000
	9/14/2021	190000
	3/18/2022	190000
	9/13/2022	208000

---

Date	Count	Mean	Significant
3/14/2023	1	227000	TRUE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Hardness

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 46400

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	46400
	3/25/2020	41400
	9/29/2020	39300
	3/22/2021	36500
	9/15/2021	36800
	3/24/2022	37700
	9/15/2022	39500

---

Date	Count	Mean	Significant
3/16/2023	1	43000	FALSE

## Shapiro-Francia Test of Normality

Parameter: Nitrate-N

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 80

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.25713	5.09463	0
2	0	-1.97737	9.00462	0
3	0	-1.78661	12.1966	0
4	0	-1.65463	14.9344	0
5	0	-1.54643	17.3258	0
6	0	-1.44663	19.4186	0
7	0	-1.36581	21.284	0
8	0	-1.29303	22.9559	0
9	0	-1.22123	24.4473	0
10	0	-1.16012	25.7932	0
11	0	-1.10306	27.01	0
12	0	-1.04505	28.1021	0
13	0	-0.994457	29.091	0
14	0	-0.946291	29.9865	0
15	60	-0.896473	30.7902	-53.7884
16	80	-0.852385	31.5167	-121.979
17	80	-0.809896	32.1727	-186.771
18	100	-0.765456	32.7586	-263.316
19	100	-0.725736	33.2853	-335.89
20	100	-0.687131	33.7574	-404.603
21	100	-0.646431	34.1753	-469.246
22	120	-0.609791	34.5472	-542.421
23	120	-0.573953	34.8766	-611.296
24	180	-0.53594	35.1638	-707.765
25	1200	-0.501527	35.4153	-1309.6
26	1300	-0.467699	35.6341	-1917.61
27	1400	-0.431644	35.8204	-2521.91
28	1500	-0.398855	35.9795	-3120.19
29	1500	-0.363809	36.1118	-3665.9
30	1600	-0.331854	36.222	-4196.87
31	1700	-0.300232	36.3121	-4707.27
32	1900	-0.266311	36.383	-5213.26
33	2300	-0.235269	36.4384	-5754.38
34	2500	-0.204452	36.4802	-6265.51
35	2700	-0.171285	36.5095	-6727.98
36	2800	-0.140835	36.5293	-7122.32
37	2800	-0.110516	36.5416	-7431.76
38	2800	-0.0777834	36.5476	-7649.55
39	2800	-0.0476439	36.5499	-7782.96
40	2800	-0.0175476	36.5502	-7832.09
41	2900	0.0175476	36.5505	-7781.2
42	3000	0.0476439	36.5528	-7638.27
43	3000	0.0777834	36.5588	-7404.92
44	3100	0.110516	36.571	-7062.32
45	3100	0.140835	36.5909	-6625.73
46	3100	0.171285	36.6202	-6094.75
47	3200	0.204452	36.662	-5440.5

48	3200	0.235269	36.7174	-4687.64
49	3200	0.266311	36.7883	-3835.44
50	3300	0.300232	36.8784	-2844.68
51	3300	0.331854	36.9885	-1749.56
52	3300	0.363809	37.1209	-548.987
53	3400	0.398855	37.28	807.122
54	3400	0.431644	37.4663	2274.71
55	3400	0.467699	37.685	3864.89
56	3400	0.501527	37.9366	5570.08
57	3400	0.53594	38.2238	7392.28
58	3410	0.573953	38.5532	9349.45
59	3500	0.609791	38.9251	11483.7
60	3500	0.646431	39.343	13746.2
61	3500	0.687131	39.8151	16151.2
62	3500	0.725736	40.3418	18691.3
63	3500	0.765456	40.9277	21370.4
64	3600	0.809896	41.5836	24286
65	3600	0.852385	42.3102	27354.6
66	3600	0.896473	43.1139	30581.9
67	3600	0.946291	44.0093	33988.5
68	3700	0.994457	44.9983	37668
69	3700	1.04505	46.0904	41534.7
70	3700	1.10306	47.3072	45616
71	3700	1.16012	48.653	49908.5
72	3700	1.22123	50.1444	54427
73	3700	1.29303	51.8164	59211.2
74	3700	1.36581	53.6818	64264.7
75	3710	1.44663	55.7745	69631.7
76	3800	1.54643	58.166	75508.2
77	3800	1.65463	60.9038	81795.8
78	3900	1.78661	64.0958	88763.5
79	4220	1.97737	68.0058	97108
80	4300	2.25713	73.1004	106814

---

Data Set Standard Deviation = 1543.71  
 Numerator = 1.14092e+010  
 Denominator = 1.37618e+010  
 W Statistic = 0.829045 = 1.14092e+010 / 1.37618e+010

**5% Critical value of 0.97 exceeds 0.829045**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.958 exceeds 0.829045**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

#### Parameter: Nitrate-N

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 4220

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	4220
	12/5/2013	3410
	3/19/2014	3800
	9/8/2014	3600
	3/18/2015	3600
	9/8/2015	3600
	3/14/2016	3100
	9/20/2016	3700
	3/24/2017	3500
	9/20/2017	3500
	3/27/2018	3500
	9/18/2018	3300
	3/11/2019	3400
	10/3/2019	3000
	3/23/2020	2300
	9/24/2020	2800
	3/23/2021	3900
	9/16/2021	3500
	3/24/2022	2800
	9/16/2022	2800

---

Date	Count	Mean	Significant
3/17/2023	1	2700	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

#### Parameter: Nitrate-N

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 4300

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	3710
	3/21/2014	3800
	9/8/2014	3700
	3/18/2015	3700
	9/8/2015	3700
	3/14/2016	3100
	9/26/2016	3500
	3/30/2017	3700
	9/20/2017	3700
	3/30/2018	3700
	9/21/2018	3300
	3/11/2019	3400
	10/3/2019	3300
	3/23/2020	2500
	9/25/2020	3400
	3/23/2021	4300
	9/16/2021	3600
	3/23/2022	ND<0
	9/16/2022	3200

---

Date	Count	Mean	Significant
3/17/2023	1	3000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

#### Parameter: Nitrate-N

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 42.8571%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 180

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	180 J
	9/23/2016	100 J
	3/28/2017	80 J
	9/21/2017	ND<0 U
	3/16/2018	ND<0 U
	9/19/2018	80 J
	3/5/2019	ND<0 U
	10/3/2019	100 J
	3/25/2020	ND<0 U
	9/28/2020	120 J
	3/19/2021	100 J
	9/15/2021	100 J
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Nitrate-N

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 71.4286%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 120

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	120 J
	3/26/2020	ND<0 U
	9/29/2020	60 J
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Nitrate-N

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 1900

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	1600
	3/25/2020	1200
	9/29/2020	1500
	3/22/2021	1900
	9/15/2021	1700
	3/24/2022	1400
	9/15/2022	1500

---

Date	Count	Mean	Significant
3/16/2023	1	1300	FALSE



# Shapiro-Francia Test of Normality

Parameter: pH

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 80

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	3.72	-2.25713	5.09463	-8.39652
2	4.17	-1.97737	9.00462	-16.6421
3	4.31	-1.78661	12.1966	-24.3424
4	4.42	-1.65463	14.9344	-31.6559
5	4.54	-1.54643	17.3258	-38.6767
6	4.66	-1.44663	19.4186	-45.418
7	4.7	-1.36581	21.284	-51.8373
8	4.74	-1.29303	22.9559	-57.9663
9	4.77	-1.22123	24.4473	-63.7915
10	4.8	-1.16012	25.7932	-69.3601
11	4.83	-1.10306	27.01	-74.6879
12	4.84	-1.04505	28.1021	-79.7459
13	4.87	-0.994457	29.091	-84.5889
14	4.87	-0.946291	29.9865	-89.1974
15	4.89	-0.896473	30.7902	-93.5811
16	4.91	-0.852385	31.5167	-97.7663
17	4.91	-0.809896	32.1727	-101.743
18	4.94	-0.765456	32.7586	-105.524
19	4.94	-0.725736	33.2853	-109.109
20	4.94	-0.687131	33.7574	-112.504
21	4.94	-0.646431	34.1753	-115.697
22	4.99	-0.609791	34.5472	-118.74
23	5	-0.573953	34.8766	-121.61
24	5.01	-0.53594	35.1638	-124.295
25	5.02	-0.501527	35.4153	-126.813
26	5.03	-0.467699	35.6341	-129.165
27	5.05	-0.431644	35.8204	-131.345
28	5.05	-0.398855	35.9795	-133.359
29	5.05	-0.363809	36.1118	-135.196
30	5.06	-0.331854	36.222	-136.876
31	5.11	-0.300232	36.3121	-138.41
32	5.12	-0.266311	36.383	-139.773
33	5.13	-0.235269	36.4384	-140.98
34	5.14	-0.204452	36.4802	-142.031
35	5.15	-0.171285	36.5095	-142.913
36	5.15	-0.140835	36.5293	-143.638
37	5.16	-0.110516	36.5416	-144.209
38	5.16	-0.0777834	36.5476	-144.61
39	5.17	-0.0476439	36.5499	-144.856
40	5.2	-0.0175476	36.5502	-144.948
41	5.21	0.0175476	36.5505	-144.856
42	5.22	0.0476439	36.5528	-144.608
43	5.25	0.0777834	36.5588	-144.199
44	5.27	0.110516	36.571	-143.617
45	5.29	0.140835	36.5909	-142.872
46	5.29	0.171285	36.6202	-141.966
47	5.29	0.204452	36.662	-140.884

48	5.35	0.235269	36.7174	-139.625
49	5.4	0.266311	36.7883	-138.187
50	5.4	0.300232	36.8784	-136.566
51	5.43	0.331854	36.9885	-134.764
52	5.47	0.363809	37.1209	-132.774
53	5.52	0.398855	37.28	-130.572
54	5.52	0.431644	37.4663	-128.19
55	5.55	0.467699	37.685	-125.594
56	5.58	0.501527	37.9366	-122.795
57	5.6	0.53594	38.2238	-119.794
58	5.61	0.573953	38.5532	-116.574
59	5.62	0.609791	38.9251	-113.147
60	5.62	0.646431	39.343	-109.514
61	5.65	0.687131	39.8151	-105.632
62	5.66	0.725736	40.3418	-101.524
63	5.71	0.765456	40.9277	-97.1536
64	5.71	0.809896	41.5836	-92.5291
65	5.74	0.852385	42.3102	-87.6364
66	5.84	0.896473	43.1139	-82.401
67	5.85	0.946291	44.0093	-76.8652
68	5.85	0.994457	44.9983	-71.0477
69	5.86	1.04505	46.0904	-64.9237
70	5.87	1.10306	47.3072	-58.4487
71	5.87	1.16012	48.653	-51.6388
72	5.95	1.22123	50.1444	-44.3725
73	5.96	1.29303	51.8164	-36.666
74	6	1.36581	53.6818	-28.4712
75	6.02	1.44663	55.7745	-19.7624
76	6.11	1.54643	58.166	-10.3137
77	6.14	1.65463	60.9038	-0.154323
78	6.27	1.78661	64.0958	11.0477
79	6.28	1.97737	68.0058	23.4656
80	6.5	2.25713	73.1004	38.1369

---

Data Set Standard Deviation = 0.507181

Numerator = 1454.43

Denominator = 1485.5

W Statistic = 0.979081 = 1454.43 / 1485.5

5% Critical value of 0.97 is less than 0.979081

Data is normally distributed at 95% level of significance

1% Critical value of 0.958 is less than 0.979081

Data is normally distributed at 99% level of significance

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: pH

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 6.5

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	4.17
	3/21/2014	4.83
	9/8/2014	5.96
	3/18/2015	5.22
	9/8/2015	6.02
	3/14/2016	6.5
	9/26/2016	5.21
	3/30/2017	6.27
	9/20/2017	5.12
	3/30/2018	5.25
	9/21/2018	4.91
	3/11/2019	5.71
	10/3/2019	5.13
	3/23/2020	5.01
	9/25/2020	5.15
	3/23/2021	4.94
	9/16/2021	5.35
	3/23/2022	5.62
	9/16/2022	4.94

---

Date	Count	Mean	Significant
3/17/2023	1	4.74	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: pH

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 6.28

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	3.72
	12/5/2013	5.16
	3/19/2014	5.55
	9/8/2014	5.6
	3/18/2015	4.7
	9/8/2015	5.74
	3/14/2016	6.28
	9/20/2016	5.84
	3/24/2017	6.11
	9/20/2017	5.4
	3/27/2018	5.58
	9/18/2018	5.29
	3/11/2019	5.52
	10/3/2019	5.14
	3/23/2020	5.29
	9/24/2020	5.05
	3/23/2021	5.43
	9/16/2021	5.62
	3/24/2022	4.31
	9/16/2022	4.77

---

Date	Count	Mean	Significant
3/17/2023	1	4.54	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: pH

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 5.29

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	4.99
	9/23/2016	5.05
	3/28/2017	4.87
	9/21/2017	4.8
	3/16/2018	5.27
	9/19/2018	5.06
	3/5/2019	5.29
	10/3/2019	4.94
	3/25/2020	4.87
	9/28/2020	5.11
	3/19/2021	4.94
	9/15/2021	5.05
	3/22/2022	5.03
	9/14/2022	5

---

Date	Count	Mean	Significant
3/16/2023	1	5.2	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: pH

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 6

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	6
	3/26/2020	5.87
	9/29/2020	5.86
	3/16/2021	5.71
	9/14/2021	5.65
	3/18/2022	5.87
	9/13/2022	5.47

---

Date	Count	Mean	Significant
3/14/2023	1	5.85	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: pH

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 5.66

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	5.66
	3/25/2020	5.52
	9/29/2020	4.66
	3/22/2021	5.02
	9/15/2021	4.89
	3/24/2022	4.42
	9/15/2022	4.91

---

Date	Count	Mean	Significant
3/16/2023	1	4.84	FALSE

## Shapiro-Francia Test of Normality

Parameter: Specific Conductance

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 80

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	141.8	-2.25713	5.09463	-320.061
2	143.1	-1.97737	9.00462	-603.022
3	145.1	-1.78661	12.1966	-862.26
4	150.5	-1.65463	14.9344	-1111.28
5	154.5	-1.54643	17.3258	-1350.2
6	164.5	-1.44663	19.4186	-1588.18
7	166.8	-1.36581	21.284	-1815.99
8	173.3	-1.29303	22.9559	-2040.07
9	193	-1.22123	24.4473	-2275.77
10	203	-1.16012	25.7932	-2511.28
11	204	-1.10306	27.01	-2736.3
12	208	-1.04505	28.1021	-2953.67
13	210	-0.994457	29.091	-3162.51
14	212	-0.946291	29.9865	-3363.12
15	214	-0.896473	30.7902	-3554.97
16	221	-0.852385	31.5167	-3743.34
17	221	-0.809896	32.1727	-3922.33
18	238	-0.765456	32.7586	-4104.51
19	239	-0.725736	33.2853	-4277.96
20	250	-0.687131	33.7574	-4449.74
21	251	-0.646431	34.1753	-4612
22	251	-0.609791	34.5472	-4765.05
23	253	-0.573953	34.8766	-4910.26
24	254	-0.53594	35.1638	-5046.39
25	256	-0.501527	35.4153	-5174.78
26	259	-0.467699	35.6341	-5295.92
27	260	-0.431644	35.8204	-5408.15
28	266	-0.398855	35.9795	-5514.24
29	269	-0.363809	36.1118	-5612.11
30	272	-0.331854	36.222	-5702.37
31	276	-0.300232	36.3121	-5785.23
32	276	-0.266311	36.383	-5858.74
33	276	-0.235269	36.4384	-5923.67
34	278	-0.204452	36.4802	-5980.51
35	278	-0.171285	36.5095	-6028.13
36	278	-0.140835	36.5293	-6067.28
37	279	-0.110516	36.5416	-6098.11
38	280	-0.0777834	36.5476	-6119.89
39	280	-0.0476439	36.5499	-6133.23
40	283	-0.0175476	36.5502	-6138.2
41	283	0.0175476	36.5505	-6133.23
42	285	0.0476439	36.5528	-6119.65
43	289	0.0777834	36.5588	-6097.17
44	289	0.110516	36.571	-6065.23
45	290	0.140835	36.5909	-6024.39
46	292	0.171285	36.6202	-5974.38
47	293	0.204452	36.662	-5914.47



48	295	0.235269	36.7174	-5845.07
49	295	0.266311	36.7883	-5766.51
50	298	0.300232	36.8784	-5677.04
51	302	0.331854	36.9885	-5576.82
52	302	0.363809	37.1209	-5466.95
53	302.52	0.398855	37.28	-5346.28
54	303	0.431644	37.4663	-5215.5
55	305	0.467699	37.685	-5072.85
56	308	0.501527	37.9366	-4918.38
57	312	0.53594	38.2238	-4751.16
58	315	0.573953	38.5532	-4570.37
59	315	0.609791	38.9251	-4378.29
60	327	0.646431	39.343	-4166.9
61	329	0.687131	39.8151	-3940.84
62	329.77	0.725736	40.3418	-3701.51
63	331	0.765456	40.9277	-3448.14
64	335	0.809896	41.5836	-3176.83
65	344	0.852385	42.3102	-2883.61
66	355	0.896473	43.1139	-2565.36
67	363	0.946291	44.0093	-2221.86
68	367	0.994457	44.9983	-1856.89
69	373	1.04505	46.0904	-1467.09
70	378	1.10306	47.3072	-1050.13
71	380	1.16012	48.653	-609.285
72	394.71	1.22123	50.1444	-127.254
73	401	1.29303	51.8164	391.253
74	404.12	1.36581	53.6818	943.202
75	429	1.44663	55.7745	1563.81
76	448	1.54643	58.166	2256.61
77	487	1.65463	60.9038	3062.41
78	491	1.78661	64.0958	3939.64
79	534	1.97737	68.0058	4995.55
80	651.76	2.25713	73.1004	6466.66

---

Data Set Standard Deviation = 89.0507  
 Numerator = 4.18177e+007  
 Denominator = 4.57953e+007  
 W Statistic = 0.913143 = 4.18177e+007 / 4.57953e+007

**5% Critical value of 0.97 exceeds 0.913143**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.958 exceeds 0.913143**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

#### Parameter: Specific Conductance

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 367

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	260
	3/21/2014	203
	9/8/2014	208
	3/18/2015	204
	9/8/2015	214
	3/14/2016	221
	9/26/2016	238
	3/30/2017	251
	9/20/2017	259
	3/30/2018	269
	9/21/2018	278
	3/11/2019	280
	10/3/2019	276
	3/23/2020	285
	9/25/2020	289
	3/23/2021	305
	9/16/2021	312
	3/23/2022	335
	9/16/2022	367

---

Date	Count	Mean	Significant
3/17/2023	1	404.12	TRUE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

#### Parameter: Specific Conductance

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 380

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	295
	12/5/2013	212
	3/19/2014	210
	9/8/2014	250
	3/18/2015	221
	9/8/2015	278
	3/14/2016	253
	9/20/2016	276
	3/24/2017	266
	9/20/2017	290
	3/27/2018	251
	9/18/2018	293
	3/11/2019	279
	10/3/2019	302
	3/23/2020	380
	9/24/2020	298
	3/23/2021	327
	9/16/2021	344
	3/24/2022	315
	9/16/2022	363

---

Date	Count	Mean	Significant
3/17/2023	1	394.71	TRUE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

#### Parameter: Specific Conductance

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 378

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	315
	9/23/2016	308
	3/28/2017	295
	9/21/2017	283
	3/16/2018	280
	9/19/2018	283
	3/5/2019	272
	10/3/2019	302
	3/25/2020	292
	9/28/2020	303
	3/19/2021	329
	9/15/2021	378
	3/22/2022	355
	9/14/2022	331

---

Date	Count	Mean	Significant
3/16/2023	1	302.52	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

#### Parameter: Specific Conductance

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 534

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	373
	3/26/2020	401
	9/29/2020	429
	3/16/2021	448
	9/14/2021	491
	3/18/2022	487
	9/13/2022	534

---

Date	Count	Mean	Significant
3/14/2023	1	651.76	TRUE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

#### Parameter: Specific Conductance

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 173.3

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	173.3
	3/25/2020	166.8
	9/29/2020	143.1
	3/22/2021	150.5
	9/15/2021	164.5
	3/24/2022	154.5
	9/15/2022	141.8

---

Date	Count	Mean	Significant
3/16/2023	1	193	TRUE

## Shapiro-Francia Test of Normality

Parameter: Sulfate

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 80

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.25713	5.09463	0
2	0	-1.97737	9.00462	0
3	0	-1.78661	12.1966	0
4	0	-1.65463	14.9344	0
5	0	-1.54643	17.3258	0
6	0	-1.44663	19.4186	0
7	0	-1.36581	21.284	0
8	0	-1.29303	22.9559	0
9	0	-1.22123	24.4473	0
10	0	-1.16012	25.7932	0
11	280	-1.10306	27.01	-308.857
12	280	-1.04505	28.1021	-601.472
13	300	-0.994457	29.091	-899.809
14	400	-0.946291	29.9865	-1278.33
15	420	-0.896473	30.7902	-1654.84
16	440	-0.852385	31.5167	-2029.89
17	450	-0.809896	32.1727	-2394.35
18	520	-0.765456	32.7586	-2792.38
19	560	-0.725736	33.2853	-3198.8
20	640	-0.687131	33.7574	-3638.56
21	700	-0.646431	34.1753	-4091.06
22	780	-0.609791	34.5472	-4566.7
23	980	-0.573953	34.8766	-5129.17
24	1100	-0.53594	35.1638	-5718.71
25	1200	-0.501527	35.4153	-6320.54
26	1300	-0.467699	35.6341	-6928.55
27	1400	-0.431644	35.8204	-7532.85
28	1480	-0.398855	35.9795	-8123.15
29	1500	-0.363809	36.1118	-8668.87
30	1640	-0.331854	36.222	-9213.11
31	1700	-0.300232	36.3121	-9723.5
32	1900	-0.266311	36.383	-10229.5
33	2200	-0.235269	36.4384	-10747.1
34	2300	-0.204452	36.4802	-11217.3
35	2500	-0.171285	36.5095	-11645.5
36	2500	-0.140835	36.5293	-11997.6
37	3000	-0.110516	36.5416	-12329.2
38	3100	-0.0777834	36.5476	-12570.3
39	3500	-0.0476439	36.5499	-12737.1
40	3600	-0.0175476	36.5502	-12800.2
41	4100	0.0175476	36.5505	-12728.3
42	6200	0.0476439	36.5528	-12432.9
43	6600	0.0777834	36.5588	-11919.5
44	7000	0.110516	36.571	-11145.9
45	7300	0.140835	36.5909	-10117.8
46	7600	0.171285	36.6202	-8816.05
47	10100	0.204452	36.662	-6751.08

48	10600	0.235269	36.7174	-4257.23
49	12000	0.266311	36.7883	-1061.49
50	14900	0.300232	36.8784	3411.97
51	15200	0.331854	36.9885	8456.15
52	15800	0.363809	37.1209	14204.3
53	15800	0.398855	37.28	20506.3
54	16000	0.431644	37.4663	27412.6
55	16700	0.467699	37.685	35223.1
56	17300	0.501527	37.9366	43899.5
57	17500	0.53594	38.2238	53278.5
58	18900	0.573953	38.5532	64126.2
59	19100	0.609791	38.9251	75773.2
60	20100	0.646431	39.343	88766.5
61	20300	0.687131	39.8151	102715
62	20400	0.725736	40.3418	117520
63	20400	0.765456	40.9277	133136
64	21300	0.809896	41.5836	150386
65	21800	0.852385	42.3102	168968
66	53300	0.896473	43.1139	216750
67	54100	0.946291	44.0093	267945
68	55000	0.994457	44.9983	322640
69	55200	1.04505	46.0904	380327
70	56400	1.10306	47.3072	442539
71	58000	1.16012	48.653	509826
72	58900	1.22123	50.1444	581757
73	60300	1.29303	51.8164	659727
74	60900	1.36581	53.6818	742904
75	61700	1.44663	55.7745	832161
76	61800	1.54643	58.166	927731
77	61900	1.65463	60.9038	1.03015e+006
78	61900	1.78661	64.0958	1.14074e+006
79	63000	1.97737	68.0058	1.26532e+006
80	64000	2.25713	73.1004	1.40977e+006

---

Data Set Standard Deviation = 21869.8  
 Numerator = 1.98746e+012  
 Denominator = 2.76209e+012  
 W Statistic = 0.719551 = 1.98746e+012 / 2.76209e+012

**5% Critical value of 0.97 exceeds 0.719551**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.958 exceeds 0.719551**  
**Evidence of non-normality at 99% level of significance**



## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 42.1053%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 10600

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	3/21/2014	280 J
	9/8/2014	450 J
	3/18/2015	280 J
	9/8/2015	420 J
	3/14/2016	440 J
	9/26/2016	300 J
	3/30/2017	400 J
	9/20/2017	ND<0 U
	3/30/2018	ND<0 U
	9/21/2018	ND<0 U
	3/11/2019	640 J
	10/3/2019	ND<0 U
	3/23/2020	ND<0 U
	9/25/2020	ND<0 U
	3/23/2021	980 J
	9/16/2021	560 J
	3/23/2022	10600
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 12000

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	1480
	12/5/2013	1640
	3/19/2014	700 J
	9/8/2014	12000 J
	3/18/2015	780 J
	9/8/2015	4100
	3/14/2016	2200
	9/20/2016	520 J
	3/24/2017	1200 J
	9/20/2017	1500 J
	3/27/2018	1400 J
	9/18/2018	2300
	3/11/2019	2500
	10/3/2019	1300 J
	3/23/2020	1100 J
	9/24/2020	1700 J
	3/23/2021	3500
	9/16/2021	2500
	3/24/2022	ND<0
	9/16/2022	3000

---

Date	Count	Mean	Significant
3/17/2023	1	1900	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 64000

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	61900
	9/23/2016	63000
	3/28/2017	60300
	9/21/2017	55000
	3/16/2018	54100
	9/19/2018	53300
	3/5/2019	55200
	10/3/2019	58000
	3/25/2020	56400
	9/28/2020	60900
	3/19/2021	64000
	9/15/2021	61800
	3/22/2022	61900
	9/14/2022	58900

---

Date	Count	Mean	Significant
3/16/2023	1	61700	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 21800

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	17500
	3/26/2020	16700
	9/29/2020	21800
	3/16/2021	20100
	9/14/2021	21300
	3/18/2022	19100
	9/13/2022	17300

---

Date	Count	Mean	Significant
3/14/2023	1	18900	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 7600

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	3600
	3/25/2020	3100
	9/29/2020	7000
	3/22/2021	6200
	9/15/2021	6600
	3/24/2022	7300
	9/15/2022	7600

---

Date	Count	Mean	Significant
3/16/2023	1	10100	TRUE

## Shapiro-Francia Test of Normality

Parameter: Total Dissolved Solids

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 79

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	80000	-2.25713	5.09463	-180570
2	94000	-1.95996	8.93608	-364807
3	100000	-1.78661	12.1281	-543468
4	104000	-1.64485	14.8336	-714533
5	109000	-1.5382	17.1997	-882196
6	120000	-1.43953	19.2719	-1.05494e+006
7	124000	-1.35946	21.1201	-1.22351e+006
8	127000	-1.28155	22.7624	-1.38627e+006
9	127000	-1.21596	24.241	-1.5407e+006
10	128000	-1.15035	25.5643	-1.68794e+006
11	131000	-1.0939	26.7609	-1.83124e+006
12	138000	-1.03643	27.8351	-1.97427e+006
13	142000	-0.986272	28.8078	-2.11432e+006
14	144000	-0.93459	29.6813	-2.2489e+006
15	148000	-0.889006	30.4716	-2.38047e+006
16	153000	-0.841621	31.1799	-2.50924e+006
17	155000	-0.7995	31.8191	-2.63317e+006
18	156000	-0.755415	32.3898	-2.75101e+006
19	158000	-0.715986	32.9024	-2.86414e+006
20	164000	-0.67449	33.3574	-2.97475e+006
21	165000	-0.637192	33.7634	-3.07989e+006
22	166000	-0.597761	34.1207	-3.17912e+006
23	166000	-0.56217	34.4367	-3.27244e+006
24	172000	-0.524401	34.7117	-3.36263e+006
25	175000	-0.490189	34.952	-3.44842e+006
26	176000	-0.453763	35.1579	-3.52828e+006
27	180000	-0.420664	35.3349	-3.604e+006
28	180000	-0.385321	35.4833	-3.67336e+006
29	182000	-0.353118	35.608	-3.73762e+006
30	184000	-0.318639	35.7096	-3.79625e+006
31	185000	-0.287147	35.792	-3.84938e+006
32	186000	-0.253347	35.8562	-3.8965e+006
33	190000	-0.222403	35.9057	-3.93876e+006
34	191000	-0.189118	35.9414	-3.97488e+006
35	191000	-0.158579	35.9666	-4.00517e+006
36	192000	-0.125661	35.9824	-4.02929e+006
37	194000	-0.0953969	35.9915	-4.0478e+006
38	196000	-0.0627062	35.9954	-4.06009e+006
39	199000	-0.0325917	35.9965	-4.06658e+006
40	202000	0	35.9965	-4.06658e+006
41	204000	0.0325917	35.9975	-4.05993e+006
42	206000	0.0627062	36.0015	-4.04701e+006
43	208000	0.0953969	36.0106	-4.02717e+006
44	210000	0.125661	36.0264	-4.00078e+006
45	210000	0.158579	36.0515	-3.96748e+006
46	211000	0.189118	36.0873	-3.92757e+006
47	213000	0.222403	36.1367	-3.8802e+006

48	218000	0.253347	36.2009	-3.82497e+006
49	222000	0.287147	36.2834	-3.76122e+006
50	222000	0.318639	36.3849	-3.69049e+006
51	224000	0.353118	36.5096	-3.61139e+006
52	226000	0.385321	36.6581	-3.52431e+006
53	231000	0.420664	36.835	-3.42713e+006
54	234000	0.453763	37.0409	-3.32095e+006
55	246000	0.490189	37.2812	-3.20037e+006
56	250000	0.524401	37.5562	-3.06927e+006
57	252000	0.56217	37.8722	-2.9276e+006
58	256000	0.597761	38.2296	-2.77457e+006
59	258000	0.637192	38.6356	-2.61018e+006
60	260000	0.67449	39.0905	-2.43481e+006
61	260000	0.715986	39.6031	-2.24865e+006
62	262000	0.755415	40.1738	-2.05073e+006
63	266000	0.7995	40.813	-1.83807e+006
64	268000	0.841621	41.5213	-1.61251e+006
65	268000	0.889006	42.3117	-1.37426e+006
66	270000	0.93459	43.1851	-1.12192e+006
67	270000	0.986272	44.1578	-855625
68	280000	1.03643	45.232	-565424
69	288000	1.0939	46.4286	-250382
70	302000	1.15035	47.752	97023.7
71	306000	1.21596	49.2305	469108
72	312000	1.28155	50.8729	868951
73	320000	1.35946	52.721	1.30398e+006
74	322000	1.43953	54.7933	1.76751e+006
75	344000	1.5382	57.1593	2.29665e+006
76	352000	1.64485	59.8649	2.87564e+006
77	354000	1.78661	63.0569	3.5081e+006
78	410000	1.95996	66.8983	4.31168e+006
79	506000	2.25713	71.9929	5.45379e+006

Data Set Standard Deviation = 75089.9

Numerator = 2.97438e+013

Denominator = 3.16627e+013

W Statistic = 0.939396 = 2.97438e+013 / 3.16627e+013

**5% Critical value of 0.97 exceeds 0.939396  
Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.957 exceeds 0.939396  
Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

#### Parameter: Total Dissolved Solids

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 266000

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	131000
	3/21/2014	127000
	9/8/2014	144000
	3/18/2015	175000
	9/8/2015	185000
	3/14/2016	124000
	9/26/2016	191000
	3/30/2017	153000
	9/20/2017	148000
	3/30/2018	164000
	9/21/2018	155000
	3/11/2019	211000
	10/3/2019	166000
	3/23/2020	222000
	9/25/2020	234000
	3/23/2021	250000
	9/16/2021	266000
	3/23/2022	156000
	9/16/2022	246000

---

Date	Count	Mean	Significant
3/17/2023	1	262000	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

#### Parameter: Total Dissolved Solids

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 306000

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	138000
	3/19/2014	127000
	9/8/2014	224000
	3/18/2015	202000
	9/8/2015	231000
	3/14/2016	165000
	9/20/2016	192000
	3/24/2017	206000
	9/20/2017	100000
	3/27/2018	180000
	9/18/2018	190000
	3/11/2019	180000
	10/3/2019	186000
	3/23/2020	218000
	9/24/2020	210000
	3/23/2021	306000
	9/16/2021	302000
	3/24/2022	166000
	9/16/2022	210000

---

Date	Count	Mean	Significant
3/17/2023	1	270000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

#### Parameter: Total Dissolved Solids

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 280000

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	196000
	9/23/2016	260000
	3/28/2017	208000
	9/21/2017	191000
	3/16/2018	199000
	9/19/2018	213000
	3/5/2019	268000
	10/3/2019	260000
	3/25/2020	222000
	9/28/2020	280000
	3/19/2021	252000
	9/15/2021	256000
	3/22/2022	258000
	9/14/2022	182000

---

Date	Count	Mean	Significant
3/16/2023	1	288000	TRUE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Total Dissolved Solids

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 506000

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	506000
	3/26/2020	268000
	9/29/2020	354000
	3/16/2021	352000
	9/14/2021	410000
	3/18/2022	320000
	9/13/2022	312000

---

Date	Count	Mean	Significant
3/14/2023	1	344000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

#### Parameter: Total Dissolved Solids

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 270000

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	270000
	3/25/2020	104000
	9/29/2020	120000
	3/22/2021	109000
	9/15/2021	128000
	3/24/2022	80000
	9/15/2022	94000

---

Date	Count	Mean	Significant
3/16/2023	1	142000	FALSE

## Shapiro-Francia Test of Normality

Parameter: Turbidity

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 80

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.25713	5.09463	0
2	0.03	-1.97737	9.00462	-0.0593211
3	0.16	-1.78661	12.1966	-0.345179
4	0.2	-1.65463	14.9344	-0.676104
5	0.23	-1.54643	17.3258	-1.03178
6	0.24	-1.44663	19.4186	-1.37898
7	0.26	-1.36581	21.284	-1.73408
8	0.28	-1.29303	22.9559	-2.09613
9	0.28	-1.22123	24.4473	-2.43808
10	0.31	-1.16012	25.7932	-2.79772
11	0.39	-1.10306	27.01	-3.22791
12	0.4	-1.04505	28.1021	-3.64593
13	0.41	-0.994457	29.091	-4.05366
14	0.41	-0.946291	29.9865	-4.44164
15	0.43	-0.896473	30.7902	-4.82712
16	0.43	-0.852385	31.5167	-5.19365
17	0.44	-0.809896	32.1727	-5.55
18	0.45	-0.765456	32.7586	-5.89445
19	0.45	-0.725736	33.2853	-6.22104
20	0.46	-0.687131	33.7574	-6.53712
21	0.5	-0.646431	34.1753	-6.86033
22	0.54	-0.609791	34.5472	-7.18962
23	0.6	-0.573953	34.8766	-7.53399
24	0.65	-0.53594	35.1638	-7.88235
25	0.7	-0.501527	35.4153	-8.23342
26	0.77	-0.467699	35.6341	-8.59355
27	0.81	-0.431644	35.8204	-8.94318
28	0.88	-0.398855	35.9795	-9.29417
29	0.94	-0.363809	36.1118	-9.63615
30	0.94	-0.331854	36.222	-9.9481
31	0.96	-0.300232	36.3121	-10.2363
32	1.11	-0.266311	36.383	-10.5319
33	1.13	-0.235269	36.4384	-10.7978
34	1.2	-0.204452	36.4802	-11.0431
35	1.26	-0.171285	36.5095	-11.2589
36	1.28	-0.140835	36.5293	-11.4392
37	1.35	-0.110516	36.5416	-11.5884
38	1.44	-0.0777834	36.5476	-11.7004
39	1.59	-0.0476439	36.5499	-11.7762
40	1.6	-0.0175476	36.5502	-11.8042
41	1.6	0.0175476	36.5505	-11.7762
42	1.63	0.0476439	36.5528	-11.6985
43	1.68	0.0777834	36.5588	-11.5678
44	1.7	0.110516	36.571	-11.38
45	1.79	0.140835	36.5909	-11.1279
46	1.84	0.171285	36.6202	-10.8127
47	1.88	0.204452	36.662	-10.4283

48	1.9	0.235269	36.7174	-9.98131
49	2.06	0.266311	36.7883	-9.43271
50	2.2	0.300232	36.8784	-8.7722
51	2.21	0.331854	36.9885	-8.0388
52	2.32	0.363809	37.1209	-7.19477
53	2.33	0.398855	37.28	-6.26543
54	2.35	0.431644	37.4663	-5.25107
55	2.36	0.467699	37.685	-4.1473
56	2.54	0.501527	37.9366	-2.87342
57	2.85	0.53594	38.2238	-1.34599
58	2.97	0.573953	38.5532	0.358645
59	3	0.609791	38.9251	2.18802
60	3.01	0.646431	39.343	4.13378
61	3.13	0.687131	39.8151	6.2845
62	3.15	0.725736	40.3418	8.57057
63	3.25	0.765456	40.9277	11.0583
64	3.35	0.809896	41.5836	13.7714
65	3.44	0.852385	42.3102	16.7037
66	3.48	0.896473	43.1139	19.8234
67	4.54	0.946291	44.0093	24.1195
68	4.94	0.994457	44.9983	29.0322
69	5.37	1.04505	46.0904	34.6441
70	5.44	1.10306	47.3072	40.6447
71	5.68	1.16012	48.653	47.2342
72	7.74	1.22123	50.1444	56.6865
73	9.98	1.29303	51.8164	69.591
74	10.36	1.36581	53.6818	83.7408
75	13.48	1.44663	55.7745	103.241
76	14.3	1.54643	58.166	125.355
77	15.85	1.65463	60.9038	151.581
78	16.23	1.78661	64.0958	180.578
79	17	1.97737	68.0058	214.193
80	21.85	2.25713	73.1004	263.511

---

Data Set Standard Deviation = 4.38983  
 Numerator = 69438.3  
 Denominator = 111286  
 W Statistic = 0.62396 = 69438.3 / 111286

**5% Critical value of 0.97 exceeds 0.62396**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.958 exceeds 0.62396**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

#### Parameter: Turbidity

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 17

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	17
	3/21/2014	ND<0
	9/8/2014	3.25
	3/18/2015	0.03
	9/8/2015	0.96
	3/14/2016	0.31
	9/26/2016	1.59
	3/30/2017	0.24
	9/20/2017	0.16
	3/30/2018	1.84
	9/21/2018	0.23
	3/11/2019	0.2
	10/3/2019	0.45
	3/23/2020	0.28
	9/25/2020	0.4
	3/23/2021	0.26
	9/16/2021	2.06
	3/23/2022	1.7
	9/16/2022	1.11

---

Date	Count	Mean	Significant
3/17/2023	1	0.6	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

#### Parameter: Turbidity

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 2.36

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	0.43
	12/5/2013	0.88
	3/19/2014	0.5
	9/8/2014	1.9
	3/18/2015	1.28
	9/8/2015	0.81
	3/14/2016	2.35
	9/20/2016	1.63
	3/24/2017	0.39
	9/20/2017	1.44
	3/27/2018	2.36
	9/18/2018	2.21
	3/11/2019	1.13
	10/3/2019	0.94
	3/23/2020	1.35
	9/24/2020	1.88
	3/23/2021	2.2
	9/16/2021	2.32
	3/24/2022	0.94
	9/16/2022	1.2

---

Date	Count	Mean	Significant
3/17/2023	1	4.54	TRUE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

#### Parameter: Turbidity

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 14.3

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	14.3
	9/23/2016	1.6
	3/28/2017	0.77
	9/21/2017	1.79
	3/16/2018	1.68
	9/19/2018	3
	3/5/2019	3.44
	10/3/2019	1.26
	3/25/2020	3.35
	9/28/2020	2.33
	3/19/2021	2.85
	9/15/2021	3.13
	3/22/2022	1.6
	9/14/2022	2.54

---

Date	Count	Mean	Significant
3/16/2023	1	15.85	TRUE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

#### Parameter: Turbidity

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 21.85

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	10.36
	3/26/2020	5.37
	9/29/2020	5.44
	3/16/2021	3.15
	9/14/2021	5.68
	3/18/2022	13.48
	9/13/2022	21.85

---

Date	Count	Mean	Significant
3/14/2023	1	3.48	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

#### Parameter: Turbidity

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 9.98

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	2.97
	3/25/2020	0.65
	9/29/2020	0.28
	3/22/2021	0.43
	9/15/2021	0.46
	3/24/2022	0.7
	9/15/2022	9.98

---

Date	Count	Mean	Significant
3/16/2023	1	0.41	FALSE

## 9) Patapsco Aquifer Metals Inter-well Statistics

APPENDIX F

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Antimony, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 58

Non detect rank is 29.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	29.5
	3/19/2014	ND<5 U	29.5
	9/8/2014	ND<5 U	29.5
	3/17/2015	ND<5 U	29.5
	9/14/2015	ND<5 U	29.5
	3/17/2016	ND<5 U	29.5
	9/21/2016	ND<5 U	29.5
	3/24/2017	1.3 J	60
	9/20/2017	ND<5 U	29.5
	3/27/2018	ND<5 U	29.5
	9/19/2018	ND<5 U	29.5
	3/11/2019	ND<5 U	29.5
	9/25/2019	ND<5 U	29.5
	3/18/2020	ND<5 U	29.5
	9/23/2020	ND<5 U	29.5
	3/17/2021	ND<5 U	29.5
	9/8/2021	ND<5 U	29.5
	3/15/2022	ND<2.2	29.5
	9/12/2022	ND<2.2	29.5
3/13/2023	ND<2.2	29.5	
GWM-2	9/25/2013	ND<5	29.5
	3/18/2014	ND<5 U	29.5
	9/16/2014	ND<5 U	29.5
	3/18/2015	ND<5 U	29.5
	9/15/2015	ND<5 U	29.5
	3/16/2016	ND<5 U	29.5
	9/22/2016	ND<5 U	29.5
	3/24/2017	ND<5 U	29.5
	9/21/2017	ND<5 U	29.5
	3/28/2018	ND<5 U	29.5
	9/21/2018	ND<5 U	29.5
	3/12/2019	ND<5 U	29.5
	10/1/2019	ND<5 U	29.5
	3/18/2020	ND<5 U	29.5
	9/23/2020	ND<5 U	29.5
	3/17/2021	ND<5 U	29.5
	9/9/2021	ND<5 U	29.5
3/15/2022	ND<2.2	29.5	
9/12/2022	ND<2.2	29.5	
3/13/2023	ND<2.2	29.5	
GWM-4	9/18/2013	ND<5	29.5
	3/20/2014	ND<5 U	29.5
	9/9/2014	ND<5 U	29.5

3/16/2015	ND<5 U	29.5
9/9/2015	ND<5 U	29.5
3/18/2016	ND<5 U	29.5
9/20/2016	ND<5 U	29.5
3/23/2017	ND<5 U	29.5
9/18/2017	ND<5 U	29.5
3/15/2018	ND<5 U	29.5
9/17/2018	ND<5 U	29.5
3/5/2019	1 J	59
9/24/2019	ND<5 U	29.5
3/16/2020	ND<5 U	29.5
9/22/2020	ND<5 U	29.5
3/16/2021	ND<5 U	29.5
9/14/2021	ND<5 U	29.5
3/22/2022	ND<2.2	29.5
9/13/2022	ND<2.2	29.5
3/14/2023	ND<2.2	29.5

---

The Wilcoxon Statistic is 409.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 0.141131

The Standard Deviation adjusted for ties is 19.8326

The Z Score adjusted for ties is 0.453798

0.141131 < 2.326 indicating no statistical significance at 1% level

0.453798 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Antimony, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 59

Non detect rank is 30

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	30
	3/19/2014	ND<5 U	30
	9/8/2014	ND<5 U	30
	3/17/2015	ND<5 U	30
	9/14/2015	ND<5 U	30
	3/17/2016	ND<5 U	30
	9/21/2016	ND<5 U	30
	3/24/2017	1.3 J	61
	9/20/2017	ND<5 U	30
	3/27/2018	ND<5 U	30
	9/19/2018	ND<5 U	30
	3/11/2019	ND<5 U	30
	9/25/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
	9/8/2021	ND<5 U	30
3/15/2022	ND<2.2	30	
9/12/2022	ND<2.2	30	
3/13/2023	ND<2.2	30	
GWM-2	9/25/2013	ND<5	30
	3/18/2014	ND<5 U	30
	9/16/2014	ND<5 U	30
	3/18/2015	ND<5 U	30
	9/15/2015	ND<5 U	30
	3/16/2016	ND<5 U	30
	9/22/2016	ND<5 U	30
	3/24/2017	ND<5 U	30
	9/21/2017	ND<5 U	30
	3/28/2018	ND<5 U	30
	9/21/2018	ND<5 U	30
	3/12/2019	ND<5 U	30
	10/1/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
	9/9/2021	ND<5 U	30
3/15/2022	ND<2.2	30	
9/12/2022	ND<2.2	30	
3/13/2023	ND<2.2	30	
GWM-5A	9/19/2013	ND<5	30
	12/5/2013	ND<5	30
	3/19/2014	ND<5 U	30

9/4/2014	0.8 J	60
3/17/2015	ND<5 U	30
9/11/2015	ND<5 U	30
3/15/2016	ND<5 U	30
9/21/2016	ND<5 U	30
3/28/2017	ND<5 U	30
9/19/2017	ND<5 U	30
3/26/2018	ND<5 U	30
9/18/2018	ND<5 U	30
3/4/2019	ND<5 U	30
9/23/2019	ND<5 U	30
3/19/2020	ND<5 U	30
9/23/2020	ND<5 U	30
3/19/2021	ND<5 U	30
9/15/2021	ND<5 U	30
3/16/2022	ND<2.2	30
9/14/2022	ND<2.2	30
3/16/2023	ND<2.2	30

---

The Wilcoxon Statistic is 429

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is 0.129025

The Standard Deviation adjusted for ties is 20.3252

The Z Score adjusted for ties is 0.4182

0.129025 < 2.326 indicating no statistical significance at 1% level

0.4182 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Antimony, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 58

Non detect rank is 29.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	29.5
	3/19/2014	ND<5 U	29.5
	9/8/2014	ND<5 U	29.5
	3/17/2015	ND<5 U	29.5
	9/14/2015	ND<5 U	29.5
	3/17/2016	ND<5 U	29.5
	9/21/2016	ND<5 U	29.5
	3/24/2017	1.3 J	59
	9/20/2017	ND<5 U	29.5
	3/27/2018	ND<5 U	29.5
	9/19/2018	ND<5 U	29.5
	3/11/2019	ND<5 U	29.5
	9/25/2019	ND<5 U	29.5
	3/18/2020	ND<5 U	29.5
	9/23/2020	ND<5 U	29.5
	3/17/2021	ND<5 U	29.5
	9/8/2021	ND<5 U	29.5
3/15/2022	ND<2.2	29.5	
9/12/2022	ND<2.2	29.5	
3/13/2023	ND<2.2	29.5	
GWM-2	9/25/2013	ND<5	29.5
	3/18/2014	ND<5 U	29.5
	9/16/2014	ND<5 U	29.5
	3/18/2015	ND<5 U	29.5
	9/15/2015	ND<5 U	29.5
	3/16/2016	ND<5 U	29.5
	9/22/2016	ND<5 U	29.5
	3/24/2017	ND<5 U	29.5
	9/21/2017	ND<5 U	29.5
	3/28/2018	ND<5 U	29.5
	9/21/2018	ND<5 U	29.5
	3/12/2019	ND<5 U	29.5
	10/1/2019	ND<5 U	29.5
	3/18/2020	ND<5 U	29.5
	9/23/2020	ND<5 U	29.5
	3/17/2021	ND<5 U	29.5
	9/9/2021	ND<5 U	29.5
3/15/2022	ND<2.2	29.5	
9/12/2022	ND<2.2	29.5	
3/13/2023	ND<2.2	29.5	
GWM-14	9/24/2013	ND<5	29.5
	3/21/2014	ND<5 U	29.5
	9/8/2014	ND<5 U	29.5

3/19/2015	ND<5 U	29.5
9/14/2015	ND<5 U	29.5
3/21/2016	ND<5 U	29.5
9/23/2016	ND<5 U	29.5
3/27/2017	1.4 J	60
9/20/2017	ND<5 U	29.5
3/16/2018	ND<5 U	29.5
9/20/2018	ND<5 U	29.5
3/5/2019	ND<5 U	29.5
9/25/2019	ND<5 U	29.5
3/25/2020	ND<5 U	29.5
9/28/2020	ND<5 U	29.5
3/18/2021	ND<5 U	29.5
9/15/2021	ND<5 U	29.5
3/22/2022	ND<2.2	29.5
9/14/2022	ND<2.2	29.5
3/16/2023	ND<2.2	29.5

---

The Wilcoxon Statistic is 410.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 0.156813

The Standard Deviation adjusted for ties is 19.8326

The Z Score adjusted for ties is 0.504219

0.156813 < 2.326 indicating no statistical significance at 1% level

0.504219 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Antimony, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 58

Non detect rank is 29.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	29.5
	3/19/2014	ND<5 U	29.5
	9/8/2014	ND<5 U	29.5
	3/17/2015	ND<5 U	29.5
	9/14/2015	ND<5 U	29.5
	3/17/2016	ND<5 U	29.5
	9/21/2016	ND<5 U	29.5
	3/24/2017	1.3 J	59
	9/20/2017	ND<5 U	29.5
	3/27/2018	ND<5 U	29.5
	9/19/2018	ND<5 U	29.5
	3/11/2019	ND<5 U	29.5
	9/25/2019	ND<5 U	29.5
	3/18/2020	ND<5 U	29.5
	9/23/2020	ND<5 U	29.5
	3/17/2021	ND<5 U	29.5
	9/8/2021	ND<5 U	29.5
	3/15/2022	ND<2.2	29.5
9/12/2022	ND<2.2	29.5	
3/13/2023	ND<2.2	29.5	
GWM-2	9/25/2013	ND<5	29.5
	3/18/2014	ND<5 U	29.5
	9/16/2014	ND<5 U	29.5
	3/18/2015	ND<5 U	29.5
	9/15/2015	ND<5 U	29.5
	3/16/2016	ND<5 U	29.5
	9/22/2016	ND<5 U	29.5
	3/24/2017	ND<5 U	29.5
	9/21/2017	ND<5 U	29.5
	3/28/2018	ND<5 U	29.5
	9/21/2018	ND<5 U	29.5
	3/12/2019	ND<5 U	29.5
	10/1/2019	ND<5 U	29.5
	3/18/2020	ND<5 U	29.5
	9/23/2020	ND<5 U	29.5
	3/17/2021	ND<5 U	29.5
	9/9/2021	ND<5 U	29.5
	3/15/2022	ND<2.2	29.5
9/12/2022	ND<2.2	29.5	
3/13/2023	ND<2.2	29.5	
GWM-6	9/24/2013	ND<5	29.5
	3/21/2014	ND<5 U	29.5
	9/17/2014	ND<5 U	29.5

3/19/2015	ND<5 U	29.5
9/15/2015	ND<5 U	29.5
3/21/2016	ND<5 U	29.5
9/26/2016	ND<5 U	29.5
3/31/2017	ND<5 U	29.5
9/21/2017	ND<5 U	29.5
3/30/2018	2.2	60
9/26/2018	ND<5 U	29.5
3/13/2019	ND<5 U	29.5
10/3/2019	ND<5 U	29.5
4/3/2020	ND<5 U	29.5
9/30/2020	ND<5 U	29.5
3/22/2021	ND<5 U	29.5
9/16/2021	ND<5 U	29.5
3/24/2022	ND<2.2	29.5
9/16/2022	ND<2.2	29.5
3/17/2023	ND<2.2	29.5

---

The Wilcoxon Statistic is 410.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 0.156813

The Standard Deviation adjusted for ties is 19.8326

The Z Score adjusted for ties is 0.504219

0.156813 < 2.326 indicating no statistical significance at 1% level

0.504219 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Antimony, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 59

Non detect rank is 30

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	30
	3/19/2014	ND<5 U	30
	9/8/2014	ND<5 U	30
	3/17/2015	ND<5 U	30
	9/14/2015	ND<5 U	30
	3/17/2016	ND<5 U	30
	9/21/2016	ND<5 U	30
	3/24/2017	1.3 J	60
	9/20/2017	ND<5 U	30
	3/27/2018	ND<5 U	30
	9/19/2018	ND<5 U	30
	3/11/2019	ND<5 U	30
	9/25/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
	9/8/2021	ND<5 U	30
3/15/2022	ND<2.2	30	
9/12/2022	ND<2.2	30	
3/13/2023	ND<2.2	30	
GWM-2	9/25/2013	ND<5	30
	3/18/2014	ND<5 U	30
	9/16/2014	ND<5 U	30
	3/18/2015	ND<5 U	30
	9/15/2015	ND<5 U	30
	3/16/2016	ND<5 U	30
	9/22/2016	ND<5 U	30
	3/24/2017	ND<5 U	30
	9/21/2017	ND<5 U	30
	3/28/2018	ND<5 U	30
	9/21/2018	ND<5 U	30
	3/12/2019	ND<5 U	30
	10/1/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
	9/9/2021	ND<5 U	30
3/15/2022	ND<2.2	30	
9/12/2022	ND<2.2	30	
3/13/2023	ND<2.2	30	
GWM-3	9/25/2013	ND<5	30
	3/18/2014	ND<5 U	30
	9/16/2014	ND<5 U	30

3/18/2015	ND<5 U	30
9/15/2015	ND<5 U	30
3/16/2016	ND<5 U	30
9/22/2016	ND<5 U	30
3/29/2017	ND<5 U	30
9/21/2017	ND<5 U	30
3/28/2018	ND<5 U	30
9/20/2018	ND<5 U	30
3/12/2019	ND<5 U	30
10/1/2019	ND<5 U	30
3/18/2020	ND<5 U	30
9/24/2020	ND<5 U	30
3/17/2021	ND<5 U	30
9/9/2021	ND<5 U	30
3/15/2022	ND<2.2	30
9/16/2022	ND<2.2	30
3/15/2023	ND<2.2	30

---

The Wilcoxon Statistic is 390

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -0.164653

The Standard Deviation adjusted for ties is 14.1421

The Z Score adjusted for ties is -0.742462

-0.164653 < 2.326 indicating no statistical significance at 1% level

-0.742462 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Antimony, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 47

Non detect rank is 24

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	24
	3/19/2014	ND<5 U	24
	9/8/2014	ND<5 U	24
	3/17/2015	ND<5 U	24
	9/14/2015	ND<5 U	24
	3/17/2016	ND<5 U	24
	9/21/2016	ND<5 U	24
	3/24/2017	1.3 J	48
	9/20/2017	ND<5 U	24
	3/27/2018	ND<5 U	24
	9/19/2018	ND<5 U	24
	3/11/2019	ND<5 U	24
	9/25/2019	ND<5 U	24
	3/18/2020	ND<5 U	24
	9/23/2020	ND<5 U	24
	3/17/2021	ND<5 U	24
	9/8/2021	ND<5 U	24
3/15/2022	ND<2.2	24	
9/12/2022	ND<2.2	24	
3/13/2023	ND<2.2	24	
GWM-2	9/25/2013	ND<5	24
	3/18/2014	ND<5 U	24
	9/16/2014	ND<5 U	24
	3/18/2015	ND<5 U	24
	9/15/2015	ND<5 U	24
	3/16/2016	ND<5 U	24
	9/22/2016	ND<5 U	24
	3/24/2017	ND<5 U	24
	9/21/2017	ND<5 U	24
	3/28/2018	ND<5 U	24
	9/21/2018	ND<5 U	24
	3/12/2019	ND<5 U	24
	10/1/2019	ND<5 U	24
	3/18/2020	ND<5 U	24
	9/23/2020	ND<5 U	24
	3/17/2021	ND<5 U	24
	9/9/2021	ND<5 U	24
3/15/2022	ND<2.2	24	
9/12/2022	ND<2.2	24	
3/13/2023	ND<2.2	24	
GWM-17S	11/14/2019	ND<5 U	24
	3/26/2020	ND<5 U	24
	9/29/2020	ND<5 U	24

3/16/2021	ND<5 U	24
9/14/2021	ND<5 U	24
3/18/2022	ND<2.2	24
9/13/2022	ND<2.2	24
3/14/2023	ND<2.2	24

---

The Wilcoxon Statistic is 156

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is -0.124489

The Standard Deviation adjusted for ties is 8.94427

The Z Score adjusted for ties is -0.503115

-0.124489 < 2.326 indicating no statistical significance at 1% level

-0.503115 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Arsenic, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 47

Non detect rank is 24

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	24
	3/19/2014	ND<5 U	24
	9/8/2014	ND<5 U	24
	3/17/2015	ND<5 U	24
	9/14/2015	ND<5 U	24
	3/17/2016	ND<5 U	24
	9/21/2016	ND<5 U	24
	3/24/2017	ND<5 U	24
	9/20/2017	ND<5 U	24
	3/27/2018	ND<5 U	24
	9/19/2018	1.6 J	56
	3/11/2019	1.9 J	58
	9/25/2019	ND<5 U	24
	3/18/2020	ND<5 U	24
	9/23/2020	ND<5 U	24
	3/17/2021	ND<5 U	24
	9/8/2021	ND<5 U	24
	3/15/2022	ND<3.3	24
9/12/2022	ND<3.3	24	
3/13/2023	ND<3.3	24	
GWM-2	9/25/2013	ND<5	24
	3/18/2014	ND<5 U	24
	9/16/2014	ND<5 U	24
	3/18/2015	ND<5 U	24
	9/15/2015	ND<5 U	24
	3/16/2016	ND<5 U	24
	9/22/2016	ND<5 U	24
	3/24/2017	ND<5 U	24
	9/21/2017	3.2 J	60
	3/28/2018	ND<5 U	24
	9/21/2018	ND<5 U	24
	3/12/2019	ND<5 U	24
	10/1/2019	ND<5 U	24
	3/18/2020	ND<5 U	24
	9/23/2020	ND<5 U	24
	3/17/2021	ND<5 U	24
	9/9/2021	ND<5 U	24
	3/15/2022	ND<3.3	24
9/12/2022	ND<3.3	24	
3/13/2023	ND<3.3	24	
GWM-4	9/18/2013	ND<5	24
	3/20/2014	1.3 J	51
	9/9/2014	1 J	49

3/16/2015	1.4 J	53
9/9/2015	1.4 J	54
3/18/2016	1.4 J	55
9/20/2016	ND<5 U	24
3/23/2017	1.2 J	50
9/18/2017	1.9 J	59
3/15/2018	ND<5 U	24
9/17/2018	ND<5 U	24
3/5/2019	ND<5 U	24
9/24/2019	1.8 J	57
3/16/2020	1.3 J	52
9/22/2020	ND<5 U	24
3/16/2021	ND<5 U	24
9/14/2021	0.7 J	48
3/22/2022	ND<3.3	24
9/13/2022	ND<3.3	24
3/14/2023	ND<3.3	24

---

The Wilcoxon Statistic is 558

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 2.4698

The Standard Deviation adjusted for ties is 45.9599

The Z Score adjusted for ties is 3.4269

**2.4698 > 2.326 indicating statistical significance at 1% level**

**3.4269 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Arsenic, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 57

Non detect rank is 29

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	29
	3/19/2014	ND<5 U	29
	9/8/2014	ND<5 U	29
	3/17/2015	ND<5 U	29
	9/14/2015	ND<5 U	29
	3/17/2016	ND<5 U	29
	9/21/2016	ND<5 U	29
	3/24/2017	ND<5 U	29
	9/20/2017	ND<5 U	29
	3/27/2018	ND<5 U	29
	9/19/2018	1.6 J	59
	3/11/2019	1.9 J	60
	9/25/2019	ND<5 U	29
	3/18/2020	ND<5 U	29
	9/23/2020	ND<5 U	29
	3/17/2021	ND<5 U	29
	9/8/2021	ND<5 U	29
3/15/2022	ND<3.3	29	
9/12/2022	ND<3.3	29	
3/13/2023	ND<3.3	29	
GWM-2	9/25/2013	ND<5	29
	3/18/2014	ND<5 U	29
	9/16/2014	ND<5 U	29
	3/18/2015	ND<5 U	29
	9/15/2015	ND<5 U	29
	3/16/2016	ND<5 U	29
	9/22/2016	ND<5 U	29
	3/24/2017	ND<5 U	29
	9/21/2017	3.2 J	61
	3/28/2018	ND<5 U	29
	9/21/2018	ND<5 U	29
	3/12/2019	ND<5 U	29
	10/1/2019	ND<5 U	29
	3/18/2020	ND<5 U	29
	9/23/2020	ND<5 U	29
	3/17/2021	ND<5 U	29
	9/9/2021	ND<5 U	29
3/15/2022	ND<3.3	29	
9/12/2022	ND<3.3	29	
3/13/2023	ND<3.3	29	
GWM-5A	9/19/2013	ND<5	29
	12/5/2013	ND<5	29
	3/19/2014	ND<5 U	29

9/4/2014	ND<5 U	29
3/17/2015	ND<5 U	29
9/11/2015	ND<5 U	29
3/15/2016	ND<5 U	29
9/21/2016	ND<5 U	29
3/28/2017	ND<5 U	29
9/19/2017	ND<5 U	29
3/26/2018	ND<5 U	29
9/18/2018	ND<5 U	29
3/4/2019	ND<5 U	29
9/23/2019	ND<5 U	29
3/19/2020	ND<5 U	29
9/23/2020	ND<5 U	29
3/19/2021	ND<5 U	29
9/15/2021	0.28 J	58
3/16/2022	ND<3.3	29
9/14/2022	ND<3.3	29
3/16/2023	ND<3.3	29

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The Wilcoxon Statistic is 407

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is -0.204922

The Standard Deviation adjusted for ties is 28.2692

The Z Score adjusted for ties is -0.477552

-0.204922 < 2.326 indicating no statistical significance at 1% level

-0.477552 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Arsenic, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 44

Non detect rank is 22.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	22.5
	3/19/2014	ND<5 U	22.5
	9/8/2014	ND<5 U	22.5
	3/17/2015	ND<5 U	22.5
	9/14/2015	ND<5 U	22.5
	3/17/2016	ND<5 U	22.5
	9/21/2016	ND<5 U	22.5
	3/24/2017	ND<5 U	22.5
	9/20/2017	ND<5 U	22.5
	3/27/2018	ND<5 U	22.5
	9/19/2018	1.6 J	55
	3/11/2019	1.9 J	58
	9/25/2019	ND<5 U	22.5
	3/18/2020	ND<5 U	22.5
	9/23/2020	ND<5 U	22.5
	3/17/2021	ND<5 U	22.5
	9/8/2021	ND<5 U	22.5
	3/15/2022	ND<3.3	22.5
	9/12/2022	ND<3.3	22.5
	3/13/2023	ND<3.3	22.5
GWM-2	9/25/2013	ND<5	22.5
	3/18/2014	ND<5 U	22.5
	9/16/2014	ND<5 U	22.5
	3/18/2015	ND<5 U	22.5
	9/15/2015	ND<5 U	22.5
	3/16/2016	ND<5 U	22.5
	9/22/2016	ND<5 U	22.5
	3/24/2017	ND<5 U	22.5
	9/21/2017	3.2 J	59
	3/28/2018	ND<5 U	22.5
	9/21/2018	ND<5 U	22.5
	3/12/2019	ND<5 U	22.5
	10/1/2019	ND<5 U	22.5
	3/18/2020	ND<5 U	22.5
	9/23/2020	ND<5 U	22.5
	3/17/2021	ND<5 U	22.5
	9/9/2021	ND<5 U	22.5
	3/15/2022	ND<3.3	22.5
	9/12/2022	ND<3.3	22.5
	3/13/2023	ND<3.3	22.5
GWM-14	9/24/2013	ND<5	22.5
	3/21/2014	ND<5 U	22.5
	9/8/2014	1.3 J	51

3/19/2015	ND<5 U	22.5
9/14/2015	1.1 J	45
3/21/2016	ND<5 U	22.5
9/23/2016	1.1 J	46
3/27/2017	1.3 J	52
9/20/2017	1.2 J	48
3/16/2018	ND<5 U	22.5
9/20/2018	1.5 J	54
3/5/2019	1.1 J	47
9/25/2019	6.3	60
3/25/2020	1.2 J	49
9/28/2020	1.6 J	56
3/18/2021	ND<5 U	22.5
9/15/2021	1.6 J	57
3/22/2022	1.2 J	50
9/14/2022	1.4 J	53
3/16/2023	ND<3.3	22.5

---

The Wilcoxon Statistic is 615.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 3.37147

The Standard Deviation adjusted for ties is 49.6314

The Z Score adjusted for ties is 4.33193

**3.37147 > 2.326 indicating statistical significance at 1% level**

**4.33193 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Arsenic, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 46

Non detect rank is 23.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	23.5
	3/19/2014	ND<5 U	23.5
	9/8/2014	ND<5 U	23.5
	3/17/2015	ND<5 U	23.5
	9/14/2015	ND<5 U	23.5
	3/17/2016	ND<5 U	23.5
	9/21/2016	ND<5 U	23.5
	3/24/2017	ND<5 U	23.5
	9/20/2017	ND<5 U	23.5
	3/27/2018	ND<5 U	23.5
	9/19/2018	1.6 J	55
	3/11/2019	1.9 J	59
	9/25/2019	ND<5 U	23.5
	3/18/2020	ND<5 U	23.5
	9/23/2020	ND<5 U	23.5
	3/17/2021	ND<5 U	23.5
	9/8/2021	ND<5 U	23.5
	3/15/2022	ND<3.3	23.5
	9/12/2022	ND<3.3	23.5
	3/13/2023	ND<3.3	23.5
GWM-2	9/25/2013	ND<5	23.5
	3/18/2014	ND<5 U	23.5
	9/16/2014	ND<5 U	23.5
	3/18/2015	ND<5 U	23.5
	9/15/2015	ND<5 U	23.5
	3/16/2016	ND<5 U	23.5
	9/22/2016	ND<5 U	23.5
	3/24/2017	ND<5 U	23.5
	9/21/2017	3.2 J	60
	3/28/2018	ND<5 U	23.5
	9/21/2018	ND<5 U	23.5
	3/12/2019	ND<5 U	23.5
	10/1/2019	ND<5 U	23.5
	3/18/2020	ND<5 U	23.5
	9/23/2020	ND<5 U	23.5
	3/17/2021	ND<5 U	23.5
	9/9/2021	ND<5 U	23.5
	3/15/2022	ND<3.3	23.5
	9/12/2022	ND<3.3	23.5
	3/13/2023	ND<3.3	23.5
GWM-6	9/24/2013	ND<5	23.5
	3/21/2014	ND<5 U	23.5
	9/17/2014	ND<5 U	23.5

3/19/2015	ND<5 U	23.5
9/15/2015	ND<5 U	23.5
3/21/2016	ND<5 U	23.5
9/26/2016	ND<5 U	23.5
3/31/2017	ND<5 U	23.5
9/21/2017	ND<5 U	23.5
3/30/2018	1.2	48
9/26/2018	1.4 J	53
3/13/2019	1.1 J	47
10/3/2019	1.2 J	49
4/3/2020	1.8 J	58
9/30/2020	1.3 J	51
3/22/2021	1.7 J	56
9/16/2021	1.2 J	50
3/24/2022	1.3 J	52
9/16/2022	1.5 J	54
3/17/2023	1.7 J	57

---

The Wilcoxon Statistic is 576.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 2.7599

The Standard Deviation adjusted for ties is 47.2701

The Z Score adjusted for ties is 3.72328

**2.7599 > 2.326 indicating statistical significance at 1% level**

**3.72328 > 2.326 indicating statistical significance at 1% level when adjusted for ties**



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Arsenic, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 56

Non detect rank is 28.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	28.5
	3/19/2014	ND<5 U	28.5
	9/8/2014	ND<5 U	28.5
	3/17/2015	ND<5 U	28.5
	9/14/2015	ND<5 U	28.5
	3/17/2016	ND<5 U	28.5
	9/21/2016	ND<5 U	28.5
	3/24/2017	ND<5 U	28.5
	9/20/2017	ND<5 U	28.5
	3/27/2018	ND<5 U	28.5
	9/19/2018	1.6 J	58
	3/11/2019	1.9 J	59
	9/25/2019	ND<5 U	28.5
	3/18/2020	ND<5 U	28.5
	9/23/2020	ND<5 U	28.5
	3/17/2021	ND<5 U	28.5
	9/8/2021	ND<5 U	28.5
	3/15/2022	ND<3.3	28.5
	9/12/2022	ND<3.3	28.5
3/13/2023	ND<3.3	28.5	
GWM-2	9/25/2013	ND<5	28.5
	3/18/2014	ND<5 U	28.5
	9/16/2014	ND<5 U	28.5
	3/18/2015	ND<5 U	28.5
	9/15/2015	ND<5 U	28.5
	3/16/2016	ND<5 U	28.5
	9/22/2016	ND<5 U	28.5
	3/24/2017	ND<5 U	28.5
	9/21/2017	3.2 J	60
	3/28/2018	ND<5 U	28.5
	9/21/2018	ND<5 U	28.5
	3/12/2019	ND<5 U	28.5
	10/1/2019	ND<5 U	28.5
	3/18/2020	ND<5 U	28.5
	9/23/2020	ND<5 U	28.5
	3/17/2021	ND<5 U	28.5
	9/9/2021	ND<5 U	28.5
	3/15/2022	ND<3.3	28.5
	9/12/2022	ND<3.3	28.5
3/13/2023	ND<3.3	28.5	
GWM-3	9/25/2013	ND<5	28.5
	3/18/2014	ND<5 U	28.5
	9/16/2014	ND<5 U	28.5

3/18/2015	ND<5 U	28.5
9/15/2015	ND<5 U	28.5
3/16/2016	ND<5 U	28.5
9/22/2016	ND<5 U	28.5
3/29/2017	ND<5 U	28.5
9/21/2017	ND<5 U	28.5
3/28/2018	ND<5 U	28.5
9/20/2018	ND<5 U	28.5
3/12/2019	ND<5 U	28.5
10/1/2019	ND<5 U	28.5
3/18/2020	ND<5 U	28.5
9/24/2020	ND<5 U	28.5
3/17/2021	ND<5 U	28.5
9/9/2021	0.2 J	57
3/15/2022	ND<3.3	28.5
9/16/2022	ND<3.3	28.5
3/15/2023	ND<3.3	28.5

---

The Wilcoxon Statistic is 388.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -0.188175

The Standard Deviation adjusted for ties is 27.5763

The Z Score adjusted for ties is -0.435156

-0.188175 < 2.326 indicating no statistical significance at 1% level

-0.435156 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Arsenic, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 40

Non detect rank is 20.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	20.5
	3/19/2014	ND<5 U	20.5
	9/8/2014	ND<5 U	20.5
	3/17/2015	ND<5 U	20.5
	9/14/2015	ND<5 U	20.5
	3/17/2016	ND<5 U	20.5
	9/21/2016	ND<5 U	20.5
	3/24/2017	ND<5 U	20.5
	9/20/2017	ND<5 U	20.5
	3/27/2018	ND<5 U	20.5
	9/19/2018	1.6 J	46
	3/11/2019	1.9 J	47
	9/25/2019	ND<5 U	20.5
	3/18/2020	ND<5 U	20.5
	9/23/2020	ND<5 U	20.5
	3/17/2021	ND<5 U	20.5
	9/8/2021	ND<5 U	20.5
	3/15/2022	ND<3.3	20.5
	9/12/2022	ND<3.3	20.5
3/13/2023	ND<3.3	20.5	
GWM-2	9/25/2013	ND<5	20.5
	3/18/2014	ND<5 U	20.5
	9/16/2014	ND<5 U	20.5
	3/18/2015	ND<5 U	20.5
	9/15/2015	ND<5 U	20.5
	3/16/2016	ND<5 U	20.5
	9/22/2016	ND<5 U	20.5
	3/24/2017	ND<5 U	20.5
	9/21/2017	3.2 J	48
	3/28/2018	ND<5 U	20.5
	9/21/2018	ND<5 U	20.5
	3/12/2019	ND<5 U	20.5
	10/1/2019	ND<5 U	20.5
	3/18/2020	ND<5 U	20.5
	9/23/2020	ND<5 U	20.5
	3/17/2021	ND<5 U	20.5
	9/9/2021	ND<5 U	20.5
	3/15/2022	ND<3.3	20.5
	9/12/2022	ND<3.3	20.5
3/13/2023	ND<3.3	20.5	
GWM-17S	11/14/2019	1.2 J	42
	3/26/2020	ND<5 U	20.5
	9/29/2020	1.3 J	44

3/16/2021	ND<5 U	20.5
9/14/2021	1 J	41
3/18/2022	ND<3.3	20.5
9/13/2022	1.4 J	45
3/14/2023	1.2 J	43

---

The Wilcoxon Statistic is 240.5

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 2.21313

The Standard Deviation adjusted for ties is 23.4657

The Z Score adjusted for ties is 3.40923

2.21313 < 2.326 indicating no statistical significance at 1% level

**3.40923 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Barium, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	20	1
	3/19/2014	67	10
	9/8/2014	42	3
	3/17/2015	150	46
	9/14/2015	100	29
	3/17/2016	69	11
	9/21/2016	94	23
	3/24/2017	71	12
	9/20/2017	46	4
	3/27/2018	88	15
	9/19/2018	56	7
	3/11/2019	49	5
	9/25/2019	130	37
	3/18/2020	93	21
	9/23/2020	75	13
	3/17/2021	59	8
	9/8/2021	51	6
3/15/2022	170	56	
9/12/2022	130	38	
3/13/2023	91	17	
GWM-2	9/25/2013	60	9
	3/18/2014	110	32
	9/16/2014	110	33
	3/18/2015	110	34
	9/15/2015	100	30
	3/16/2016	92	18
	9/22/2016	95	24
	3/24/2017	93	22
	9/21/2017	92	19
	3/28/2018	100	31
	9/21/2018	120	35
	3/12/2019	130	39
	10/1/2019	120	36
	3/18/2020	98	27
	9/23/2020	83	14
	3/17/2021	89	16
	9/9/2021	95	25
3/15/2022	95	26	
9/12/2022	92	20	
3/13/2023	99	28	
GWM-4	9/18/2013	30	2
	3/20/2014	190	59
	9/9/2014	130	40

3/16/2015	140	42
9/9/2015	130	41
3/18/2016	150	47
9/20/2016	150	48
3/23/2017	140	43
9/18/2017	140	44
3/15/2018	150	49
9/17/2018	150	50
3/5/2019	180	57
9/24/2019	150	51
3/16/2020	250	60
9/22/2020	140	45
3/16/2021	180	58
9/14/2021	160	54
3/22/2022	160	55
9/13/2022	150	52
3/14/2023	150	53

---

The Wilcoxon Statistic is 740

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 5.32378

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 5.32378

**5.32378 > 2.326 indicating statistical significance at 1% level**

**5.32378 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Barium, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	20	1
	3/19/2014	67	9
	9/8/2014	42	2
	3/17/2015	150	59
	9/14/2015	100	37
	3/17/2016	69	10
	9/21/2016	94	26
	3/24/2017	71	11
	9/20/2017	46	3
	3/27/2018	88	16
	9/19/2018	56	6
	3/11/2019	49	4
	9/25/2019	130	54
	3/18/2020	93	24
	9/23/2020	75	12
	3/17/2021	59	7
	9/8/2021	51	5
3/15/2022	170	60	
9/12/2022	130	55	
3/13/2023	91	19	
GWM-2	9/25/2013	60	8
	3/18/2014	110	43
	9/16/2014	110	44
	3/18/2015	110	45
	9/15/2015	100	38
	3/16/2016	92	20
	9/22/2016	95	27
	3/24/2017	93	25
	9/21/2017	92	21
	3/28/2018	100	39
	9/21/2018	120	50
	3/12/2019	130	56
	10/1/2019	120	51
	3/18/2020	98	32
	9/23/2020	83	14
	3/17/2021	89	17
	9/9/2021	95	28
3/15/2022	95	29	
9/12/2022	92	22	
3/13/2023	99	33	
GWM-5A	9/19/2013	360	61
	12/5/2013	130	57
	3/19/2014	110	46

9/4/2014	100	40
3/17/2015	99	34
9/11/2015	99	35
3/15/2016	95	30
9/21/2016	92	23
3/28/2017	90	18
9/19/2017	86	15
3/26/2018	81	13
9/18/2018	120	52
3/4/2019	140	58
9/23/2019	120	53
3/19/2020	100	41
9/23/2020	110	47
3/19/2021	110	48
9/15/2021	110	49
3/16/2022	95	31
9/14/2022	100	42
3/16/2023	99	36

---

The Wilcoxon Statistic is 598

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is 2.69435

The Standard Deviation adjusted for ties is 65.8787

The Z Score adjusted for ties is 2.69435

**2.69435 > 2.326 indicating statistical significance at 1% level**

**2.69435 > 2.326 indicating statistical significance at 1% level when adjusted for ties**



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Barium, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	20	1
	3/19/2014	67	28
	9/8/2014	42	2
	3/17/2015	150	59
	9/14/2015	100	47
	3/17/2016	69	29
	9/21/2016	94	41
	3/24/2017	71	30
	9/20/2017	46	9
	3/27/2018	88	33
	9/19/2018	56	24
	3/11/2019	49	17
	9/25/2019	130	56
	3/18/2020	93	39
	9/23/2020	75	31
	3/17/2021	59	25
	9/8/2021	51	21
3/15/2022	170	60	
9/12/2022	130	57	
3/13/2023	91	35	
GWM-2	9/25/2013	60	26
	3/18/2014	110	50
	9/16/2014	110	51
	3/18/2015	110	52
	9/15/2015	100	48
	3/16/2016	92	36
	9/22/2016	95	42
	3/24/2017	93	40
	9/21/2017	92	37
	3/28/2018	100	49
	9/21/2018	120	54
	3/12/2019	130	58
	10/1/2019	120	55
	3/18/2020	98	45
	9/23/2020	83	32
	3/17/2021	89	34
	9/9/2021	95	43
3/15/2022	95	44	
9/12/2022	92	38	
3/13/2023	99	46	
GWM-14	9/24/2013	60	27
	3/21/2014	48	11
	9/8/2014	49	18

3/19/2015	47	10
9/14/2015	48	12
3/21/2016	48	13
9/23/2016	48	14
3/27/2017	49	19
9/20/2017	45	7
3/16/2018	42	3
9/20/2018	44	5
3/5/2019	48	15
9/25/2019	45	8
3/25/2020	44	6
9/28/2020	43	4
3/18/2021	110 R	53
9/15/2021	48	16
3/22/2022	50	20
9/14/2022	53	23
3/16/2023	52	22

---

The Wilcoxon Statistic is 96

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -4.77494

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is -4.77494

-4.77494 < 2.326 indicating no statistical significance at 1% level

-4.77494 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Barium, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	20	1
	3/19/2014	67	11
	9/8/2014	42	2
	3/17/2015	150	59
	9/14/2015	100	37
	3/17/2016	69	14
	9/21/2016	94	31
	3/24/2017	71	16
	9/20/2017	46	3
	3/27/2018	88	23
	9/19/2018	56	6
	3/11/2019	49	4
	9/25/2019	130	52
	3/18/2020	93	29
	9/23/2020	75	17
	3/17/2021	59	8
	9/8/2021	51	5
3/15/2022	170	60	
9/12/2022	130	53	
3/13/2023	91	25	
GWM-2	9/25/2013	60	9
	3/18/2014	110	42
	9/16/2014	110	43
	3/18/2015	110	44
	9/15/2015	100	38
	3/16/2016	92	26
	9/22/2016	95	32
	3/24/2017	93	30
	9/21/2017	92	27
	3/28/2018	100	39
	9/21/2018	120	47
	3/12/2019	130	54
	10/1/2019	120	48
	3/18/2020	98	35
	9/23/2020	83	21
	3/17/2021	89	24
	9/9/2021	95	33
3/15/2022	95	34	
9/12/2022	92	28	
3/13/2023	99	36	
GWM-6	9/24/2013	70	15
	3/21/2014	58	7
	9/17/2014	60	10

3/19/2015	67	12
9/15/2015	68	13
3/21/2016	75	18
9/26/2016	79	19
3/31/2017	81	20
9/21/2017	100	40
3/30/2018	120	49
9/26/2018	140	58
3/13/2019	130	55
10/3/2019	110	45
4/3/2020	87	22
9/30/2020	100	41
3/22/2021	120	50
9/16/2021	110	46
3/24/2022	130	56
9/16/2022	130	57
3/17/2023	120	51

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The Wilcoxon Statistic is 474

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 1.15257

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 1.15257

1.15257 < 2.326 indicating no statistical significance at 1% level

1.15257 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Barium, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	20	1
	3/19/2014	67	9
	9/8/2014	42	2
	3/17/2015	150	58
	9/14/2015	100	47
	3/17/2016	69	12
	9/21/2016	94	39
	3/24/2017	71	14
	9/20/2017	46	3
	3/27/2018	88	28
	9/19/2018	56	6
	3/11/2019	49	4
	9/25/2019	130	55
	3/18/2020	93	37
	9/23/2020	75	16
	3/17/2021	59	7
	9/8/2021	51	5
3/15/2022	170	59	
9/12/2022	130	56	
3/13/2023	91	31	
GWM-2	9/25/2013	60	8
	3/18/2014	110	50
	9/16/2014	110	51
	3/18/2015	110	52
	9/15/2015	100	48
	3/16/2016	92	33
	9/22/2016	95	41
	3/24/2017	93	38
	9/21/2017	92	34
	3/28/2018	100	49
	9/21/2018	120	53
	3/12/2019	130	57
	10/1/2019	120	54
	3/18/2020	98	45
	9/23/2020	83	22
	3/17/2021	89	29
	9/9/2021	95	42
3/15/2022	95	43	
9/12/2022	92	35	
3/13/2023	99	46	
GWM-3	9/25/2013	90	30
	3/18/2014	80	18
	9/16/2014	74	15

3/18/2015	84	23
9/15/2015	81	19
3/16/2016	86	27
9/22/2016	94	40
3/29/2017	95	44
9/21/2017	85	24
3/28/2018	85	25
9/20/2018	85	26
3/12/2019	91	32
10/1/2019	92	36
3/18/2020	81	20
9/24/2020	69	13
3/17/2021	200 R	60
9/9/2021	82	21
3/15/2022	78	17
9/16/2022	68	11
3/15/2023	67	10

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The Wilcoxon Statistic is 301

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -1.56028

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is -1.56028

-1.56028 < 2.326 indicating no statistical significance at 1% level

-1.56028 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Barium, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	20	1
	3/19/2014	67	9
	9/8/2014	42	2
	3/17/2015	150	39
	9/14/2015	100	28
	3/17/2016	69	10
	9/21/2016	94	22
	3/24/2017	71	11
	9/20/2017	46	3
	3/27/2018	88	14
	9/19/2018	56	6
	3/11/2019	49	4
	9/25/2019	130	36
	3/18/2020	93	20
	9/23/2020	75	12
	3/17/2021	59	7
	9/8/2021	51	5
3/15/2022	170	40	
9/12/2022	130	37	
3/13/2023	91	16	
GWM-2	9/25/2013	60	8
	3/18/2014	110	31
	9/16/2014	110	32
	3/18/2015	110	33
	9/15/2015	100	29
	3/16/2016	92	17
	9/22/2016	95	23
	3/24/2017	93	21
	9/21/2017	92	18
	3/28/2018	100	30
	9/21/2018	120	34
	3/12/2019	130	38
	10/1/2019	120	35
	3/18/2020	98	26
	9/23/2020	83	13
	3/17/2021	89	15
	9/9/2021	95	24
3/15/2022	95	25	
9/12/2022	92	19	
3/13/2023	99	27	
GWM-17S	11/14/2019	230	42
	3/26/2020	230	43
	9/29/2020	210	41

3/16/2021	250	46
9/14/2021	260	47
3/18/2022	230	44
9/13/2022	240	45
3/14/2023	280	48

---

The Wilcoxon Statistic is 320

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 4.41243

The Standard Deviation adjusted for ties is 36.1478

The Z Score adjusted for ties is 4.41243

**4.41243 > 2.326 indicating statistical significance at 1% level**

**4.41243 > 2.326 indicating statistical significance at 1% level when adjusted for ties**



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Beryllium, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 54

Non detect rank is 27.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<2	27.5
	3/19/2014	ND<2 U	27.5
	9/8/2014	ND<2 U	27.5
	3/17/2015	ND<2 U	27.5
	9/14/2015	ND<2 U	27.5
	3/17/2016	ND<2 U	27.5
	9/21/2016	ND<2 U	27.5
	3/24/2017	ND<2 U	27.5
	9/20/2017	ND<2 U	27.5
	3/27/2018	ND<2 U	27.5
	9/19/2018	ND<2 U	27.5
	3/11/2019	ND<2 U	27.5
	9/25/2019	ND<2 U	27.5
	3/18/2020	ND<2 U	27.5
	9/23/2020	ND<2 U	27.5
	3/17/2021	ND<2 U	27.5
	9/8/2021	0.14 J	55
3/15/2022	ND<1.1	27.5	
9/12/2022	ND<1.1	27.5	
3/13/2023	ND<1.1	27.5	
GWM-2	9/25/2013	ND<2	27.5
	3/18/2014	0.38 J	58
	9/16/2014	0.4 J	59
	3/18/2015	0.32 J	56
	9/15/2015	ND<2 U	27.5
	3/16/2016	ND<2 U	27.5
	9/22/2016	ND<2 U	27.5
	3/24/2017	ND<2 U	27.5
	9/21/2017	ND<2 U	27.5
	3/28/2018	ND<2 U	27.5
	9/21/2018	ND<2 U	27.5
	3/12/2019	0.44 J	60
	10/1/2019	ND<2 U	27.5
	3/18/2020	ND<2 U	27.5
	9/23/2020	ND<2 U	27.5
	3/17/2021	ND<2 U	27.5
	9/9/2021	0.32 J	57
3/15/2022	ND<1.1	27.5	
9/12/2022	ND<1.1	27.5	
3/13/2023	ND<1.1	27.5	
GWM-4	9/18/2013	ND<2	27.5
	3/20/2014	ND<2 U	27.5
	9/9/2014	ND<2 U	27.5

3/16/2015	ND<2 U	27.5
9/9/2015	ND<2 U	27.5
3/18/2016	ND<2 U	27.5
9/20/2016	ND<2 U	27.5
3/23/2017	ND<2 U	27.5
9/18/2017	ND<2 U	27.5
3/15/2018	ND<2 U	27.5
9/17/2018	ND<2 U	27.5
3/5/2019	ND<2 U	27.5
9/24/2019	ND<2 U	27.5
3/16/2020	ND<2 U	27.5
9/22/2020	ND<2 U	27.5
3/16/2021	ND<2 U	27.5
9/14/2021	ND<2 U	27.5
3/22/2022	ND<1.1	27.5
9/13/2022	ND<1.1	27.5
3/14/2023	ND<1.1	27.5

---

The Wilcoxon Statistic is 340

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -0.948716

The Standard Deviation adjusted for ties is 33.2003

The Z Score adjusted for ties is -1.82227

-0.948716 < 2.326 indicating no statistical significance at 1% level

-1.82227 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Beryllium, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 55

Non detect rank is 28

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<2	28
	3/19/2014	ND<2 U	28
	9/8/2014	ND<2 U	28
	3/17/2015	ND<2 U	28
	9/14/2015	ND<2 U	28
	3/17/2016	ND<2 U	28
	9/21/2016	ND<2 U	28
	3/24/2017	ND<2 U	28
	9/20/2017	ND<2 U	28
	3/27/2018	ND<2 U	28
	9/19/2018	ND<2 U	28
	3/11/2019	ND<2 U	28
	9/25/2019	ND<2 U	28
	3/18/2020	ND<2 U	28
	9/23/2020	ND<2 U	28
	3/17/2021	ND<2 U	28
9/8/2021	0.14 J	56	
3/15/2022	ND<1.1	28	
9/12/2022	ND<1.1	28	
3/13/2023	ND<1.1	28	
GWM-2	9/25/2013	ND<2	28
	3/18/2014	0.38 J	59
	9/16/2014	0.4 J	60
	3/18/2015	0.32 J	57
	9/15/2015	ND<2 U	28
	3/16/2016	ND<2 U	28
	9/22/2016	ND<2 U	28
	3/24/2017	ND<2 U	28
	9/21/2017	ND<2 U	28
	3/28/2018	ND<2 U	28
	9/21/2018	ND<2 U	28
	3/12/2019	0.44 J	61
	10/1/2019	ND<2 U	28
	3/18/2020	ND<2 U	28
	9/23/2020	ND<2 U	28
	3/17/2021	ND<2 U	28
9/9/2021	0.32 J	58	
3/15/2022	ND<1.1	28	
9/12/2022	ND<1.1	28	
3/13/2023	ND<1.1	28	
GWM-5A	9/19/2013	ND<2	28
	12/5/2013	ND<2	28
	3/19/2014	ND<2 U	28

9/4/2014	ND<2 U	28
3/17/2015	ND<2 U	28
9/11/2015	ND<2 U	28
3/15/2016	ND<2 U	28
9/21/2016	ND<2 U	28
3/28/2017	ND<2 U	28
9/19/2017	ND<2 U	28
3/26/2018	ND<2 U	28
9/18/2018	ND<2 U	28
3/4/2019	ND<2 U	28
9/23/2019	ND<2 U	28
3/19/2020	ND<2 U	28
9/23/2020	ND<2 U	28
3/19/2021	ND<2 U	28
9/15/2021	ND<2 U	28
3/16/2022	ND<1.1	28
9/14/2022	ND<1.1	28
3/16/2023	ND<1.1	28

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The Wilcoxon Statistic is 357

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is -0.963893

The Standard Deviation adjusted for ties is 34.0443

The Z Score adjusted for ties is -1.86522

-0.963893 < 2.326 indicating no statistical significance at 1% level

-1.86522 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Beryllium, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 53

Non detect rank is 27

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<2	27
	3/19/2014	ND<2 U	27
	9/8/2014	ND<2 U	27
	3/17/2015	ND<2 U	27
	9/14/2015	ND<2 U	27
	3/17/2016	ND<2 U	27
	9/21/2016	ND<2 U	27
	3/24/2017	ND<2 U	27
	9/20/2017	ND<2 U	27
	3/27/2018	ND<2 U	27
	9/19/2018	ND<2 U	27
	3/11/2019	ND<2 U	27
	9/25/2019	ND<2 U	27
	3/18/2020	ND<2 U	27
	9/23/2020	ND<2 U	27
	3/17/2021	ND<2 U	27
9/8/2021	0.14 J	54	
3/15/2022	ND<1.1	27	
9/12/2022	ND<1.1	27	
3/13/2023	ND<1.1	27	
GWM-2	9/25/2013	ND<2	27
	3/18/2014	0.38 J	57
	9/16/2014	0.4 J	58
	3/18/2015	0.32 J	55
	9/15/2015	ND<2 U	27
	3/16/2016	ND<2 U	27
	9/22/2016	ND<2 U	27
	3/24/2017	ND<2 U	27
	9/21/2017	ND<2 U	27
	3/28/2018	ND<2 U	27
	9/21/2018	ND<2 U	27
	3/12/2019	0.44 J	59
	10/1/2019	ND<2 U	27
	3/18/2020	ND<2 U	27
	9/23/2020	ND<2 U	27
	3/17/2021	ND<2 U	27
9/9/2021	0.32 J	56	
3/15/2022	ND<1.1	27	
9/12/2022	ND<1.1	27	
3/13/2023	ND<1.1	27	
GWM-14	9/24/2013	ND<2	27
	3/21/2014	ND<2 U	27
	9/8/2014	ND<2 U	27

3/19/2015	ND<2 U	27
9/14/2015	ND<2 U	27
3/21/2016	ND<2 U	27
9/23/2016	ND<2 U	27
3/27/2017	ND<2 U	27
9/20/2017	ND<2 U	27
3/16/2018	ND<2 U	27
9/20/2018	ND<2 U	27
3/5/2019	ND<2 U	27
9/25/2019	ND<2 U	27
3/25/2020	ND<2 U	27
9/28/2020	ND<2 U	27
3/18/2021	0.77 JR	60
9/15/2021	ND<2 U	27
3/22/2022	ND<1.1	27
9/14/2022	ND<1.1	27
3/16/2023	ND<1.1	27

---

The Wilcoxon Statistic is 363

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -0.588047

The Standard Deviation adjusted for ties is 35.5521

The Z Score adjusted for ties is -1.05479

-0.588047 < 2.326 indicating no statistical significance at 1% level

-1.05479 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Beryllium, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 53

Non detect rank is 27

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<2	27
	3/19/2014	ND<2 U	27
	9/8/2014	ND<2 U	27
	3/17/2015	ND<2 U	27
	9/14/2015	ND<2 U	27
	3/17/2016	ND<2 U	27
	9/21/2016	ND<2 U	27
	3/24/2017	ND<2 U	27
	9/20/2017	ND<2 U	27
	3/27/2018	ND<2 U	27
	9/19/2018	ND<2 U	27
	3/11/2019	ND<2 U	27
	9/25/2019	ND<2 U	27
	3/18/2020	ND<2 U	27
	9/23/2020	ND<2 U	27
	3/17/2021	ND<2 U	27
9/8/2021	0.14 J	54	
3/15/2022	ND<1.1	27	
9/12/2022	ND<1.1	27	
3/13/2023	ND<1.1	27	
GWM-2	9/25/2013	ND<2	27
	3/18/2014	0.38 J	57
	9/16/2014	0.4 J	58
	3/18/2015	0.32 J	55
	9/15/2015	ND<2 U	27
	3/16/2016	ND<2 U	27
	9/22/2016	ND<2 U	27
	3/24/2017	ND<2 U	27
	9/21/2017	ND<2 U	27
	3/28/2018	ND<2 U	27
	9/21/2018	ND<2 U	27
	3/12/2019	0.44 J	59
	10/1/2019	ND<2 U	27
	3/18/2020	ND<2 U	27
	9/23/2020	ND<2 U	27
	3/17/2021	ND<2 U	27
9/9/2021	0.32 J	56	
3/15/2022	ND<1.1	27	
9/12/2022	ND<1.1	27	
3/13/2023	ND<1.1	27	
GWM-6	9/24/2013	ND<2	27
	3/21/2014	ND<2 U	27
	9/17/2014	ND<2 U	27

3/19/2015	ND<2 U	27
9/15/2015	ND<2 U	27
3/21/2016	ND<2 U	27
9/26/2016	ND<2 U	27
3/31/2017	ND<2 U	27
9/21/2017	ND<2 U	27
3/30/2018	1.1	60
9/26/2018	ND<2 U	27
3/13/2019	ND<2 U	27
10/3/2019	ND<2 U	27
4/3/2020	ND<2 U	27
9/30/2020	ND<2 U	27
3/22/2021	ND<2 U	27
9/16/2021	ND<2 U	27
3/24/2022	ND<1.1	27
9/16/2022	ND<1.1	27
3/17/2023	ND<1.1	27

---

The Wilcoxon Statistic is 363

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -0.588047

The Standard Deviation adjusted for ties is 35.5521

The Z Score adjusted for ties is -1.05479

-0.588047 < 2.326 indicating no statistical significance at 1% level

-1.05479 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Beryllium, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 54

Non detect rank is 27.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<2	27.5
	3/19/2014	ND<2 U	27.5
	9/8/2014	ND<2 U	27.5
	3/17/2015	ND<2 U	27.5
	9/14/2015	ND<2 U	27.5
	3/17/2016	ND<2 U	27.5
	9/21/2016	ND<2 U	27.5
	3/24/2017	ND<2 U	27.5
	9/20/2017	ND<2 U	27.5
	3/27/2018	ND<2 U	27.5
	9/19/2018	ND<2 U	27.5
	3/11/2019	ND<2 U	27.5
	9/25/2019	ND<2 U	27.5
	3/18/2020	ND<2 U	27.5
	9/23/2020	ND<2 U	27.5
	3/17/2021	ND<2 U	27.5
9/8/2021	0.14 J	55	
3/15/2022	ND<1.1	27.5	
9/12/2022	ND<1.1	27.5	
3/13/2023	ND<1.1	27.5	
GWM-2	9/25/2013	ND<2	27.5
	3/18/2014	0.38 J	58
	9/16/2014	0.4 J	59
	3/18/2015	0.32 J	56
	9/15/2015	ND<2 U	27.5
	3/16/2016	ND<2 U	27.5
	9/22/2016	ND<2 U	27.5
	3/24/2017	ND<2 U	27.5
	9/21/2017	ND<2 U	27.5
	3/28/2018	ND<2 U	27.5
	9/21/2018	ND<2 U	27.5
	3/12/2019	0.44 J	60
	10/1/2019	ND<2 U	27.5
	3/18/2020	ND<2 U	27.5
	9/23/2020	ND<2 U	27.5
	3/17/2021	ND<2 U	27.5
9/9/2021	0.32 J	57	
3/15/2022	ND<1.1	27.5	
9/12/2022	ND<1.1	27.5	
3/13/2023	ND<1.1	27.5	
GWM-3	9/25/2013	ND<2	27.5
	3/18/2014	ND<2 U	27.5
	9/16/2014	ND<2 U	27.5

3/18/2015	ND<2 U	27.5
9/15/2015	ND<2 U	27.5
3/16/2016	ND<2 U	27.5
9/22/2016	ND<2 U	27.5
3/29/2017	ND<2 U	27.5
9/21/2017	ND<2 U	27.5
3/28/2018	ND<2 U	27.5
9/20/2018	ND<2 U	27.5
3/12/2019	ND<2 U	27.5
10/1/2019	ND<2 U	27.5
3/18/2020	ND<2 U	27.5
9/24/2020	ND<2 U	27.5
3/17/2021	ND<2 U	27.5
9/9/2021	ND<2 U	27.5
3/15/2022	ND<1.1	27.5
9/16/2022	ND<1.1	27.5
3/15/2023	ND<1.1	27.5

---

The Wilcoxon Statistic is 340

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -0.948716

The Standard Deviation adjusted for ties is 33.2003

The Z Score adjusted for ties is -1.82227

-0.948716 < 2.326 indicating no statistical significance at 1% level

-1.82227 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Beryllium, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 42

Non detect rank is 21.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<2	21.5
	3/19/2014	ND<2 U	21.5
	9/8/2014	ND<2 U	21.5
	3/17/2015	ND<2 U	21.5
	9/14/2015	ND<2 U	21.5
	3/17/2016	ND<2 U	21.5
	9/21/2016	ND<2 U	21.5
	3/24/2017	ND<2 U	21.5
	9/20/2017	ND<2 U	21.5
	3/27/2018	ND<2 U	21.5
	9/19/2018	ND<2 U	21.5
	3/11/2019	ND<2 U	21.5
	9/25/2019	ND<2 U	21.5
	3/18/2020	ND<2 U	21.5
	9/23/2020	ND<2 U	21.5
	3/17/2021	ND<2 U	21.5
9/8/2021	0.14 J	43	
3/15/2022	ND<1.1	21.5	
9/12/2022	ND<1.1	21.5	
3/13/2023	ND<1.1	21.5	
GWM-2	9/25/2013	ND<2	21.5
	3/18/2014	0.38 J	46
	9/16/2014	0.4 J	47
	3/18/2015	0.32 J	44
	9/15/2015	ND<2 U	21.5
	3/16/2016	ND<2 U	21.5
	9/22/2016	ND<2 U	21.5
	3/24/2017	ND<2 U	21.5
	9/21/2017	ND<2 U	21.5
	3/28/2018	ND<2 U	21.5
	9/21/2018	ND<2 U	21.5
	3/12/2019	0.44 J	48
	10/1/2019	ND<2 U	21.5
	3/18/2020	ND<2 U	21.5
	9/23/2020	ND<2 U	21.5
	3/17/2021	ND<2 U	21.5
9/9/2021	0.32 J	45	
3/15/2022	ND<1.1	21.5	
9/12/2022	ND<1.1	21.5	
3/13/2023	ND<1.1	21.5	
GWM-17S	11/14/2019	ND<2 U	21.5
	3/26/2020	ND<2 U	21.5
	9/29/2020	ND<2 U	21.5

3/16/2021	ND<2 U	21.5
9/14/2021	ND<2 U	21.5
3/18/2022	ND<1.1	21.5
9/13/2022	ND<1.1	21.5
3/14/2023	ND<1.1	21.5

---

The Wilcoxon Statistic is 136

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is -0.677772

The Standard Deviation adjusted for ties is 20.7706

The Z Score adjusted for ties is -1.17955

-0.677772 < 2.326 indicating no statistical significance at 1% level

-1.17955 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cadmium, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 51

Non detect rank is 26

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<2	26
	3/19/2014	ND<2 U	26
	9/8/2014	ND<2 U	26
	3/17/2015	ND<2 U	26
	9/14/2015	0.42 J	53
	3/17/2016	ND<2 U	26
	9/21/2016	ND<2 U	26
	3/24/2017	ND<2 U	26
	9/20/2017	ND<2 U	26
	3/27/2018	ND<2 U	26
	9/19/2018	0.41 J	52
	3/11/2019	ND<2 U	26
	9/25/2019	ND<2 U	26
	3/18/2020	ND<2 U	26
	9/23/2020	ND<2 U	26
	3/17/2021	ND<2 U	26
	9/8/2021	ND<2 U	26
3/15/2022	ND<1.1	26	
9/12/2022	ND<1.1	26	
3/13/2023	ND<1.1	26	
GWM-2	9/25/2013	ND<2	26
	3/18/2014	ND<2 U	26
	9/16/2014	ND<2 U	26
	3/18/2015	0.8 J	57
	9/15/2015	ND<2 U	26
	3/16/2016	ND<2 U	26
	9/22/2016	0.53 J	55
	3/24/2017	1.8	60
	9/21/2017	0.8 J	58
	3/28/2018	0.58 J	56
	9/21/2018	ND<2 U	26
	3/12/2019	ND<2 U	26
	10/1/2019	ND<2 U	26
	3/18/2020	ND<2 U	26
	9/23/2020	ND<2 U	26
	3/17/2021	ND<2 U	26
	9/9/2021	ND<2 U	26
3/15/2022	ND<1.1	26	
9/12/2022	ND<1.1	26	
3/13/2023	ND<1.1	26	
GWM-4	9/18/2013	ND<2	26
	3/20/2014	ND<2 U	26
	9/9/2014	ND<2 U	26

3/16/2015	ND<2 U	26
9/9/2015	ND<2 U	26
3/18/2016	ND<2 U	26
9/20/2016	ND<2 U	26
3/23/2017	ND<2 U	26
9/18/2017	1.2	59
3/15/2018	ND<2 U	26
9/17/2018	ND<2 U	26
3/5/2019	ND<2 U	26
9/24/2019	ND<2 U	26
3/16/2020	0.44 J	54
9/22/2020	ND<2 U	26
3/16/2021	ND<2 U	26
9/14/2021	ND<2 U	26
3/22/2022	ND<1.1	26
9/13/2022	ND<1.1	26
3/14/2023	ND<1.1	26

---

The Wilcoxon Statistic is 371

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -0.462597

The Standard Deviation adjusted for ties is 39.6168

The Z Score adjusted for ties is -0.744633

-0.462597 < 2.326 indicating no statistical significance at 1% level

-0.744633 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cadmium, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 54

Non detect rank is 27.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<2	27.5
	3/19/2014	ND<2 U	27.5
	9/8/2014	ND<2 U	27.5
	3/17/2015	ND<2 U	27.5
	9/14/2015	0.42 J	56
	3/17/2016	ND<2 U	27.5
	9/21/2016	ND<2 U	27.5
	3/24/2017	ND<2 U	27.5
	9/20/2017	ND<2 U	27.5
	3/27/2018	ND<2 U	27.5
	9/19/2018	0.41 J	55
	3/11/2019	ND<2 U	27.5
	9/25/2019	ND<2 U	27.5
	3/18/2020	ND<2 U	27.5
	9/23/2020	ND<2 U	27.5
	3/17/2021	ND<2 U	27.5
	9/8/2021	ND<2 U	27.5
3/15/2022	ND<1.1	27.5	
9/12/2022	ND<1.1	27.5	
3/13/2023	ND<1.1	27.5	
GWM-2	9/25/2013	ND<2	27.5
	3/18/2014	ND<2 U	27.5
	9/16/2014	ND<2 U	27.5
	3/18/2015	0.8 J	59
	9/15/2015	ND<2 U	27.5
	3/16/2016	ND<2 U	27.5
	9/22/2016	0.53 J	57
	3/24/2017	1.8	61
	9/21/2017	0.8 J	60
	3/28/2018	0.58 J	58
	9/21/2018	ND<2 U	27.5
	3/12/2019	ND<2 U	27.5
	10/1/2019	ND<2 U	27.5
	3/18/2020	ND<2 U	27.5
	9/23/2020	ND<2 U	27.5
	3/17/2021	ND<2 U	27.5
	9/9/2021	ND<2 U	27.5
3/15/2022	ND<1.1	27.5	
9/12/2022	ND<1.1	27.5	
3/13/2023	ND<1.1	27.5	
GWM-5A	9/19/2013	ND<2	27.5
	12/5/2013	ND<2	27.5
	3/19/2014	ND<2 U	27.5

9/4/2014	ND<2 U	27.5
3/17/2015	ND<2 U	27.5
9/11/2015	ND<2 U	27.5
3/15/2016	ND<2 U	27.5
9/21/2016	ND<2 U	27.5
3/28/2017	ND<2 U	27.5
9/19/2017	ND<2 U	27.5
3/26/2018	ND<2 U	27.5
9/18/2018	ND<2 U	27.5
3/4/2019	ND<2 U	27.5
9/23/2019	ND<2 U	27.5
3/19/2020	ND<2 U	27.5
9/23/2020	ND<2 U	27.5
3/19/2021	ND<2 U	27.5
9/15/2021	ND<2 U	27.5
3/16/2022	ND<1.1	27.5
9/14/2022	ND<1.1	27.5
3/16/2023	ND<1.1	27.5

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The Wilcoxon Statistic is 346.5

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is -1.12328

The Standard Deviation adjusted for ties is 36.4613

The Z Score adjusted for ties is -2.02955

-1.12328 < 2.326 indicating no statistical significance at 1% level

-2.02955 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cadmium, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 53

Non detect rank is 27

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<2	27
	3/19/2014	ND<2 U	27
	9/8/2014	ND<2 U	27
	3/17/2015	ND<2 U	27
	9/14/2015	0.42 J	55
	3/17/2016	ND<2 U	27
	9/21/2016	ND<2 U	27
	3/24/2017	ND<2 U	27
	9/20/2017	ND<2 U	27
	3/27/2018	ND<2 U	27
	9/19/2018	0.41 J	54
	3/11/2019	ND<2 U	27
	9/25/2019	ND<2 U	27
	3/18/2020	ND<2 U	27
	9/23/2020	ND<2 U	27
	3/17/2021	ND<2 U	27
	9/8/2021	ND<2 U	27
3/15/2022	ND<1.1	27	
9/12/2022	ND<1.1	27	
3/13/2023	ND<1.1	27	
GWM-2	9/25/2013	ND<2	27
	3/18/2014	ND<2 U	27
	9/16/2014	ND<2 U	27
	3/18/2015	0.8 J	58
	9/15/2015	ND<2 U	27
	3/16/2016	ND<2 U	27
	9/22/2016	0.53 J	56
	3/24/2017	1.8	60
	9/21/2017	0.8 J	59
	3/28/2018	0.58 J	57
	9/21/2018	ND<2 U	27
	3/12/2019	ND<2 U	27
	10/1/2019	ND<2 U	27
	3/18/2020	ND<2 U	27
	9/23/2020	ND<2 U	27
	3/17/2021	ND<2 U	27
	9/9/2021	ND<2 U	27
3/15/2022	ND<1.1	27	
9/12/2022	ND<1.1	27	
3/13/2023	ND<1.1	27	
GWM-14	9/24/2013	ND<2	27
	3/21/2014	ND<2 U	27
	9/8/2014	ND<2 U	27

3/19/2015	ND<2 U	27
9/14/2015	ND<2 U	27
3/21/2016	ND<2 U	27
9/23/2016	ND<2 U	27
3/27/2017	ND<2 U	27
9/20/2017	ND<2 U	27
3/16/2018	ND<2 U	27
9/20/2018	ND<2 U	27
3/5/2019	ND<2 U	27
9/25/2019	ND<2 U	27
3/25/2020	ND<2 U	27
9/28/2020	ND<2 U	27
3/18/2021	ND<2 U	27
9/15/2021	ND<2 U	27
3/22/2022	ND<1.1	27
9/14/2022	ND<1.1	27
3/16/2023	ND<1.1	27

---

The Wilcoxon Statistic is 330

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -1.10553

The Standard Deviation adjusted for ties is 35.5521

The Z Score adjusted for ties is -1.983

-1.10553 < 2.326 indicating no statistical significance at 1% level

-1.983 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cadmium, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 52

Non detect rank is 26.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<2	26.5
	3/19/2014	ND<2 U	26.5
	9/8/2014	ND<2 U	26.5
	3/17/2015	ND<2 U	26.5
	9/14/2015	0.42 J	54
	3/17/2016	ND<2 U	26.5
	9/21/2016	ND<2 U	26.5
	3/24/2017	ND<2 U	26.5
	9/20/2017	ND<2 U	26.5
	3/27/2018	ND<2 U	26.5
	9/19/2018	0.41 J	53
	3/11/2019	ND<2 U	26.5
	9/25/2019	ND<2 U	26.5
	3/18/2020	ND<2 U	26.5
	9/23/2020	ND<2 U	26.5
	3/17/2021	ND<2 U	26.5
	9/8/2021	ND<2 U	26.5
3/15/2022	ND<1.1	26.5	
9/12/2022	ND<1.1	26.5	
3/13/2023	ND<1.1	26.5	
GWM-2	9/25/2013	ND<2	26.5
	3/18/2014	ND<2 U	26.5
	9/16/2014	ND<2 U	26.5
	3/18/2015	0.8 J	57
	9/15/2015	ND<2 U	26.5
	3/16/2016	ND<2 U	26.5
	9/22/2016	0.53 J	55
	3/24/2017	1.8	60
	9/21/2017	0.8 J	58
	3/28/2018	0.58 J	56
	9/21/2018	ND<2 U	26.5
	3/12/2019	ND<2 U	26.5
	10/1/2019	ND<2 U	26.5
	3/18/2020	ND<2 U	26.5
	9/23/2020	ND<2 U	26.5
	3/17/2021	ND<2 U	26.5
	9/9/2021	ND<2 U	26.5
3/15/2022	ND<1.1	26.5	
9/12/2022	ND<1.1	26.5	
3/13/2023	ND<1.1	26.5	
GWM-6	9/24/2013	ND<2	26.5
	3/21/2014	ND<2 U	26.5
	9/17/2014	ND<2 U	26.5

3/19/2015	ND<2 U	26.5
9/15/2015	ND<2 U	26.5
3/21/2016	ND<2 U	26.5
9/26/2016	ND<2 U	26.5
3/31/2017	ND<2 U	26.5
9/21/2017	ND<2 U	26.5
3/30/2018	1.1	59
9/26/2018	ND<2 U	26.5
3/13/2019	ND<2 U	26.5
10/3/2019	ND<2 U	26.5
4/3/2020	ND<2 U	26.5
9/30/2020	ND<2 U	26.5
3/22/2021	ND<2 U	26.5
9/16/2021	ND<2 U	26.5
3/24/2022	ND<1.1	26.5
9/16/2022	ND<1.1	26.5
3/17/2023	ND<1.1	26.5

---

The Wilcoxon Statistic is 352.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -0.7527

The Standard Deviation adjusted for ties is 37.6784

The Z Score adjusted for ties is -1.27394

-0.7527 < 2.326 indicating no statistical significance at 1% level

-1.27394 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cadmium, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 45

Non detect rank is 23

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<2	23
	3/19/2014	ND<2 U	23
	9/8/2014	ND<2 U	23
	3/17/2015	ND<2 U	23
	9/14/2015	0.42 J	48
	3/17/2016	ND<2 U	23
	9/21/2016	ND<2 U	23
	3/24/2017	ND<2 U	23
	9/20/2017	ND<2 U	23
	3/27/2018	ND<2 U	23
	9/19/2018	0.41 J	47
	3/11/2019	ND<2 U	23
	9/25/2019	ND<2 U	23
	3/18/2020	ND<2 U	23
	9/23/2020	ND<2 U	23
	3/17/2021	ND<2 U	23
	9/8/2021	ND<2 U	23
3/15/2022	ND<1.1	23	
9/12/2022	ND<1.1	23	
3/13/2023	ND<1.1	23	
GWM-2	9/25/2013	ND<2	23
	3/18/2014	ND<2 U	23
	9/16/2014	ND<2 U	23
	3/18/2015	0.8 J	57
	9/15/2015	ND<2 U	23
	3/16/2016	ND<2 U	23
	9/22/2016	0.53 J	51
	3/24/2017	1.8	60
	9/21/2017	0.8 J	58
	3/28/2018	0.58 J	54
	9/21/2018	ND<2 U	23
	3/12/2019	ND<2 U	23
	10/1/2019	ND<2 U	23
	3/18/2020	ND<2 U	23
	9/23/2020	ND<2 U	23
	3/17/2021	ND<2 U	23
	9/9/2021	ND<2 U	23
3/15/2022	ND<1.1	23	
9/12/2022	ND<1.1	23	
3/13/2023	ND<1.1	23	
GWM-3	9/25/2013	ND<2	23
	3/18/2014	ND<2 U	23
	9/16/2014	ND<2 U	23

3/18/2015	0.49 J	49
9/15/2015	ND<2 U	23
3/16/2016	0.68 J	55
9/22/2016	0.76 J	56
3/29/2017	ND<2 U	23
9/21/2017	ND<2 U	23
3/28/2018	0.54 J	53
9/20/2018	0.53 J	52
3/12/2019	ND<2 U	23
10/1/2019	ND<2 U	23
3/18/2020	ND<2 U	23
9/24/2020	ND<2 U	23
3/17/2021	0.38 J	46
9/9/2021	ND<2 U	23
3/15/2022	1.2	59
9/16/2022	0.5 J	50
3/15/2023	ND<1.1	23

---

The Wilcoxon Statistic is 486

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 1.34075

The Standard Deviation adjusted for ties is 48.4914

The Z Score adjusted for ties is 1.7632

1.34075 < 2.326 indicating no statistical significance at 1% level

1.7632 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cadmium, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 41

Non detect rank is 21

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<2	21
	3/19/2014	ND<2 U	21
	9/8/2014	ND<2 U	21
	3/17/2015	ND<2 U	21
	9/14/2015	0.42 J	43
	3/17/2016	ND<2 U	21
	9/21/2016	ND<2 U	21
	3/24/2017	ND<2 U	21
	9/20/2017	ND<2 U	21
	3/27/2018	ND<2 U	21
	9/19/2018	0.41 J	42
	3/11/2019	ND<2 U	21
	9/25/2019	ND<2 U	21
	3/18/2020	ND<2 U	21
	9/23/2020	ND<2 U	21
	3/17/2021	ND<2 U	21
	9/8/2021	ND<2 U	21
3/15/2022	ND<1.1	21	
9/12/2022	ND<1.1	21	
3/13/2023	ND<1.1	21	
GWM-2	9/25/2013	ND<2	21
	3/18/2014	ND<2 U	21
	9/16/2014	ND<2 U	21
	3/18/2015	0.8 J	46
	9/15/2015	ND<2 U	21
	3/16/2016	ND<2 U	21
	9/22/2016	0.53 J	44
	3/24/2017	1.8	48
	9/21/2017	0.8 J	47
	3/28/2018	0.58 J	45
	9/21/2018	ND<2 U	21
	3/12/2019	ND<2 U	21
	10/1/2019	ND<2 U	21
	3/18/2020	ND<2 U	21
	9/23/2020	ND<2 U	21
	3/17/2021	ND<2 U	21
	9/9/2021	ND<2 U	21
3/15/2022	ND<1.1	21	
9/12/2022	ND<1.1	21	
3/13/2023	ND<1.1	21	
GWM-17S	11/14/2019	ND<2 U	21
	3/26/2020	ND<2 U	21
	9/29/2020	ND<2 U	21

3/16/2021	ND<2 U	21
9/14/2021	ND<2 U	21
3/18/2022	ND<1.1	21
9/13/2022	ND<1.1	21
3/14/2023	ND<1.1	21

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The Wilcoxon Statistic is 132

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is -0.788429

The Standard Deviation adjusted for ties is 22.1919

The Z Score adjusted for ties is -1.28425

-0.788429 < 2.326 indicating no statistical significance at 1% level

-1.28425 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Calcium, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	1950	1
	3/19/2014	16800	38
	9/8/2014	5900	3
	3/17/2015	37100	42
	9/14/2015	14200	37
	3/17/2016	11700	32
	9/21/2016	8500	17
	3/24/2017	9200	24
	9/20/2017	11300	29
	3/27/2018	28100	40
	9/19/2018	12200	34
	3/11/2019	7100	4
	9/25/2019	11300	30
	3/18/2020	11400	31
	9/23/2020	8600	20
	3/17/2021	7600	9
	9/8/2021	7400	7
3/15/2022	21500	39	
9/12/2022	14000	36	
3/13/2023	11900	33	
GWM-2	9/25/2013	12880	35
	3/18/2014	9500	26
	9/16/2014	7200	6
	3/18/2015	9200	25
	9/15/2015	8800	21
	3/16/2016	8300	15
	9/22/2016	8200	14
	3/24/2017	7600	10
	9/21/2017	8000	11
	3/28/2018	9100	23
	9/21/2018	8800	22
	3/12/2019	10400	28
	10/1/2019	10000	27
	3/18/2020	8500	18
	9/23/2020	7100	5
	3/17/2021	8100	12
	9/9/2021	8300	16
3/15/2022	8100	13	
9/12/2022	7500	8	
3/13/2023	8500	19	
GWM-4	9/18/2013	5110	2
	3/20/2014	31900	41
	9/9/2014	52200	51

3/16/2015	41500	43
9/9/2015	46400	44
3/18/2016	49500	48
9/20/2016	59300	52
3/23/2017	46700	45
9/18/2017	47200	46
3/15/2018	48500	47
9/17/2018	59600	53
3/5/2019	60000	54
9/24/2019	51200	49
3/16/2020	52000	50
9/22/2020	69100	59
3/16/2021	64600	56
9/14/2021	73000	60
3/22/2022	66600	57
9/13/2022	67000	58
3/14/2023	61300	55

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The Wilcoxon Statistic is 760

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 5.63741

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 5.63741

**5.63741 > 2.326 indicating statistical significance at 1% level**

**5.63741 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Calcium, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	1950	1
	3/19/2014	16800	37
	9/8/2014	5900	2
	3/17/2015	37100	48
	9/14/2015	14200	36
	3/17/2016	11700	31
	9/21/2016	8500	16
	3/24/2017	9200	23
	9/20/2017	11300	28
	3/27/2018	28100	41
	9/19/2018	12200	33
	3/11/2019	7100	3
	9/25/2019	11300	29
	3/18/2020	11400	30
	9/23/2020	8600	19
	3/17/2021	7600	8
	9/8/2021	7400	6
3/15/2022	21500	38	
9/12/2022	14000	35	
3/13/2023	11900	32	
GWM-2	9/25/2013	12880	34
	3/18/2014	9500	25
	9/16/2014	7200	5
	3/18/2015	9200	24
	9/15/2015	8800	20
	3/16/2016	8300	14
	9/22/2016	8200	13
	3/24/2017	7600	9
	9/21/2017	8000	10
	3/28/2018	9100	22
	9/21/2018	8800	21
	3/12/2019	10400	27
	10/1/2019	10000	26
	3/18/2020	8500	17
	9/23/2020	7100	4
	3/17/2021	8100	11
	9/9/2021	8300	15
3/15/2022	8100	12	
9/12/2022	7500	7	
3/13/2023	8500	18	
GWM-5A	9/19/2013	37130	49
	12/5/2013	43620	56
	3/19/2014	57300	61

9/4/2014	44800	57
3/17/2015	43600	55
9/11/2015	39900	53
3/15/2016	38000	51
9/21/2016	38400	52
3/28/2017	31500	45
9/19/2017	30000	43
3/26/2018	34500	47
9/18/2018	47500	59
3/4/2019	56000	60
9/23/2019	37400	50
3/19/2020	43200	54
9/23/2020	31400	44
3/19/2021	45300	58
9/15/2021	29000	42
3/16/2022	23200	39
9/14/2022	33300	46
3/16/2023	23900	40

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The Wilcoxon Statistic is 830

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is 6.21597

The Standard Deviation adjusted for ties is 65.8787

The Z Score adjusted for ties is 6.21597

**6.21597 > 2.326 indicating statistical significance at 1% level**

**6.21597 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Calcium, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	1950	1
	3/19/2014	16800	57
	9/8/2014	5900	3
	3/17/2015	37100	60
	9/14/2015	14200	55
	3/17/2016	11700	41
	9/21/2016	8500	17
	3/24/2017	9200	24
	9/20/2017	11300	36
	3/27/2018	28100	59
	9/19/2018	12200	46
	3/11/2019	7100	4
	9/25/2019	11300	37
	3/18/2020	11400	38
	9/23/2020	8600	20
	3/17/2021	7600	9
	9/8/2021	7400	7
3/15/2022	21500	58	
9/12/2022	14000	54	
3/13/2023	11900	43	
GWM-2	9/25/2013	12880	51
	3/18/2014	9500	26
	9/16/2014	7200	6
	3/18/2015	9200	25
	9/15/2015	8800	21
	3/16/2016	8300	15
	9/22/2016	8200	14
	3/24/2017	7600	10
	9/21/2017	8000	11
	3/28/2018	9100	23
	9/21/2018	8800	22
	3/12/2019	10400	29
	10/1/2019	10000	28
	3/18/2020	8500	18
	9/23/2020	7100	5
	3/17/2021	8100	12
	9/9/2021	8300	16
3/15/2022	8100	13	
9/12/2022	7500	8	
3/13/2023	8500	19	
GWM-14	9/24/2013	9500	27
	3/21/2014	11600	40
	9/8/2014	13500	53

3/19/2015	12400	48
9/14/2015	13000	52
3/21/2016	14600	56
9/23/2016	12700	50
3/27/2017	12400	49
9/20/2017	11500	39
3/16/2018	11100	32
9/20/2018	10900	31
3/5/2019	12300	47
9/25/2019	10400	30
3/25/2020	12100	45
9/28/2020	11200	34
3/18/2021	4400 R	2
9/15/2021	12000	44
3/22/2022	11800	42
9/14/2022	11100	33
3/16/2023	11200	35

---

The Wilcoxon Statistic is 579

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 2.7991

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 2.7991

**2.7991 > 2.326 indicating statistical significance at 1% level**

**2.7991 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Calcium, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	1950	1
	3/19/2014	16800	46
	9/8/2014	5900	2
	3/17/2015	37100	60
	9/14/2015	14200	43
	3/17/2016	11700	35
	9/21/2016	8500	16
	3/24/2017	9200	23
	9/20/2017	11300	31
	3/27/2018	28100	59
	9/19/2018	12200	37
	3/11/2019	7100	3
	9/25/2019	11300	32
	3/18/2020	11400	33
	9/23/2020	8600	19
	3/17/2021	7600	8
	9/8/2021	7400	6
3/15/2022	21500	54	
9/12/2022	14000	42	
3/13/2023	11900	36	
GWM-2	9/25/2013	12880	39
	3/18/2014	9500	25
	9/16/2014	7200	5
	3/18/2015	9200	24
	9/15/2015	8800	20
	3/16/2016	8300	14
	9/22/2016	8200	13
	3/24/2017	7600	9
	9/21/2017	8000	10
	3/28/2018	9100	22
	9/21/2018	8800	21
	3/12/2019	10400	29
	10/1/2019	10000	27
	3/18/2020	8500	17
	9/23/2020	7100	4
	3/17/2021	8100	11
	9/9/2021	8300	15
3/15/2022	8100	12	
9/12/2022	7500	7	
3/13/2023	8500	18	
GWM-6	9/24/2013	9640	26
	3/21/2014	10000	28
	9/17/2014	10800	30

3/19/2015	11600	34
9/15/2015	13200	40
3/21/2016	13900	41
9/26/2016	12800	38
3/31/2017	14400	44
9/21/2017	21300	53
3/30/2018	23500	57
9/26/2018	22000	56
3/13/2019	23800	58
10/3/2019	21100	52
4/3/2020	19200	51
9/30/2020	17900	48
3/22/2021	21600	55
9/16/2021	19000	50
3/24/2022	18600	49
9/16/2022	17000	47
3/17/2023	15600	45

---

The Wilcoxon Statistic is 692

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 4.57108

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 4.57108

**4.57108 > 2.326 indicating statistical significance at 1% level**

**4.57108 > 2.326 indicating statistical significance at 1% level when adjusted for ties**



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Calcium, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	1950	1
	3/19/2014	16800	56
	9/8/2014	5900	3
	3/17/2015	37100	59
	9/14/2015	14200	55
	3/17/2016	11700	50
	9/21/2016	8500	22
	3/24/2017	9200	35
	9/20/2017	11300	47
	3/27/2018	28100	58
	9/19/2018	12200	52
	3/11/2019	7100	4
	9/25/2019	11300	48
	3/18/2020	11400	49
	9/23/2020	8600	27
	3/17/2021	7600	9
	9/8/2021	7400	7
3/15/2022	21500	57	
9/12/2022	14000	54	
3/13/2023	11900	51	
GWM-2	9/25/2013	12880	53
	3/18/2014	9500	39
	9/16/2014	7200	6
	3/18/2015	9200	36
	9/15/2015	8800	28
	3/16/2016	8300	19
	9/22/2016	8200	17
	3/24/2017	7600	10
	9/21/2017	8000	13
	3/28/2018	9100	32
	9/21/2018	8800	29
	3/12/2019	10400	45
	10/1/2019	10000	42
	3/18/2020	8500	23
	9/23/2020	7100	5
	3/17/2021	8100	15
	9/9/2021	8300	20
3/15/2022	8100	16	
9/12/2022	7500	8	
3/13/2023	8500	24	
GWM-3	9/25/2013	5060	2
	3/18/2014	7900	12
	9/16/2014	7700	11

3/18/2015	8200	18
9/15/2015	9000	31
3/16/2016	9500	40
9/22/2016	9300	37
3/29/2017	9300	38
9/21/2017	8500	25
3/28/2018	9100	33
9/20/2018	9100	34
3/12/2019	10400	46
10/1/2019	10200	44
3/18/2020	10100	43
9/24/2020	8500	26
3/17/2021	318000 R	60
9/9/2021	9500	41
3/15/2022	8800	30
9/16/2022	8000	14
3/15/2023	8300	21

---

The Wilcoxon Statistic is 396

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -0.0705656

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is -0.0705656

-0.0705656 < 2.326 indicating no statistical significance at 1% level

-0.0705656 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Calcium, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	1950	1
	3/19/2014	16800	37
	9/8/2014	5900	2
	3/17/2015	37100	44
	9/14/2015	14200	36
	3/17/2016	11700	31
	9/21/2016	8500	16
	3/24/2017	9200	23
	9/20/2017	11300	28
	3/27/2018	28100	39
	9/19/2018	12200	33
	3/11/2019	7100	3
	9/25/2019	11300	29
	3/18/2020	11400	30
	9/23/2020	8600	19
	3/17/2021	7600	8
	9/8/2021	7400	6
3/15/2022	21500	38	
9/12/2022	14000	35	
3/13/2023	11900	32	
GWM-2	9/25/2013	12880	34
	3/18/2014	9500	25
	9/16/2014	7200	5
	3/18/2015	9200	24
	9/15/2015	8800	20
	3/16/2016	8300	14
	9/22/2016	8200	13
	3/24/2017	7600	9
	9/21/2017	8000	10
	3/28/2018	9100	22
	9/21/2018	8800	21
	3/12/2019	10400	27
	10/1/2019	10000	26
	3/18/2020	8500	17
	9/23/2020	7100	4
	3/17/2021	8100	11
	9/9/2021	8300	15
3/15/2022	8100	12	
9/12/2022	7500	7	
3/13/2023	8500	18	
GWM-17S	11/14/2019	38600	46
	3/26/2020	39000	47
	9/29/2020	35400	41

3/16/2021	34900	40
9/14/2021	38000	45
3/18/2022	35700	42
9/13/2022	36100	43
3/14/2023	39100	48

---

The Wilcoxon Statistic is 316

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 4.30178

The Standard Deviation adjusted for ties is 36.1478

The Z Score adjusted for ties is 4.30178

**4.30178 > 2.326 indicating statistical significance at 1% level**

**4.30178 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chromium, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 3

Non detect rank is 2

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	2
	3/19/2014	1.8 J	16
	9/8/2014	16	54
	3/17/2015	5.5	49
	9/14/2015	3.7	38
	3/17/2016	3.2	32
	9/21/2016	4.5	43
	3/24/2017	1.7 J	15
	9/20/2017	1.8 J	17
	3/27/2018	1.5 J	11
	9/19/2018	2.5	26
	3/11/2019	3.5	36
	9/25/2019	3.1	30
	3/18/2020	1.6 J	12
	9/23/2020	3.2	33
	3/17/2021	2.6	27
	9/8/2021	1.2 J	8
3/15/2022	4.3	42	
9/12/2022	1.6 J	13	
3/13/2023	2.1 J	21	
GWM-2	9/25/2013	ND<5	2
	3/18/2014	5.6	50
	9/16/2014	19	58
	3/18/2015	12	53
	9/15/2015	24	59
	3/16/2016	3.1	31
	9/22/2016	17	55
	3/24/2017	52	60
	9/21/2017	8.8	52
	3/28/2018	17	56
	9/21/2018	2.3	22
	3/12/2019	4.8	45
	10/1/2019	1.9 J	18
	3/18/2020	3.7	39
	9/23/2020	18	57
	3/17/2021	4.8	46
	9/9/2021	2.8 J	28
3/15/2022	3.8	40	
9/12/2022	7.7	51	
3/13/2023	3.9	41	
GWM-4	9/18/2013	ND<5	2
	3/20/2014	1.6 J	14
	9/9/2014	2.4	24

3/16/2015	2.4	25
9/9/2015	2.3	23
3/18/2016	4.8	47
9/20/2016	3.2	34
3/23/2017	4.7	44
9/18/2017	3	29
3/15/2018	3.3	35
9/17/2018	1.9 J	19
3/5/2019	1.9 J	20
9/24/2019	0.86 J	4
3/16/2020	3.5	37
9/22/2020	0.89 J	6
3/16/2021	0.98 J	7
9/14/2021	5.1	48
3/22/2022	0.87 J	5
9/13/2022	1.4 J	9
3/14/2023	1.4 J	10

---

The Wilcoxon Statistic is 232

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -2.64229

The Standard Deviation adjusted for ties is 63.7669

The Z Score adjusted for ties is -2.64244

-2.64229 < 2.326 indicating no statistical significance at 1% level

-2.64244 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chromium, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 5

Non detect rank is 3

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	3
	3/19/2014	1.8 J	19
	9/8/2014	16	55
	3/17/2015	5.5	49
	9/14/2015	3.7	38
	3/17/2016	3.2	34
	9/21/2016	4.5	44
	3/24/2017	1.7 J	16
	9/20/2017	1.8 J	20
	3/27/2018	1.5 J	10
	9/19/2018	2.5	27
	3/11/2019	3.5	36
	9/25/2019	3.1	32
	3/18/2020	1.6 J	11
	9/23/2020	3.2	35
	3/17/2021	2.6	29
	9/8/2021	1.2 J	9
3/15/2022	4.3	43	
9/12/2022	1.6 J	12	
3/13/2023	2.1 J	23	
GWM-2	9/25/2013	ND<5	3
	3/18/2014	5.6	50
	9/16/2014	19	59
	3/18/2015	12	53
	9/15/2015	24	60
	3/16/2016	3.1	33
	9/22/2016	17	56
	3/24/2017	52	61
	9/21/2017	8.8	52
	3/28/2018	17	57
	9/21/2018	2.3	25
	3/12/2019	4.8	46
	10/1/2019	1.9 J	21
	3/18/2020	3.7	39
	9/23/2020	18	58
	3/17/2021	4.8	47
	9/9/2021	2.8 J	30
3/15/2022	3.8	40	
9/12/2022	7.7	51	
3/13/2023	3.9	41	
GWM-5A	9/19/2013	ND<5	3
	12/5/2013	ND<5	3
	3/19/2014	5	48

9/4/2014	2.5	28
3/17/2015	1.7 J	17
9/11/2015	1.9 J	22
3/15/2016	1.6 J	13
9/21/2016	2.9	31
3/28/2017	1.6 J	14
9/19/2017	2.1 J	24
3/26/2018	1.7 J	18
9/18/2018	ND<5 U	3
3/4/2019	1.1 J	8
9/23/2019	0.95 J	6
3/19/2020	4.1	42
9/23/2020	2.4	26
3/19/2021	0.98 J	7
9/15/2021	12	54
3/16/2022	1.6 J	15
9/14/2022	3.5	37
3/16/2023	4.5	45

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The Wilcoxon Statistic is 233

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is -2.84614

The Standard Deviation adjusted for ties is 65.8613

The Z Score adjusted for ties is -2.84689

-2.84614 < 2.326 indicating no statistical significance at 1% level

-2.84689 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chromium, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 12

Non detect rank is 6.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	6.5
	3/19/2014	1.8 J	26
	9/8/2014	16	54
	3/17/2015	5.5	49
	9/14/2015	3.7	41
	3/17/2016	3.2	38
	9/21/2016	4.5	46
	3/24/2017	1.7 J	25
	9/20/2017	1.8 J	27
	3/27/2018	1.5 J	21
	9/19/2018	2.5	33
	3/11/2019	3.5	40
	9/25/2019	3.1	36
	3/18/2020	1.6 J	22
	9/23/2020	3.2	39
	3/17/2021	2.6	34
	9/8/2021	1.2 J	16
3/15/2022	4.3	45	
9/12/2022	1.6 J	23	
3/13/2023	2.1 J	30	
GWM-2	9/25/2013	ND<5	6.5
	3/18/2014	5.6	50
	9/16/2014	19	58
	3/18/2015	12	53
	9/15/2015	24	59
	3/16/2016	3.1	37
	9/22/2016	17	55
	3/24/2017	52	60
	9/21/2017	8.8	52
	3/28/2018	17	56
	9/21/2018	2.3	32
	3/12/2019	4.8	47
	10/1/2019	1.9 J	28
	3/18/2020	3.7	42
	9/23/2020	18	57
	3/17/2021	4.8	48
	9/9/2021	2.8 J	35
3/15/2022	3.8	43	
9/12/2022	7.7	51	
3/13/2023	3.9	44	
GWM-14	9/24/2013	ND<5	6.5
	3/21/2014	0.95 J	15
	9/8/2014	1.2 J	17

3/19/2015	1.6 J	24
9/14/2015	2.1 J	31
3/21/2016	1.2 J	18
9/23/2016	1.4 J	20
3/27/2017	1.3 J	19
9/20/2017	1.9 J	29
3/16/2018	ND<5 U	6.5
9/20/2018	0.94 J	14
3/5/2019	ND<5 U	6.5
9/25/2019	ND<5 U	6.5
3/25/2020	0.85 J	13
9/28/2020	ND<5 U	6.5
3/18/2021	ND<5 U	6.5
9/15/2021	ND<5 U	6.5
3/22/2022	ND<2.2	6.5
9/14/2022	ND<2.2	6.5
3/16/2023	ND<2.2	6.5

---

The Wilcoxon Statistic is 55

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -5.41787

The Standard Deviation adjusted for ties is 63.5165

The Z Score adjusted for ties is -5.43953

-5.41787 < 2.326 indicating no statistical significance at 1% level

-5.43953 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chromium, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 9

Non detect rank is 5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	5
	3/19/2014	1.8 J	25
	9/8/2014	16	54
	3/17/2015	5.5	49
	9/14/2015	3.7	40
	3/17/2016	3.2	37
	9/21/2016	4.5	46
	3/24/2017	1.7 J	24
	9/20/2017	1.8 J	26
	3/27/2018	1.5 J	21
	9/19/2018	2.5	32
	3/11/2019	3.5	39
	9/25/2019	3.1	35
	3/18/2020	1.6 J	22
	9/23/2020	3.2	38
	3/17/2021	2.6	33
	9/8/2021	1.2 J	16
3/15/2022	4.3	45	
9/12/2022	1.6 J	23	
3/13/2023	2.1 J	30	
GWM-2	9/25/2013	ND<5	5
	3/18/2014	5.6	50
	9/16/2014	19	58
	3/18/2015	12	53
	9/15/2015	24	59
	3/16/2016	3.1	36
	9/22/2016	17	55
	3/24/2017	52	60
	9/21/2017	8.8	52
	3/28/2018	17	56
	9/21/2018	2.3	31
	3/12/2019	4.8	47
	10/1/2019	1.9 J	29
	3/18/2020	3.7	41
	9/23/2020	18	57
	3/17/2021	4.8	48
	9/9/2021	2.8 J	34
3/15/2022	3.8	42	
9/12/2022	7.7	51	
3/13/2023	3.9	44	
GWM-6	9/24/2013	ND<5	5
	3/21/2014	1.1 J	14
	9/17/2014	1.3 J	19

3/19/2015	1.1 J	15
9/15/2015	1.2 J	17
3/21/2016	0.94 J	12
9/26/2016	3.8	43
3/31/2017	1.3 J	20
9/21/2017	1.8 J	27
3/30/2018	0.85	11
9/26/2018	ND<5 U	5
3/13/2019	1.8 J	28
10/3/2019	ND<5 U	5
4/3/2020	ND<5 U	5
9/30/2020	ND<5 U	5
3/22/2021	ND<5 U	5
9/16/2021	1.2 J	18
3/24/2022	ND<2.2	5
9/16/2022	1 J	13
3/17/2023	0.8 J	10

---

The Wilcoxon Statistic is 72

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -5.15129

The Standard Deviation adjusted for ties is 63.664

The Z Score adjusted for ties is -5.1599

-5.15129 < 2.326 indicating no statistical significance at 1% level

-5.1599 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chromium, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 3

Non detect rank is 2

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	2
	3/19/2014	1.8 J	9
	9/8/2014	16	54
	3/17/2015	5.5	41
	9/14/2015	3.7	27
	3/17/2016	3.2	21
	9/21/2016	4.5	36
	3/24/2017	1.7 J	8
	9/20/2017	1.8 J	10
	3/27/2018	1.5 J	5
	9/19/2018	2.5	14
	3/11/2019	3.5	26
	9/25/2019	3.1	19
	3/18/2020	1.6 J	6
	9/23/2020	3.2	22
	3/17/2021	2.6	15
	9/8/2021	1.2 J	4
3/15/2022	4.3	35	
9/12/2022	1.6 J	7	
3/13/2023	2.1 J	12	
GWM-2	9/25/2013	ND<5	2
	3/18/2014	5.6	43
	9/16/2014	19	58
	3/18/2015	12	52
	9/15/2015	24	59
	3/16/2016	3.1	20
	9/22/2016	17	55
	3/24/2017	52	60
	9/21/2017	8.8	50
	3/28/2018	17	56
	9/21/2018	2.3	13
	3/12/2019	4.8	38
	10/1/2019	1.9 J	11
	3/18/2020	3.7	28
	9/23/2020	18	57
	3/17/2021	4.8	39
	9/9/2021	2.8 J	16
3/15/2022	3.8	30	
9/12/2022	7.7	48	
3/13/2023	3.9	32	
GWM-3	9/25/2013	ND<5	2
	3/18/2014	4.9	40
	9/16/2014	3.3	23

3/18/2015	3.7	29
9/15/2015	4	33
3/16/2016	8.2	49
9/22/2016	14	53
3/29/2017	5.9	45
9/21/2017	4	34
3/28/2018	3.8	31
9/20/2018	3.3	24
3/12/2019	4.7	37
10/1/2019	3	17
3/18/2020	3	18
9/24/2020	3.4	25
3/17/2021	5.6 R	44
9/9/2021	9.4	51
3/15/2022	7	47
9/16/2022	5.5	42
3/15/2023	6.7	46

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The Wilcoxon Statistic is 480

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 1.24666

The Standard Deviation adjusted for ties is 63.7669

The Z Score adjusted for ties is 1.24673

1.24666 < 2.326 indicating no statistical significance at 1% level

1.24673 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chromium, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 6

Non detect rank is 3.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	3.5
	3/19/2014	1.8 J	15
	9/8/2014	16	42
	3/17/2015	5.5	37
	9/14/2015	3.7	29
	3/17/2016	3.2	26
	9/21/2016	4.5	34
	3/24/2017	1.7 J	14
	9/20/2017	1.8 J	16
	3/27/2018	1.5 J	9
	9/19/2018	2.5	21
	3/11/2019	3.5	28
	9/25/2019	3.1	24
	3/18/2020	1.6 J	11
	9/23/2020	3.2	27
	3/17/2021	2.6	22
	9/8/2021	1.2 J	8
3/15/2022	4.3	33	
9/12/2022	1.6 J	12	
3/13/2023	2.1 J	19	
GWM-2	9/25/2013	ND<5	3.5
	3/18/2014	5.6	38
	9/16/2014	19	46
	3/18/2015	12	41
	9/15/2015	24	47
	3/16/2016	3.1	25
	9/22/2016	17	43
	3/24/2017	52	48
	9/21/2017	8.8	40
	3/28/2018	17	44
	9/21/2018	2.3	20
	3/12/2019	4.8	35
	10/1/2019	1.9 J	18
	3/18/2020	3.7	30
	9/23/2020	18	45
	3/17/2021	4.8	36
	9/9/2021	2.8 J	23
3/15/2022	3.8	31	
9/12/2022	7.7	39	
3/13/2023	3.9	32	
GWM-17S	11/14/2019	ND<5 U	3.5
	3/26/2020	1.6 J	13
	9/29/2020	0.81 J	7

3/16/2021	ND<5 U	3.5
9/14/2021	ND<5 U	3.5
3/18/2022	1.5 J	10
9/13/2022	ND<2.2	3.5
3/14/2023	1.8 J	17

---

The Wilcoxon Statistic is 25

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is -3.74849

The Standard Deviation adjusted for ties is 36.1135

The Z Score adjusted for ties is -3.75206

-3.74849 < 2.326 indicating no statistical significance at 1% level

-3.75206 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cobalt, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 8

Non detect rank is 4.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	4.5
	3/19/2014	ND<5 U	4.5
	9/8/2014	ND<5 U	4.5
	3/17/2015	ND<5 U	4.5
	9/14/2015	4 J	17
	3/17/2016	2.3 J	11
	9/21/2016	4.3 J	18
	3/24/2017	3.2 J	15
	9/20/2017	ND<5 U	4.5
	3/27/2018	1.9 J	10
	9/19/2018	130	56
	3/11/2019	200	57
	9/25/2019	21	20
	3/18/2020	50	39
	9/23/2020	2.6 J	12
	3/17/2021	ND<5 U	4.5
	9/8/2021	0.62 J	9
	3/15/2022	3 J	14
	9/12/2022	3.8 J	16
	3/13/2023	2.9 J	13
GWM-2	9/25/2013	ND<5	4.5
	3/18/2014	46	38
	9/16/2014	44	37
	3/18/2015	110	55
	9/15/2015	58	46
	3/16/2016	37	26
	9/22/2016	60	47
	3/24/2017	71	50
	9/21/2017	380	60
	3/28/2018	56	45
	9/21/2018	43	35
	3/12/2019	52	42
	10/1/2019	50	40
	3/18/2020	40	31
	9/23/2020	40	32
	3/17/2021	38	27
	9/9/2021	43	36
	3/15/2022	38	28
	9/12/2022	38	29
	3/13/2023	42	34
GWM-4	9/18/2013	ND<5	4.5
	3/20/2014	330	59
	9/9/2014	79	52

3/16/2015	95	54
9/9/2015	83	53
3/18/2016	53	43
9/20/2016	75	51
3/23/2017	34	24
9/18/2017	70	49
3/15/2018	39	30
9/17/2018	40	33
3/5/2019	54	44
9/24/2019	60	48
3/16/2020	250	58
9/22/2020	31	23
3/16/2021	20	19
9/14/2021	36	25
3/22/2022	29	22
9/13/2022	22	21
3/14/2023	50	41

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The Wilcoxon Statistic is 543.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 2.24242

The Standard Deviation adjusted for ties is 63.696

The Z Score adjusted for ties is 2.24504

2.24242 < 2.326 indicating no statistical significance at 1% level

2.24504 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cobalt, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 8

Non detect rank is 4.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	4.5
	3/19/2014	ND<5 U	4.5
	9/8/2014	ND<5 U	4.5
	3/17/2015	ND<5 U	4.5
	9/14/2015	4 J	17
	3/17/2016	2.3 J	11
	9/21/2016	4.3 J	18
	3/24/2017	3.2 J	15
	9/20/2017	ND<5 U	4.5
	3/27/2018	1.9 J	10
	9/19/2018	130	59
	3/11/2019	200	60
	9/25/2019	21	27
	3/18/2020	50	44
	9/23/2020	2.6 J	12
	3/17/2021	ND<5 U	4.5
	9/8/2021	0.62 J	9
	3/15/2022	3 J	14
	9/12/2022	3.8 J	16
3/13/2023	2.9 J	13	
GWM-2	9/25/2013	ND<5	4.5
	3/18/2014	46	41
	9/16/2014	44	40
	3/18/2015	110	58
	9/15/2015	58	50
	3/16/2016	37	31
	9/22/2016	60	52
	3/24/2017	71	53
	9/21/2017	380	61
	3/28/2018	56	48
	9/21/2018	43	38
	3/12/2019	52	46
	10/1/2019	50	45
	3/18/2020	40	35
	9/23/2020	40	36
	3/17/2021	38	32
	9/9/2021	43	39
	3/15/2022	38	33
	9/12/2022	38	34
3/13/2023	42	37	
GWM-5A	9/19/2013	20	26
	12/5/2013	ND<5	4.5
	3/19/2014	14	22

9/4/2014	27	29
3/17/2015	8.6	19
9/11/2015	12	20
3/15/2016	15	23
9/21/2016	15	24
3/28/2017	12	21
9/19/2017	23	28
3/26/2018	18	25
9/18/2018	58	51
3/4/2019	80	56
9/23/2019	87	57
3/19/2020	57	49
9/23/2020	54	47
3/19/2021	33	30
9/15/2021	47	43
3/16/2022	75	55
9/14/2022	46	42
3/16/2023	73	54

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The Wilcoxon Statistic is 494.5

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is 1.12328

The Standard Deviation adjusted for ties is 65.8055

The Z Score adjusted for ties is 1.12453

1.12328 < 2.326 indicating no statistical significance at 1% level

1.12453 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cobalt, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 7

Non detect rank is 4

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	4
	3/19/2014	ND<5 U	4
	9/8/2014	ND<5 U	4
	3/17/2015	ND<5 U	4
	9/14/2015	4 J	17
	3/17/2016	2.3 J	10
	9/21/2016	4.3 J	18
	3/24/2017	3.2 J	15
	9/20/2017	ND<5 U	4
	3/27/2018	1.9 J	9
	9/19/2018	130	39
	3/11/2019	200	40
	9/25/2019	21	19
	3/18/2020	50	31
	9/23/2020	2.6 J	12
	3/17/2021	ND<5 U	4
	9/8/2021	0.62 J	8
	3/15/2022	3 J	14
	9/12/2022	3.8 J	16
	3/13/2023	2.9 J	13
GWM-2	9/25/2013	ND<5	4
	3/18/2014	46	30
	9/16/2014	44	29
	3/18/2015	110	38
	9/15/2015	58	35
	3/16/2016	37	20
	9/22/2016	60	36
	3/24/2017	71	37
	9/21/2017	380	53
	3/28/2018	56	34
	9/21/2018	43	27
	3/12/2019	52	33
	10/1/2019	50	32
	3/18/2020	40	24
	9/23/2020	40	25
	3/17/2021	38	21
	9/9/2021	43	28
	3/15/2022	38	22
	9/12/2022	38	23
	3/13/2023	42	26
GWM-14	9/24/2013	420	59
	3/21/2014	450	60
	9/8/2014	410	57

3/19/2015	390	55
9/14/2015	410	58
3/21/2016	390	56
9/23/2016	380	54
3/27/2017	330	51
9/20/2017	350	52
3/16/2018	290	50
9/20/2018	280	48
3/5/2019	280	49
9/25/2019	240	42
3/25/2020	250	43
9/28/2020	270	47
3/18/2021	2.4 JR	11
9/15/2021	250	44
3/22/2022	260	46
9/14/2022	250	45
3/16/2023	230	41

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The Wilcoxon Statistic is 758

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 5.60605

The Standard Deviation adjusted for ties is 63.7208

The Z Score adjusted for ties is 5.61041

**5.60605 > 2.326 indicating statistical significance at 1% level**

**5.61041 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cobalt, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 7

Non detect rank is 4

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	4
	3/19/2014	ND<5 U	4
	9/8/2014	ND<5 U	4
	3/17/2015	ND<5 U	4
	9/14/2015	4 J	16
	3/17/2016	2.3 J	10
	9/21/2016	4.3 J	17
	3/24/2017	3.2 J	14
	9/20/2017	ND<5 U	4
	3/27/2018	1.9 J	9
	9/19/2018	130	58
	3/11/2019	200	59
	9/25/2019	21	20
	3/18/2020	50	38
	9/23/2020	2.6 J	11
	3/17/2021	ND<5 U	4
	9/8/2021	0.62 J	8
	3/15/2022	3 J	13
	9/12/2022	3.8 J	15
	3/13/2023	2.9 J	12
GWM-2	9/25/2013	ND<5	4
	3/18/2014	46	36
	9/16/2014	44	35
	3/18/2015	110	55
	9/15/2015	58	42
	3/16/2016	37	24
	9/22/2016	60	44
	3/24/2017	71	47
	9/21/2017	380	60
	3/28/2018	56	41
	9/21/2018	43	33
	3/12/2019	52	40
	10/1/2019	50	39
	3/18/2020	40	29
	9/23/2020	40	30
	3/17/2021	38	25
	9/9/2021	43	34
	3/15/2022	38	26
	9/12/2022	38	27
	3/13/2023	42	31
GWM-6	9/24/2013	60	45
	3/21/2014	60	46
	9/17/2014	58	43

3/19/2015	83	53
9/15/2015	85	54
3/21/2016	74	49
9/26/2016	73	48
3/31/2017	78	50
9/21/2017	110	56
3/30/2018	110	57
9/26/2018	82	52
3/13/2019	78	51
10/3/2019	48	37
4/3/2020	42	32
9/30/2020	38	28
3/22/2021	35	23
9/16/2021	31	22
3/24/2022	25	21
9/16/2022	20	19
3/17/2023	17	18

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The Wilcoxon Statistic is 594

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 3.03432

The Standard Deviation adjusted for ties is 63.7208

The Z Score adjusted for ties is 3.03669

**3.03432 > 2.326 indicating statistical significance at 1% level**

**3.03669 > 2.326 indicating statistical significance at 1% level when adjusted for ties**



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cobalt, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 8

Non detect rank is 4.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	4.5
	3/19/2014	ND<5 U	4.5
	9/8/2014	ND<5 U	4.5
	3/17/2015	ND<5 U	4.5
	9/14/2015	4 J	20
	3/17/2016	2.3 J	11
	9/21/2016	4.3 J	24
	3/24/2017	3.2 J	16
	9/20/2017	ND<5 U	4.5
	3/27/2018	1.9 J	10
	9/19/2018	130	58
	3/11/2019	200	59
	9/25/2019	21	38
	3/18/2020	50	50
	9/23/2020	2.6 J	12
	3/17/2021	ND<5 U	4.5
	9/8/2021	0.62 J	9
	3/15/2022	3 J	15
9/12/2022	3.8 J	19	
3/13/2023	2.9 J	13	
GWM-2	9/25/2013	ND<5	4.5
	3/18/2014	46	49
	9/16/2014	44	48
	3/18/2015	110	57
	9/15/2015	58	54
	3/16/2016	37	39
	9/22/2016	60	55
	3/24/2017	71	56
	9/21/2017	380	60
	3/28/2018	56	53
	9/21/2018	43	46
	3/12/2019	52	52
	10/1/2019	50	51
	3/18/2020	40	43
	9/23/2020	40	44
	3/17/2021	38	40
	9/9/2021	43	47
	3/15/2022	38	41
9/12/2022	38	42	
3/13/2023	42	45	
GWM-3	9/25/2013	ND<5	4.5
	3/18/2014	5 J	27
	9/16/2014	4.2 J	22

3/18/2015	5.9	30
9/15/2015	4.5 J	26
3/16/2016	6.2	31
9/22/2016	13	37
3/29/2017	8.4	34
9/21/2017	9	36
3/28/2018	6.9	32
9/20/2018	4.2 J	23
3/12/2019	5 J	28
10/1/2019	4.4 J	25
3/18/2020	7.9	33
9/24/2020	4 J	21
3/17/2021	5.4 J	29
9/9/2021	3.6 J	17
3/15/2022	8.4	35
9/16/2022	2.9 J	14
3/15/2023	3.7 J	18

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The Wilcoxon Statistic is 312.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -1.37995

The Standard Deviation adjusted for ties is 63.696

The Z Score adjusted for ties is -1.38156

-1.37995 < 2.326 indicating no statistical significance at 1% level

-1.38156 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cobalt, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 7

Non detect rank is 4

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	4
	3/19/2014	ND<5 U	4
	9/8/2014	ND<5 U	4
	3/17/2015	ND<5 U	4
	9/14/2015	4 J	16
	3/17/2016	2.3 J	10
	9/21/2016	4.3 J	17
	3/24/2017	3.2 J	14
	9/20/2017	ND<5 U	4
	3/27/2018	1.9 J	9
	9/19/2018	130	38
	3/11/2019	200	39
	9/25/2019	21	18
	3/18/2020	50	30
	9/23/2020	2.6 J	11
	3/17/2021	ND<5 U	4
	9/8/2021	0.62 J	8
	3/15/2022	3 J	13
	9/12/2022	3.8 J	15
3/13/2023	2.9 J	12	
GWM-2	9/25/2013	ND<5	4
	3/18/2014	46	29
	9/16/2014	44	28
	3/18/2015	110	37
	9/15/2015	58	34
	3/16/2016	37	19
	9/22/2016	60	35
	3/24/2017	71	36
	9/21/2017	380	40
	3/28/2018	56	33
	9/21/2018	43	26
	3/12/2019	52	32
	10/1/2019	50	31
	3/18/2020	40	23
	9/23/2020	40	24
	3/17/2021	38	20
	9/9/2021	43	27
	3/15/2022	38	21
	9/12/2022	38	22
3/13/2023	42	25	
GWM-17S	11/14/2019	460	45
	3/26/2020	570	47
	9/29/2020	420	42

3/16/2021	430	43
9/14/2021	410	41
3/18/2022	430	44
9/13/2022	470	46
3/14/2023	640	48

---

The Wilcoxon Statistic is 320

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 4.41243

The Standard Deviation adjusted for ties is 36.0929

The Z Score adjusted for ties is 4.41916

**4.41243 > 2.326 indicating statistical significance at 1% level**

**4.41916 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Copper, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 3

Non detect rank is 2

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	2
	3/19/2014	10	27
	9/8/2014	19	44
	3/17/2015	14	31
	9/14/2015	18	42
	3/17/2016	18	43
	9/21/2016	14	32
	3/24/2017	16	37
	9/20/2017	7.5	21
	3/27/2018	7.6	22
	9/19/2018	11	28
	3/11/2019	25	49
	9/25/2019	16	38
	3/18/2020	19	45
	9/23/2020	17	40
	3/17/2021	15	34
	9/8/2021	15	35
3/15/2022	25	50	
9/12/2022	29	52	
3/13/2023	19	46	
GWM-2	9/25/2013	ND<5	2
	3/18/2014	2.7 J	6
	9/16/2014	9.4	26
	3/18/2015	63	58
	9/15/2015	44	56
	3/16/2016	6	18
	9/22/2016	26	51
	3/24/2017	150	59
	9/21/2017	180	60
	3/28/2018	21	48
	9/21/2018	4.2 J	11
	3/12/2019	4.6 J	14
	10/1/2019	6.7	20
	3/18/2020	5.7	17
	9/23/2020	4.7 J	16
	3/17/2021	4.6 J	15
	9/9/2021	4.3 J	13
3/15/2022	29	53	
9/12/2022	3.4 J	8	
3/13/2023	2.3 J	5	
GWM-4	9/18/2013	ND<5	2
	3/20/2014	3.3 J	7
	9/9/2014	8.8	24

3/16/2015	3.6 J	9
9/9/2015	9	25
3/18/2016	6.6	19
9/20/2016	43	55
3/23/2017	14	33
9/18/2017	15	36
3/15/2018	3.8 J	10
9/17/2018	20	47
3/5/2019	11	29
9/24/2019	45	57
3/16/2020	33	54
9/22/2020	2 J	4
3/16/2021	17	41
9/14/2021	16	39
3/22/2022	12	30
9/13/2022	4.2 J	12
3/14/2023	7.9	23

---

The Wilcoxon Statistic is 346

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -0.854628

The Standard Deviation adjusted for ties is 63.7669

The Z Score adjusted for ties is -0.854676

-0.854628 < 2.326 indicating no statistical significance at 1% level

-0.854676 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Copper, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 9

Non detect rank is 5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	5
	3/19/2014	10	35
	9/8/2014	19	49
	3/17/2015	14	39
	9/14/2015	18	47
	3/17/2016	18	48
	9/21/2016	14	40
	3/24/2017	16	44
	9/20/2017	7.5	26
	3/27/2018	7.6	28
	9/19/2018	11	37
	3/11/2019	25	53
	9/25/2019	16	45
	3/18/2020	19	50
	9/23/2020	17	46
	3/17/2021	15	41
	9/8/2021	15	42
3/15/2022	25	54	
9/12/2022	29	56	
3/13/2023	19	51	
GWM-2	9/25/2013	ND<5	5
	3/18/2014	2.7 J	11
	9/16/2014	9.4	34
	3/18/2015	63	59
	9/15/2015	44	58
	3/16/2016	6	21
	9/22/2016	26	55
	3/24/2017	150	60
	9/21/2017	180	61
	3/28/2018	21	52
	9/21/2018	4.2 J	13
	3/12/2019	4.6 J	16
	10/1/2019	6.7	24
	3/18/2020	5.7	20
	9/23/2020	4.7 J	18
	3/17/2021	4.6 J	17
	9/9/2021	4.3 J	14
3/15/2022	29	57	
9/12/2022	3.4 J	12	
3/13/2023	2.3 J	10	
GWM-5A	9/19/2013	ND<5	5
	12/5/2013	ND<5	5
	3/19/2014	6.2	22

9/4/2014	7.7	29
3/17/2015	7.5	27
9/11/2015	10	36
3/15/2016	15	43
9/21/2016	8.9	31
3/28/2017	6.3	23
9/19/2017	11	38
3/26/2018	5.5 J	19
9/18/2018	7.2	25
3/4/2019	9	32
9/23/2019	9.3	33
3/19/2020	7.8	30
9/23/2020	4.4 J	15
3/19/2021	ND<5 U	5
9/15/2021	ND<5 U	5
3/16/2022	ND<5.6	5
9/14/2022	ND<5.6	5
3/16/2023	ND<5.6	5

---

The Wilcoxon Statistic is 207

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is -3.24081

The Standard Deviation adjusted for ties is 65.7741

The Z Score adjusted for ties is -3.24596

-3.24081 < 2.326 indicating no statistical significance at 1% level

-3.24596 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Copper, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 14

Non detect rank is 7.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	7.5
	3/19/2014	10	37
	9/8/2014	19	48
	3/17/2015	14	39
	9/14/2015	18	46
	3/17/2016	18	47
	9/21/2016	14	40
	3/24/2017	16	43
	9/20/2017	7.5	34
	3/27/2018	7.6	35
	9/19/2018	11	38
	3/11/2019	25	52
	9/25/2019	16	44
	3/18/2020	19	49
	9/23/2020	17	45
	3/17/2021	15	41
	9/8/2021	15	42
	3/15/2022	25	53
	9/12/2022	29	55
3/13/2023	19	50	
GWM-2	9/25/2013	ND<5	7.5
	3/18/2014	2.7 J	20
	9/16/2014	9.4	36
	3/18/2015	63	58
	9/15/2015	44	57
	3/16/2016	6	30
	9/22/2016	26	54
	3/24/2017	150	59
	9/21/2017	180	60
	3/28/2018	21	51
	9/21/2018	4.2 J	24
	3/12/2019	4.6 J	26
	10/1/2019	6.7	32
	3/18/2020	5.7	29
	9/23/2020	4.7 J	28
	3/17/2021	4.6 J	27
	9/9/2021	4.3 J	25
3/15/2022	29	56	
9/12/2022	3.4 J	22	
3/13/2023	2.3 J	17	
GWM-14	9/24/2013	ND<5	7.5
	3/21/2014	ND<5 U	7.5
	9/8/2014	ND<5 U	7.5

3/19/2015	7.4	33
9/14/2015	2.2 J	15
3/21/2016	3.5 J	23
9/23/2016	ND<5 U	7.5
3/27/2017	2.4 J	18
9/20/2017	3.1 J	21
3/16/2018	2.5 J	19
9/20/2018	2.2 J	16
3/5/2019	ND<5 U	7.5
9/25/2019	ND<5 U	7.5
3/25/2020	ND<5 U	7.5
9/28/2020	ND<5 U	7.5
3/18/2021	6.6 R	31
9/15/2021	ND<5 U	7.5
3/22/2022	ND<5.6	7.5
9/14/2022	ND<5.6	7.5
3/16/2023	ND<5.6	7.5

---

The Wilcoxon Statistic is 56

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -5.40219

The Standard Deviation adjusted for ties is 63.366

The Z Score adjusted for ties is -5.43667

-5.40219 < 2.326 indicating no statistical significance at 1% level

-5.43667 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Copper, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 11

Non detect rank is 6

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	6
	3/19/2014	10	37
	9/8/2014	19	48
	3/17/2015	14	39
	9/14/2015	18	46
	3/17/2016	18	47
	9/21/2016	14	40
	3/24/2017	16	43
	9/20/2017	7.5	34
	3/27/2018	7.6	35
	9/19/2018	11	38
	3/11/2019	25	52
	9/25/2019	16	44
	3/18/2020	19	49
	9/23/2020	17	45
	3/17/2021	15	41
	9/8/2021	15	42
3/15/2022	25	53	
9/12/2022	29	55	
3/13/2023	19	50	
GWM-2	9/25/2013	ND<5	6
	3/18/2014	2.7 J	17
	9/16/2014	9.4	36
	3/18/2015	63	58
	9/15/2015	44	57
	3/16/2016	6	30
	9/22/2016	26	54
	3/24/2017	150	59
	9/21/2017	180	60
	3/28/2018	21	51
	9/21/2018	4.2 J	24
	3/12/2019	4.6 J	26
	10/1/2019	6.7	33
	3/18/2020	5.7	29
	9/23/2020	4.7 J	28
	3/17/2021	4.6 J	27
	9/9/2021	4.3 J	25
3/15/2022	29	56	
9/12/2022	3.4 J	20	
3/13/2023	2.3 J	13	
GWM-6	9/24/2013	ND<5	6
	3/21/2014	2.5 J	15
	9/17/2014	ND<5 U	6

3/19/2015	ND<5 U	6
9/15/2015	ND<5 U	6
3/21/2016	ND<5 U	6
9/26/2016	2.9 J	19
3/31/2017	2.4 J	14
9/21/2017	6.1	31
3/30/2018	4.1	23
9/26/2018	3.9 J	22
3/13/2019	2.5 J	16
10/3/2019	6.4	32
4/3/2020	2.7 J	18
9/30/2020	ND<5 U	6
3/22/2021	ND<5 U	6
9/16/2021	3.6 J	21
3/24/2022	2 J	12
9/16/2022	ND<5.6	6
3/17/2023	ND<5.6	6

---

The Wilcoxon Statistic is 67

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -5.2297

The Standard Deviation adjusted for ties is 63.5752

The Z Score adjusted for ties is -5.24576

-5.2297 < 2.326 indicating no statistical significance at 1% level

-5.24576 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Copper, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 4

Non detect rank is 2.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	2.5
	3/19/2014	10	31
	9/8/2014	19	48
	3/17/2015	14	36
	9/14/2015	18	45
	3/17/2016	18	46
	9/21/2016	14	37
	3/24/2017	16	40
	9/20/2017	7.5	28
	3/27/2018	7.6	29
	9/19/2018	11	33
	3/11/2019	25	52
	9/25/2019	16	41
	3/18/2020	19	49
	9/23/2020	17	43
	3/17/2021	15	38
	9/8/2021	15	39
3/15/2022	25	53	
9/12/2022	29	55	
3/13/2023	19	50	
GWM-2	9/25/2013	ND<5	2.5
	3/18/2014	2.7 J	6
	9/16/2014	9.4	30
	3/18/2015	63	58
	9/15/2015	44	57
	3/16/2016	6	24
	9/22/2016	26	54
	3/24/2017	150	59
	9/21/2017	180	60
	3/28/2018	21	51
	9/21/2018	4.2 J	10
	3/12/2019	4.6 J	12
	10/1/2019	6.7	26
	3/18/2020	5.7	20
	9/23/2020	4.7 J	15
	3/17/2021	4.6 J	13
	9/9/2021	4.3 J	11
3/15/2022	29	56	
9/12/2022	3.4 J	7	
3/13/2023	2.3 J	5	
GWM-3	9/25/2013	ND<5	2.5
	3/18/2014	11	34
	9/16/2014	13	35

3/18/2015	3.4 J	8
9/15/2015	4.6 J	14
3/16/2016	3.8 J	9
9/22/2016	10	32
3/29/2017	5.1 J	18
9/21/2017	16	42
3/28/2018	5.7	21
9/20/2018	6.9	27
3/12/2019	6.6	25
10/1/2019	5.1 J	19
3/18/2020	5.8	22
9/24/2020	5.8	23
3/17/2021	18 R	47
9/9/2021	4.8 J	17
3/15/2022	4.7 J	16
9/16/2022	17	44
3/15/2023	ND<5.6	2.5

---

The Wilcoxon Statistic is 248

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -2.39139

The Standard Deviation adjusted for ties is 63.7616

The Z Score adjusted for ties is -2.39172

-2.39139 < 2.326 indicating no statistical significance at 1% level

-2.39172 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Copper, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 10

Non detect rank is 5.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	5.5
	3/19/2014	10	25
	9/8/2014	19	36
	3/17/2015	14	27
	9/14/2015	18	34
	3/17/2016	18	35
	9/21/2016	14	28
	3/24/2017	16	31
	9/20/2017	7.5	22
	3/27/2018	7.6	23
	9/19/2018	11	26
	3/11/2019	25	40
	9/25/2019	16	32
	3/18/2020	19	37
	9/23/2020	17	33
	3/17/2021	15	29
	9/8/2021	15	30
3/15/2022	25	41	
9/12/2022	29	43	
3/13/2023	19	38	
GWM-2	9/25/2013	ND<5	5.5
	3/18/2014	2.7 J	12
	9/16/2014	9.4	24
	3/18/2015	63	46
	9/15/2015	44	45
	3/16/2016	6	20
	9/22/2016	26	42
	3/24/2017	150	47
	9/21/2017	180	48
	3/28/2018	21	39
	9/21/2018	4.2 J	14
	3/12/2019	4.6 J	16
	10/1/2019	6.7	21
	3/18/2020	5.7	19
	9/23/2020	4.7 J	18
	3/17/2021	4.6 J	17
	9/9/2021	4.3 J	15
3/15/2022	29	44	
9/12/2022	3.4 J	13	
3/13/2023	2.3 J	11	
GWM-17S	11/14/2019	ND<5 U	5.5
	3/26/2020	ND<5 U	5.5
	9/29/2020	ND<5 U	5.5

3/16/2021	ND<5 U	5.5
9/14/2021	ND<5 U	5.5
3/18/2022	ND<5.6	5.5
9/13/2022	ND<5.6	5.5
3/14/2023	ND<5.6	5.5

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The Wilcoxon Statistic is 8

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is -4.21879

The Standard Deviation adjusted for ties is 35.9856

The Z Score adjusted for ties is -4.2378

-4.21879 < 2.326 indicating no statistical significance at 1% level

-4.2378 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Iron, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 2

Non detect rank is 1.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	22	6
	3/19/2014	ND<80 U	1.5
	9/8/2014	64	20
	3/17/2015	42 J	17
	9/14/2015	20 J	3
	3/17/2016	44 J	18
	9/21/2016	20 J	4
	3/24/2017	21 J	5
	9/20/2017	27 J	10
	3/27/2018	25 J	9
	9/19/2018	500	38
	3/11/2019	530	40
	9/25/2019	320	33
	3/18/2020	96	26
	9/23/2020	110	28
	3/17/2021	31 J	13
	9/8/2021	ND<80 U	1.5
3/15/2022	30 J	12	
9/12/2022	37 J	15	
3/13/2023	23 J	7	
GWM-2	9/25/2013	1137	43
	3/18/2014	40 J	16
	9/16/2014	74	22
	3/18/2015	360	35
	9/15/2015	280	32
	3/16/2016	24 J	8
	9/22/2016	250	31
	3/24/2017	1000	42
	9/21/2017	680	41
	3/28/2018	240	30
	9/21/2018	97	27
	3/12/2019	72	21
	10/1/2019	34 J	14
	3/18/2020	45 J	19
	9/23/2020	320	34
	3/17/2021	81	23
	9/9/2021	86	24
3/15/2022	91	25	
9/12/2022	420	36	
3/13/2023	110	29	
GWM-4	9/18/2013	439	37
	3/20/2014	63600	59
	9/9/2014	4100	51

3/16/2015	4800	53
9/9/2015	6200	56
3/18/2016	5500	55
9/20/2016	7700	58
3/23/2017	3800	50
9/18/2017	7600	57
3/15/2018	4800	54
9/17/2018	2700	48
3/5/2019	3100	49
9/24/2019	4700	52
3/16/2020	89000	60
9/22/2020	28 J	11
3/16/2021	2300	47
9/14/2021	2000	46
3/22/2022	1400	44
9/13/2022	510	39
3/14/2023	1800	45

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The Wilcoxon Statistic is 761

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 5.65309

The Standard Deviation adjusted for ties is 63.7695

The Z Score adjusted for ties is 5.65317

**5.65309 > 2.326 indicating statistical significance at 1% level**

**5.65317 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Iron, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 2

Non detect rank is 1.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	22	6
	3/19/2014	ND<80 U	1.5
	9/8/2014	64	19
	3/17/2015	42 J	16
	9/14/2015	20 J	3
	3/17/2016	44 J	17
	9/21/2016	20 J	4
	3/24/2017	21 J	5
	9/20/2017	27 J	10
	3/27/2018	25 J	9
	9/19/2018	500	37
	3/11/2019	530	39
	9/25/2019	320	33
	3/18/2020	96	25
	9/23/2020	110	27
	3/17/2021	31 J	12
	9/8/2021	ND<80 U	1.5
3/15/2022	30 J	11	
9/12/2022	37 J	14	
3/13/2023	23 J	7	
GWM-2	9/25/2013	1137	48
	3/18/2014	40 J	15
	9/16/2014	74	21
	3/18/2015	360	35
	9/15/2015	280	32
	3/16/2016	24 J	8
	9/22/2016	250	31
	3/24/2017	1000	45
	9/21/2017	680	42
	3/28/2018	240	30
	9/21/2018	97	26
	3/12/2019	72	20
	10/1/2019	34 J	13
	3/18/2020	45 J	18
	9/23/2020	320	34
	3/17/2021	81	22
	9/9/2021	86	23
3/15/2022	91	24	
9/12/2022	420	36	
3/13/2023	110	28	
GWM-5A	9/19/2013	4576	61
	12/5/2013	239	29
	3/19/2014	660	41

9/4/2014	1900	54
3/17/2015	870	44
9/11/2015	1100	46
3/15/2016	1100	47
9/21/2016	1300	50
3/28/2017	510	38
9/19/2017	2000	55
3/26/2018	690	43
9/18/2018	3100	59
3/4/2019	2700	58
9/23/2019	3300	60
3/19/2020	1200	49
9/23/2020	2400	57
3/19/2021	650	40
9/15/2021	1300	51
3/16/2022	1800	53
9/14/2022	1500	52
3/16/2023	2000	56

---

The Wilcoxon Statistic is 812

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is 5.94274

The Standard Deviation adjusted for ties is 65.8778

The Z Score adjusted for ties is 5.94282

**5.94274 > 2.326 indicating statistical significance at 1% level**

**5.94282 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Iron, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 2

Non detect rank is 1.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	22	6
	3/19/2014	ND<80 U	1.5
	9/8/2014	64	19
	3/17/2015	42 J	16
	9/14/2015	20 J	3
	3/17/2016	44 J	17
	9/21/2016	20 J	4
	3/24/2017	21 J	5
	9/20/2017	27 J	10
	3/27/2018	25 J	9
	9/19/2018	500	37
	3/11/2019	530	38
	9/25/2019	320	33
	3/18/2020	96	25
	9/23/2020	110	27
	3/17/2021	31 J	12
	9/8/2021	ND<80 U	1.5
3/15/2022	30 J	11	
9/12/2022	37 J	14	
3/13/2023	23 J	7	
GWM-2	9/25/2013	1137	41
	3/18/2014	40 J	15
	9/16/2014	74	21
	3/18/2015	360	35
	9/15/2015	280	32
	3/16/2016	24 J	8
	9/22/2016	250	31
	3/24/2017	1000	40
	9/21/2017	680	39
	3/28/2018	240	30
	9/21/2018	97	26
	3/12/2019	72	20
	10/1/2019	34 J	13
	3/18/2020	45 J	18
	9/23/2020	320	34
	3/17/2021	81	22
	9/9/2021	86	23
3/15/2022	91	24	
9/12/2022	420	36	
3/13/2023	110	28	
GWM-14	9/24/2013	91070	60
	3/21/2014	82100	59
	9/8/2014	77200	58

3/19/2015	68700	52
9/14/2015	71800	56
3/21/2016	69600	55
9/23/2016	66400	48
3/27/2017	72700	57
9/20/2017	67000	49
3/16/2018	67100	50
9/20/2018	54800	43
3/5/2019	67400	51
9/25/2019	62300	46
3/25/2020	69400	54
9/28/2020	69300	53
3/18/2021	110 R	29
9/15/2021	62000	45
3/22/2022	62900	47
9/14/2022	54700	42
3/16/2023	55600	44

---

The Wilcoxon Statistic is 788

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 6.07648

The Standard Deviation adjusted for ties is 63.7695

The Z Score adjusted for ties is 6.07657

**6.07648 > 2.326 indicating statistical significance at 1% level**

**6.07657 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Iron, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 2

Non detect rank is 1.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	22	6
	3/19/2014	ND<80 U	1.5
	9/8/2014	64	19
	3/17/2015	42 J	16
	9/14/2015	20 J	3
	3/17/2016	44 J	17
	9/21/2016	20 J	4
	3/24/2017	21 J	5
	9/20/2017	27 J	10
	3/27/2018	25 J	9
	9/19/2018	500	36
	3/11/2019	530	37
	9/25/2019	320	32
	3/18/2020	96	25
	9/23/2020	110	27
	3/17/2021	31 J	12
	9/8/2021	ND<80 U	1.5
3/15/2022	30 J	11	
9/12/2022	37 J	14	
3/13/2023	23 J	7	
GWM-2	9/25/2013	1137	40
	3/18/2014	40 J	15
	9/16/2014	74	21
	3/18/2015	360	34
	9/15/2015	280	31
	3/16/2016	24 J	8
	9/22/2016	250	30
	3/24/2017	1000	39
	9/21/2017	680	38
	3/28/2018	240	29
	9/21/2018	97	26
	3/12/2019	72	20
	10/1/2019	34 J	13
	3/18/2020	45 J	18
	9/23/2020	320	33
	3/17/2021	81	22
	9/9/2021	86	23
3/15/2022	91	24	
9/12/2022	420	35	
3/13/2023	110	28	
GWM-6	9/24/2013	9312	43
	3/21/2014	6600	41
	9/17/2014	6700	42

3/19/2015	12300	44
9/15/2015	16400	47
3/21/2016	16400	48
9/26/2016	13700	45
3/31/2017	16300	46
9/21/2017	23300	49
3/30/2018	35600	50
9/26/2018	51400	53
3/13/2019	63300	56
10/3/2019	49300	52
4/3/2020	43900	51
9/30/2020	61200	54
3/22/2021	84200	59
9/16/2021	63000	55
3/24/2022	79200	57
9/16/2022	86200	60
3/17/2023	82100	58

---

The Wilcoxon Statistic is 800

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 6.26466

The Standard Deviation adjusted for ties is 63.7695

The Z Score adjusted for ties is 6.26475

**6.26466 > 2.326 indicating statistical significance at 1% level**

**6.26475 > 2.326 indicating statistical significance at 1% level when adjusted for ties**



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Iron, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 10

Non detect rank is 5.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	22	18
	3/19/2014	ND<80 U	5.5
	9/8/2014	64	36
	3/17/2015	42 J	32
	9/14/2015	20 J	13
	3/17/2016	44 J	34
	9/21/2016	20 J	14
	3/24/2017	21 J	17
	9/20/2017	27 J	22
	3/27/2018	25 J	21
	9/19/2018	500	55
	3/11/2019	530	56
	9/25/2019	320	51
	3/18/2020	96	44
	9/23/2020	110	46
	3/17/2021	31 J	24
	9/8/2021	ND<80 U	5.5
3/15/2022	30 J	23	
9/12/2022	37 J	27	
3/13/2023	23 J	19	
GWM-2	9/25/2013	1137	59
	3/18/2014	40 J	30
	9/16/2014	74	38
	3/18/2015	360	53
	9/15/2015	280	50
	3/16/2016	24 J	20
	9/22/2016	250	49
	3/24/2017	1000	58
	9/21/2017	680	57
	3/28/2018	240	48
	9/21/2018	97	45
	3/12/2019	72	37
	10/1/2019	34 J	26
	3/18/2020	45 J	35
	9/23/2020	320	52
	3/17/2021	81	39
	9/9/2021	86	42
3/15/2022	91	43	
9/12/2022	420	54	
3/13/2023	110	47	
GWM-3	9/25/2013	10	11
	3/18/2014	20 J	15
	9/16/2014	ND<80 U	5.5

3/18/2015	ND<80 U	5.5
9/15/2015	19 J	12
3/16/2016	33 J	25
9/22/2016	83	40
3/29/2017	39 J	29
9/21/2017	37 J	28
3/28/2018	20 J	16
9/20/2018	ND<80 U	5.5
3/12/2019	ND<80 U	5.5
10/1/2019	ND<80 U	5.5
3/18/2020	ND<80 U	5.5
9/24/2020	ND<80 U	5.5
3/17/2021	4900 R	60
9/9/2021	ND<80 U	5.5
3/15/2022	85	41
9/16/2022	41 J	31
3/15/2023	43 J	33

---

The Wilcoxon Statistic is 175

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -3.53612

The Standard Deviation adjusted for ties is 63.6241

The Z Score adjusted for ties is -3.54426

-3.53612 < 2.326 indicating no statistical significance at 1% level

-3.54426 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Iron, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 2

Non detect rank is 1.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	22	6
	3/19/2014	ND<80 U	1.5
	9/8/2014	64	19
	3/17/2015	42 J	16
	9/14/2015	20 J	3
	3/17/2016	44 J	17
	9/21/2016	20 J	4
	3/24/2017	21 J	5
	9/20/2017	27 J	10
	3/27/2018	25 J	9
	9/19/2018	500	36
	3/11/2019	530	37
	9/25/2019	320	32
	3/18/2020	96	25
	9/23/2020	110	27
	3/17/2021	31 J	12
	9/8/2021	ND<80 U	1.5
3/15/2022	30 J	11	
9/12/2022	37 J	14	
3/13/2023	23 J	7	
GWM-2	9/25/2013	1137	40
	3/18/2014	40 J	15
	9/16/2014	74	21
	3/18/2015	360	34
	9/15/2015	280	31
	3/16/2016	24 J	8
	9/22/2016	250	30
	3/24/2017	1000	39
	9/21/2017	680	38
	3/28/2018	240	29
	9/21/2018	97	26
	3/12/2019	72	20
	10/1/2019	34 J	13
	3/18/2020	45 J	18
	9/23/2020	320	33
	3/17/2021	81	22
	9/9/2021	86	23
3/15/2022	91	24	
9/12/2022	420	35	
3/13/2023	110	28	
GWM-17S	11/14/2019	84100	42
	3/26/2020	85200	44
	9/29/2020	101000	46

3/16/2021	107000	48
9/14/2021	100000	45
3/18/2022	85100	43
9/13/2022	83200	41
3/14/2023	102000	47

---

The Wilcoxon Statistic is 320

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 4.41243

The Standard Deviation adjusted for ties is 36.1469

The Z Score adjusted for ties is 4.41255

**4.41243 > 2.326 indicating statistical significance at 1% level**

**4.41255 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Lead, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 46

Non detect rank is 23.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	23.5
	3/19/2014	ND<5 U	23.5
	9/8/2014	ND<5 U	23.5
	3/17/2015	ND<5 U	23.5
	9/14/2015	ND<5 U	23.5
	3/17/2016	ND<5 U	23.5
	9/21/2016	ND<5 U	23.5
	3/24/2017	ND<5 U	23.5
	9/20/2017	ND<5 U	23.5
	3/27/2018	ND<5 U	23.5
	9/19/2018	1.9 J	54
	3/11/2019	2.4	56
	9/25/2019	ND<5 U	23.5
	3/18/2020	ND<5 U	23.5
	9/23/2020	0.79 J	48
	3/17/2021	ND<5 U	23.5
	9/8/2021	ND<5 U	23.5
	3/15/2022	ND<2.2	23.5
	9/12/2022	0.81 J	49
	3/13/2023	ND<2.2	23.5
GWM-2	9/25/2013	ND<5	23.5
	3/18/2014	1.4 J	51
	9/16/2014	0.78 J	47
	3/18/2015	16	59
	9/15/2015	6.2	57
	3/16/2016	ND<5 U	23.5
	9/22/2016	1.2 J	50
	3/24/2017	18	60
	9/21/2017	13	58
	3/28/2018	1.7 J	53
	9/21/2018	ND<5 U	23.5
	3/12/2019	ND<5 U	23.5
	10/1/2019	ND<5 U	23.5
	3/18/2020	ND<5 U	23.5
	9/23/2020	ND<5 U	23.5
	3/17/2021	ND<5 U	23.5
	9/9/2021	ND<5 U	23.5
	3/15/2022	ND<2.2	23.5
	9/12/2022	ND<2.2	23.5
	3/13/2023	ND<2.2	23.5
GWM-4	9/18/2013	ND<5	23.5
	3/20/2014	ND<5 U	23.5
	9/9/2014	ND<5 U	23.5

3/16/2015	ND<5 U	23.5
9/9/2015	ND<5 U	23.5
3/18/2016	ND<5 U	23.5
9/20/2016	ND<5 U	23.5
3/23/2017	ND<5 U	23.5
9/18/2017	ND<5 U	23.5
3/15/2018	ND<5 U	23.5
9/17/2018	ND<5 U	23.5
3/5/2019	ND<5 U	23.5
9/24/2019	ND<5 U	23.5
3/16/2020	2.3	55
9/22/2020	ND<5 U	23.5
3/16/2021	ND<5 U	23.5
9/14/2021	ND<5 U	23.5
3/22/2022	ND<2.2	23.5
9/13/2022	1.6 J	52
3/14/2023	ND<2.2	23.5

---

The Wilcoxon Statistic is 320

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -1.26234

The Standard Deviation adjusted for ties is 47.2701

The Z Score adjusted for ties is -1.70298

-1.26234 < 2.326 indicating no statistical significance at 1% level

-1.70298 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Lead, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 48

Non detect rank is 24.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	24.5
	3/19/2014	ND<5 U	24.5
	9/8/2014	ND<5 U	24.5
	3/17/2015	ND<5 U	24.5
	9/14/2015	ND<5 U	24.5
	3/17/2016	ND<5 U	24.5
	9/21/2016	ND<5 U	24.5
	3/24/2017	ND<5 U	24.5
	9/20/2017	ND<5 U	24.5
	3/27/2018	ND<5 U	24.5
	9/19/2018	1.9 J	56
	3/11/2019	2.4	57
	9/25/2019	ND<5 U	24.5
	3/18/2020	ND<5 U	24.5
	9/23/2020	0.79 J	50
	3/17/2021	ND<5 U	24.5
	9/8/2021	ND<5 U	24.5
3/15/2022	ND<2.2	24.5	
9/12/2022	0.81 J	51	
3/13/2023	ND<2.2	24.5	
GWM-2	9/25/2013	ND<5	24.5
	3/18/2014	1.4 J	54
	9/16/2014	0.78 J	49
	3/18/2015	16	60
	9/15/2015	6.2	58
	3/16/2016	ND<5 U	24.5
	9/22/2016	1.2 J	52
	3/24/2017	18	61
	9/21/2017	13	59
	3/28/2018	1.7 J	55
	9/21/2018	ND<5 U	24.5
	3/12/2019	ND<5 U	24.5
	10/1/2019	ND<5 U	24.5
	3/18/2020	ND<5 U	24.5
	9/23/2020	ND<5 U	24.5
	3/17/2021	ND<5 U	24.5
	9/9/2021	ND<5 U	24.5
3/15/2022	ND<2.2	24.5	
9/12/2022	ND<2.2	24.5	
3/13/2023	ND<2.2	24.5	
GWM-5A	9/19/2013	ND<5	24.5
	12/5/2013	ND<5	24.5
	3/19/2014	1.2 J	53

9/4/2014	ND<5 U	24.5
3/17/2015	ND<5 U	24.5
9/11/2015	ND<5 U	24.5
3/15/2016	ND<5 U	24.5
9/21/2016	ND<5 U	24.5
3/28/2017	ND<5 U	24.5
9/19/2017	ND<5 U	24.5
3/26/2018	ND<5 U	24.5
9/18/2018	ND<5 U	24.5
3/4/2019	ND<5 U	24.5
9/23/2019	ND<5 U	24.5
3/19/2020	ND<5 U	24.5
9/23/2020	ND<5 U	24.5
3/19/2021	ND<5 U	24.5
9/15/2021	ND<5 U	24.5
3/16/2022	ND<2.2	24.5
9/14/2022	ND<2.2	24.5
3/16/2023	ND<2.2	24.5

---

The Wilcoxon Statistic is 312

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is -1.64697

The Standard Deviation adjusted for ties is 47.1781

The Z Score adjusted for ties is -2.2998

-1.64697 < 2.326 indicating no statistical significance at 1% level

-2.2998 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Lead, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 47

Non detect rank is 24

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	24
	3/19/2014	ND<5 U	24
	9/8/2014	ND<5 U	24
	3/17/2015	ND<5 U	24
	9/14/2015	ND<5 U	24
	3/17/2016	ND<5 U	24
	9/21/2016	ND<5 U	24
	3/24/2017	ND<5 U	24
	9/20/2017	ND<5 U	24
	3/27/2018	ND<5 U	24
	9/19/2018	1.9 J	55
	3/11/2019	2.4	56
	9/25/2019	ND<5 U	24
	3/18/2020	ND<5 U	24
	9/23/2020	0.79 J	49
	3/17/2021	ND<5 U	24
	9/8/2021	ND<5 U	24
3/15/2022	ND<2.2	24	
9/12/2022	0.81 J	50	
3/13/2023	ND<2.2	24	
GWM-2	9/25/2013	ND<5	24
	3/18/2014	1.4 J	53
	9/16/2014	0.78 J	48
	3/18/2015	16	59
	9/15/2015	6.2	57
	3/16/2016	ND<5 U	24
	9/22/2016	1.2 J	52
	3/24/2017	18	60
	9/21/2017	13	58
	3/28/2018	1.7 J	54
	9/21/2018	ND<5 U	24
	3/12/2019	ND<5 U	24
	10/1/2019	ND<5 U	24
	3/18/2020	ND<5 U	24
	9/23/2020	ND<5 U	24
	3/17/2021	ND<5 U	24
	9/9/2021	ND<5 U	24
3/15/2022	ND<2.2	24	
9/12/2022	ND<2.2	24	
3/13/2023	ND<2.2	24	
GWM-14	9/24/2013	ND<5	24
	3/21/2014	ND<5 U	24
	9/8/2014	ND<5 U	24

3/19/2015	ND<5 U	24
9/14/2015	ND<5 U	24
3/21/2016	ND<5 U	24
9/23/2016	ND<5 U	24
3/27/2017	ND<5 U	24
9/20/2017	ND<5 U	24
3/16/2018	ND<5 U	24
9/20/2018	ND<5 U	24
3/5/2019	ND<5 U	24
9/25/2019	ND<5 U	24
3/25/2020	ND<5 U	24
9/28/2020	ND<5 U	24
3/18/2021	1.1 JR	51
9/15/2021	ND<5 U	24
3/22/2022	ND<2.2	24
9/14/2022	ND<2.2	24
3/16/2023	ND<2.2	24

---

The Wilcoxon Statistic is 297

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -1.62301

The Standard Deviation adjusted for ties is 45.9599

The Z Score adjusted for ties is -2.25196

-1.62301 < 2.326 indicating no statistical significance at 1% level

-2.25196 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Lead, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 47

Non detect rank is 24

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	24
	3/19/2014	ND<5 U	24
	9/8/2014	ND<5 U	24
	3/17/2015	ND<5 U	24
	9/14/2015	ND<5 U	24
	3/17/2016	ND<5 U	24
	9/21/2016	ND<5 U	24
	3/24/2017	ND<5 U	24
	9/20/2017	ND<5 U	24
	3/27/2018	ND<5 U	24
	9/19/2018	1.9 J	54
	3/11/2019	2.4	56
	9/25/2019	ND<5 U	24
	3/18/2020	ND<5 U	24
	9/23/2020	0.79 J	49
	3/17/2021	ND<5 U	24
	9/8/2021	ND<5 U	24
3/15/2022	ND<2.2	24	
9/12/2022	0.81 J	50	
3/13/2023	ND<2.2	24	
GWM-2	9/25/2013	ND<5	24
	3/18/2014	1.4 J	52
	9/16/2014	0.78 J	48
	3/18/2015	16	59
	9/15/2015	6.2	57
	3/16/2016	ND<5 U	24
	9/22/2016	1.2 J	51
	3/24/2017	18	60
	9/21/2017	13	58
	3/28/2018	1.7 J	53
	9/21/2018	ND<5 U	24
	3/12/2019	ND<5 U	24
	10/1/2019	ND<5 U	24
	3/18/2020	ND<5 U	24
	9/23/2020	ND<5 U	24
	3/17/2021	ND<5 U	24
	9/9/2021	ND<5 U	24
3/15/2022	ND<2.2	24	
9/12/2022	ND<2.2	24	
3/13/2023	ND<2.2	24	
GWM-6	9/24/2013	ND<5	24
	3/21/2014	ND<5 U	24
	9/17/2014	ND<5 U	24

3/19/2015	ND<5 U	24
9/15/2015	ND<5 U	24
3/21/2016	ND<5 U	24
9/26/2016	ND<5 U	24
3/31/2017	ND<5 U	24
9/21/2017	ND<5 U	24
3/30/2018	2.2	55
9/26/2018	ND<5 U	24
3/13/2019	ND<5 U	24
10/3/2019	ND<5 U	24
4/3/2020	ND<5 U	24
9/30/2020	ND<5 U	24
3/22/2021	ND<5 U	24
9/16/2021	ND<5 U	24
3/24/2022	ND<2.2	24
9/16/2022	ND<2.2	24
3/17/2023	ND<2.2	24

---

The Wilcoxon Statistic is 301

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -1.56028

The Standard Deviation adjusted for ties is 45.9599

The Z Score adjusted for ties is -2.16493

-1.56028 < 2.326 indicating no statistical significance at 1% level

-2.16493 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Lead, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 45

Non detect rank is 23

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	23
	3/19/2014	ND<5 U	23
	9/8/2014	ND<5 U	23
	3/17/2015	ND<5 U	23
	9/14/2015	ND<5 U	23
	3/17/2016	ND<5 U	23
	9/21/2016	ND<5 U	23
	3/24/2017	ND<5 U	23
	9/20/2017	ND<5 U	23
	3/27/2018	ND<5 U	23
	9/19/2018	1.9 J	54
	3/11/2019	2.4	56
	9/25/2019	ND<5 U	23
	3/18/2020	ND<5 U	23
	9/23/2020	0.79 J	48
	3/17/2021	ND<5 U	23
	9/8/2021	ND<5 U	23
3/15/2022	ND<2.2	23	
9/12/2022	0.81 J	49	
3/13/2023	ND<2.2	23	
GWM-2	9/25/2013	ND<5	23
	3/18/2014	1.4 J	52
	9/16/2014	0.78 J	47
	3/18/2015	16	59
	9/15/2015	6.2	57
	3/16/2016	ND<5 U	23
	9/22/2016	1.2 J	50
	3/24/2017	18	60
	9/21/2017	13	58
	3/28/2018	1.7 J	53
	9/21/2018	ND<5 U	23
	3/12/2019	ND<5 U	23
	10/1/2019	ND<5 U	23
	3/18/2020	ND<5 U	23
	9/23/2020	ND<5 U	23
	3/17/2021	ND<5 U	23
	9/9/2021	ND<5 U	23
3/15/2022	ND<2.2	23	
9/12/2022	ND<2.2	23	
3/13/2023	ND<2.2	23	
GWM-3	9/25/2013	ND<5	23
	3/18/2014	1.9 J	55
	9/16/2014	ND<5 U	23

3/18/2015	ND<5 U	23
9/15/2015	ND<5 U	23
3/16/2016	ND<5 U	23
9/22/2016	ND<5 U	23
3/29/2017	ND<5 U	23
9/21/2017	ND<5 U	23
3/28/2018	ND<5 U	23
9/20/2018	ND<5 U	23
3/12/2019	ND<5 U	23
10/1/2019	ND<5 U	23
3/18/2020	0.76 J	46
9/24/2020	ND<5 U	23
3/17/2021	1.2 J	51
9/9/2021	ND<5 U	23
3/15/2022	ND<2.2	23
9/16/2022	ND<2.2	23
3/15/2023	ND<2.2	23

---

The Wilcoxon Statistic is 333

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -1.05848

The Standard Deviation adjusted for ties is 48.4914

The Z Score adjusted for ties is -1.392

-1.05848 < 2.326 indicating no statistical significance at 1% level

-1.392 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Lead, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 36

Non detect rank is 18.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	18.5
	3/19/2014	ND<5 U	18.5
	9/8/2014	ND<5 U	18.5
	3/17/2015	ND<5 U	18.5
	9/14/2015	ND<5 U	18.5
	3/17/2016	ND<5 U	18.5
	9/21/2016	ND<5 U	18.5
	3/24/2017	ND<5 U	18.5
	9/20/2017	ND<5 U	18.5
	3/27/2018	ND<5 U	18.5
	9/19/2018	1.9 J	43
	3/11/2019	2.4	44
	9/25/2019	ND<5 U	18.5
	3/18/2020	ND<5 U	18.5
	9/23/2020	0.79 J	38
	3/17/2021	ND<5 U	18.5
	9/8/2021	ND<5 U	18.5
3/15/2022	ND<2.2	18.5	
9/12/2022	0.81 J	39	
3/13/2023	ND<2.2	18.5	
GWM-2	9/25/2013	ND<5	18.5
	3/18/2014	1.4 J	41
	9/16/2014	0.78 J	37
	3/18/2015	16	47
	9/15/2015	6.2	45
	3/16/2016	ND<5 U	18.5
	9/22/2016	1.2 J	40
	3/24/2017	18	48
	9/21/2017	13	46
	3/28/2018	1.7 J	42
	9/21/2018	ND<5 U	18.5
	3/12/2019	ND<5 U	18.5
	10/1/2019	ND<5 U	18.5
	3/18/2020	ND<5 U	18.5
	9/23/2020	ND<5 U	18.5
	3/17/2021	ND<5 U	18.5
	9/9/2021	ND<5 U	18.5
3/15/2022	ND<2.2	18.5	
9/12/2022	ND<2.2	18.5	
3/13/2023	ND<2.2	18.5	
GWM-17S	11/14/2019	ND<5 U	18.5
	3/26/2020	ND<5 U	18.5
	9/29/2020	ND<5 U	18.5

3/16/2021	ND<5 U	18.5
9/14/2021	ND<5 U	18.5
3/18/2022	ND<2.2	18.5
9/13/2022	ND<2.2	18.5
3/14/2023	ND<2.2	18.5

---

The Wilcoxon Statistic is 112

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is -1.34171

The Standard Deviation adjusted for ties is 27.4882

The Z Score adjusted for ties is -1.76439

-1.34171 < 2.326 indicating no statistical significance at 1% level

-1.76439 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Magnesium, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	1495	2
	3/19/2014	4000	8
	9/8/2014	2700	3
	3/17/2015	7900	37
	9/14/2015	7000	29
	3/17/2016	4800	11
	9/21/2016	6000	15
	3/24/2017	4100	10
	9/20/2017	3200	7
	3/27/2018	6600	24
	9/19/2018	3100	6
	3/11/2019	3000	5
	9/25/2019	8900	40
	3/18/2020	7000	30
	9/23/2020	5400	12
	3/17/2021	4000	9
9/8/2021	2900	4	
3/15/2022	11400	42	
9/12/2022	8500	39	
3/13/2023	6500	23	
GWM-2	9/25/2013	6078	16
	3/18/2014	7900	38
	9/16/2014	7600	34
	3/18/2015	7000	31
	9/15/2015	6900	27
	3/16/2016	6600	25
	9/22/2016	6100	17
	3/24/2017	5700	14
	9/21/2017	6100	18
	3/28/2018	7200	33
	9/21/2018	7800	36
	3/12/2019	6900	28
	10/1/2019	7700	35
	3/18/2020	7000	32
	9/23/2020	5500	13
	3/17/2021	6400	21
9/9/2021	6300	20	
3/15/2022	6400	22	
9/12/2022	6200	19	
3/13/2023	6700	26	
GWM-4	9/18/2013	486	1
	3/20/2014	18700	59
	9/9/2014	11400	43

3/16/2015	12700	45
9/9/2015	10700	41
3/18/2016	13300	48
9/20/2016	14600	51
3/23/2017	14900	54
9/18/2017	14900	55
3/15/2018	14800	53
9/17/2018	12500	44
3/5/2019	15300	57
9/24/2019	12800	46
3/16/2020	26300	60
9/22/2020	14700	52
3/16/2021	16200	58
9/14/2021	15000	56
3/22/2022	14100	50
9/13/2022	13300	49
3/14/2023	13000	47

---

The Wilcoxon Statistic is 759

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 5.62173

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 5.62173

**5.62173 > 2.326 indicating statistical significance at 1% level**

**5.62173 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Magnesium, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	1495	1
	3/19/2014	4000	7
	9/8/2014	2700	2
	3/17/2015	7900	37
	9/14/2015	7000	28
	3/17/2016	4800	10
	9/21/2016	6000	14
	3/24/2017	4100	9
	9/20/2017	3200	6
	3/27/2018	6600	23
	9/19/2018	3100	5
	3/11/2019	3000	4
	9/25/2019	8900	46
	3/18/2020	7000	29
	9/23/2020	5400	11
	3/17/2021	4000	8
9/8/2021	2900	3	
3/15/2022	11400	57	
9/12/2022	8500	41	
3/13/2023	6500	22	
GWM-2	9/25/2013	6078	15
	3/18/2014	7900	38
	9/16/2014	7600	33
	3/18/2015	7000	30
	9/15/2015	6900	26
	3/16/2016	6600	24
	9/22/2016	6100	16
	3/24/2017	5700	13
	9/21/2017	6100	17
	3/28/2018	7200	32
	9/21/2018	7800	36
	3/12/2019	6900	27
	10/1/2019	7700	35
	3/18/2020	7000	31
	9/23/2020	5500	12
	3/17/2021	6400	20
9/9/2021	6300	19	
3/15/2022	6400	21	
9/12/2022	6200	18	
3/13/2023	6700	25	
GWM-5A	9/19/2013	20020	61
	12/5/2013	8260	39
	3/19/2014	9800	51

9/4/2014	10900	55
3/17/2015	8700	43
9/11/2015	10000	52
3/15/2016	9000	47
9/21/2016	8800	45
3/28/2017	7600	34
9/19/2017	8300	40
3/26/2018	8700	44
9/18/2018	12100	58
3/4/2019	13600	60
9/23/2019	12500	59
3/19/2020	9700	50
9/23/2020	10600	54
3/19/2021	10100	53
9/15/2021	11000	56
3/16/2022	9000	48
9/14/2022	9200	49
3/16/2023	8500	42

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The Wilcoxon Statistic is 809

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is 5.8972

The Standard Deviation adjusted for ties is 65.8787

The Z Score adjusted for ties is 5.8972

**5.8972 > 2.326 indicating statistical significance at 1% level**

**5.8972 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Magnesium, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	1495	1
	3/19/2014	4000	8
	9/8/2014	2700	2
	3/17/2015	7900	37
	9/14/2015	7000	29
	3/17/2016	4800	11
	9/21/2016	6000	15
	3/24/2017	4100	10
	9/20/2017	3200	7
	3/27/2018	6600	24
	9/19/2018	3100	6
	3/11/2019	3000	5
	9/25/2019	8900	40
	3/18/2020	7000	30
	9/23/2020	5400	12
	3/17/2021	4000	9
	9/8/2021	2900	3
3/15/2022	11400	41	
9/12/2022	8500	39	
3/13/2023	6500	23	
GWM-2	9/25/2013	6078	16
	3/18/2014	7900	38
	9/16/2014	7600	34
	3/18/2015	7000	31
	9/15/2015	6900	27
	3/16/2016	6600	25
	9/22/2016	6100	17
	3/24/2017	5700	14
	9/21/2017	6100	18
	3/28/2018	7200	33
	9/21/2018	7800	36
	3/12/2019	6900	28
	10/1/2019	7700	35
	3/18/2020	7000	32
	9/23/2020	5500	13
	3/17/2021	6400	21
	9/9/2021	6300	20
3/15/2022	6400	22	
9/12/2022	6200	19	
3/13/2023	6700	26	
GWM-14	9/24/2013	16450	55
	3/21/2014	16200	53
	9/8/2014	17000	58

3/19/2015	16900	57
9/14/2015	16800	56
3/21/2016	18500	60
9/23/2016	16400	54
3/27/2017	15800	51
9/20/2017	15500	50
3/16/2018	15000	44
9/20/2018	14800	43
3/5/2019	17100	59
9/25/2019	14700	42
3/25/2020	15400	48
9/28/2020	15200	46
3/18/2021	2900 R	4
9/15/2021	16000	52
3/22/2022	15100	45
9/14/2022	15200	47
3/16/2023	15400	49

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The Wilcoxon Statistic is 763

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 5.68445

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 5.68445

**5.68445 > 2.326 indicating statistical significance at 1% level**

**5.68445 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Magnesium, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	1495	1
	3/19/2014	4000	7
	9/8/2014	2700	2
	3/17/2015	7900	39
	9/14/2015	7000	28
	3/17/2016	4800	10
	9/21/2016	6000	14
	3/24/2017	4100	9
	9/20/2017	3200	6
	3/27/2018	6600	23
	9/19/2018	3100	5
	3/11/2019	3000	4
	9/25/2019	8900	45
	3/18/2020	7000	29
	9/23/2020	5400	11
	3/17/2021	4000	8
	9/8/2021	2900	3
3/15/2022	11400	51	
9/12/2022	8500	42	
3/13/2023	6500	22	
GWM-2	9/25/2013	6078	15
	3/18/2014	7900	40
	9/16/2014	7600	35
	3/18/2015	7000	30
	9/15/2015	6900	26
	3/16/2016	6600	24
	9/22/2016	6100	16
	3/24/2017	5700	13
	9/21/2017	6100	17
	3/28/2018	7200	32
	9/21/2018	7800	38
	3/12/2019	6900	27
	10/1/2019	7700	37
	3/18/2020	7000	31
	9/23/2020	5500	12
	3/17/2021	6400	20
	9/9/2021	6300	19
3/15/2022	6400	21	
9/12/2022	6200	18	
3/13/2023	6700	25	
GWM-6	9/24/2013	9172	46
	3/21/2014	7200	33
	9/17/2014	7600	36

3/19/2015	7400	34
9/15/2015	8500	43
3/21/2016	8500	44
9/26/2016	7900	41
3/31/2017	9400	47
9/21/2017	12400	55
3/30/2018	15000	59
9/26/2018	15000	60
3/13/2019	14300	57
10/3/2019	14700	58
4/3/2020	12200	54
9/30/2020	11500	52
3/22/2021	14200	56
9/16/2021	10000	48
3/24/2022	11600	53
9/16/2022	11200	50
3/17/2023	10200	49

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The Wilcoxon Statistic is 765

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 5.71582

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 5.71582

**5.71582 > 2.326 indicating statistical significance at 1% level**

**5.71582 > 2.326 indicating statistical significance at 1% level when adjusted for ties**



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Magnesium, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	1495	1
	3/19/2014	4000	7
	9/8/2014	2700	2
	3/17/2015	7900	44
	9/14/2015	7000	31
	3/17/2016	4800	10
	9/21/2016	6000	14
	3/24/2017	4100	9
	9/20/2017	3200	6
	3/27/2018	6600	24
	9/19/2018	3100	5
	3/11/2019	3000	4
	9/25/2019	8900	56
	3/18/2020	7000	32
	9/23/2020	5400	11
	3/17/2021	4000	8
	9/8/2021	2900	3
3/15/2022	11400	59	
9/12/2022	8500	52	
3/13/2023	6500	23	
GWM-2	9/25/2013	6078	15
	3/18/2014	7900	45
	9/16/2014	7600	40
	3/18/2015	7000	33
	9/15/2015	6900	29
	3/16/2016	6600	25
	9/22/2016	6100	16
	3/24/2017	5700	13
	9/21/2017	6100	17
	3/28/2018	7200	36
	9/21/2018	7800	43
	3/12/2019	6900	30
	10/1/2019	7700	42
	3/18/2020	7000	34
	9/23/2020	5500	12
	3/17/2021	6400	21
	9/9/2021	6300	20
3/15/2022	6400	22	
9/12/2022	6200	19	
3/13/2023	6700	26	
GWM-3	9/25/2013	7429	38
	3/18/2014	7600	41
	9/16/2014	7100	35

3/18/2015	6100	18
9/15/2015	8100	48
3/16/2016	8800	54
9/22/2016	8600	53
3/29/2017	8800	55
9/21/2017	7500	39
3/28/2018	8200	50
9/20/2018	8200	51
3/12/2019	7900	46
10/1/2019	10200	58
3/18/2020	9200	57
9/24/2020	7300	37
3/17/2021	86400 R	60
9/9/2021	8100	49
3/15/2022	7900	47
9/16/2022	6700	27
3/15/2023	6700	28

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The Wilcoxon Statistic is 681

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 4.39859

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 4.39859

**4.39859 > 2.326 indicating statistical significance at 1% level**

**4.39859 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Magnesium, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	1495	1
	3/19/2014	4000	7
	9/8/2014	2700	2
	3/17/2015	7900	36
	9/14/2015	7000	28
	3/17/2016	4800	10
	9/21/2016	6000	14
	3/24/2017	4100	9
	9/20/2017	3200	6
	3/27/2018	6600	23
	9/19/2018	3100	5
	3/11/2019	3000	4
	9/25/2019	8900	39
	3/18/2020	7000	29
	9/23/2020	5400	11
	3/17/2021	4000	8
	9/8/2021	2900	3
3/15/2022	11400	40	
9/12/2022	8500	38	
3/13/2023	6500	22	
GWM-2	9/25/2013	6078	15
	3/18/2014	7900	37
	9/16/2014	7600	33
	3/18/2015	7000	30
	9/15/2015	6900	26
	3/16/2016	6600	24
	9/22/2016	6100	16
	3/24/2017	5700	13
	9/21/2017	6100	17
	3/28/2018	7200	32
	9/21/2018	7800	35
	3/12/2019	6900	27
	10/1/2019	7700	34
	3/18/2020	7000	31
	9/23/2020	5500	12
	3/17/2021	6400	20
	9/9/2021	6300	19
3/15/2022	6400	21	
9/12/2022	6200	18	
3/13/2023	6700	25	
GWM-17S	11/14/2019	22400	47
	3/26/2020	21600	43
	9/29/2020	22000	46

3/16/2021	21700	45
9/14/2021	21000	42
3/18/2022	20400	41
9/13/2022	21600	44
3/14/2023	24000	48

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The Wilcoxon Statistic is 320

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 4.41243

The Standard Deviation adjusted for ties is 36.1478

The Z Score adjusted for ties is 4.41243

**4.41243 > 2.326 indicating statistical significance at 1% level**

**4.41243 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Manganese, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	20	3
	3/19/2014	18	2
	9/8/2014	39	9
	3/17/2015	43	10
	9/14/2015	140	31
	3/17/2016	77	14
	9/21/2016	110	20
	3/24/2017	82	15
	9/20/2017	32	5
	3/27/2018	36	8
	9/19/2018	32	6
	3/11/2019	45	11
	9/25/2019	140	32
	3/18/2020	86	16
	9/23/2020	65	12
	3/17/2021	32	7
	9/8/2021	16	1
3/15/2022	100	18	
9/12/2022	95	17	
3/13/2023	68	13	
GWM-2	9/25/2013	410	41
	3/18/2014	120	23
	9/16/2014	120	24
	3/18/2015	120	25
	9/15/2015	120	26
	3/16/2016	100	19
	9/22/2016	110	21
	3/24/2017	120	27
	9/21/2017	110	22
	3/28/2018	130	29
	9/21/2018	150	36
	3/12/2019	170	40
	10/1/2019	160	38
	3/18/2020	130	30
	9/23/2020	120	28
	3/17/2021	160	39
	9/9/2021	140	33
3/15/2022	140	34	
9/12/2022	140	35	
3/13/2023	150	37	
GWM-4	9/18/2013	20	4
	3/20/2014	3000	59
	9/9/2014	920	58

3/16/2015	910	57
9/9/2015	840	56
3/18/2016	670	50
9/20/2016	780	53
3/23/2017	420	42
9/18/2017	790	54
3/15/2018	490	44
9/17/2018	620	46
3/5/2019	820	55
9/24/2019	720	51
3/16/2020	3200	60
9/22/2020	620	47
3/16/2021	460	43
9/14/2021	620	48
3/22/2022	640	49
9/13/2022	530	45
3/14/2023	760	52

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The Wilcoxon Statistic is 763

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 5.68445

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 5.68445

**5.68445 > 2.326 indicating statistical significance at 1% level**

**5.68445 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Manganese, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	20	3
	3/19/2014	18	2
	9/8/2014	39	8
	3/17/2015	43	9
	9/14/2015	140	30
	3/17/2016	77	13
	9/21/2016	110	19
	3/24/2017	82	14
	9/20/2017	32	4
	3/27/2018	36	7
	9/19/2018	32	5
	3/11/2019	45	10
	9/25/2019	140	31
	3/18/2020	86	15
	9/23/2020	65	11
	3/17/2021	32	6
	9/8/2021	16	1
3/15/2022	100	17	
9/12/2022	95	16	
3/13/2023	68	12	
GWM-2	9/25/2013	410	44
	3/18/2014	120	22
	9/16/2014	120	23
	3/18/2015	120	24
	9/15/2015	120	25
	3/16/2016	100	18
	9/22/2016	110	20
	3/24/2017	120	26
	9/21/2017	110	21
	3/28/2018	130	28
	9/21/2018	150	35
	3/12/2019	170	39
	10/1/2019	160	37
	3/18/2020	130	29
	9/23/2020	120	27
	3/17/2021	160	38
	9/9/2021	140	32
3/15/2022	140	33	
9/12/2022	140	34	
3/13/2023	150	36	
GWM-5A	9/19/2013	4890	61
	12/5/2013	230	40
	3/19/2014	300	41

9/4/2014	710	49
3/17/2015	300	42
9/11/2015	670	48
3/15/2016	570	47
9/21/2016	560	46
3/28/2017	400	43
9/19/2017	710	50
3/26/2018	550	45
9/18/2018	2000	60
3/4/2019	1900	59
9/23/2019	1800	58
3/19/2020	1100	55
9/23/2020	1200	57
3/19/2021	760	51
9/15/2021	1000	53
3/16/2022	1100	56
9/14/2022	820	52
3/16/2023	1000	54

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The Wilcoxon Statistic is 836

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is 6.30705

The Standard Deviation adjusted for ties is 65.8787

The Z Score adjusted for ties is 6.30705

**6.30705 > 2.326 indicating statistical significance at 1% level**

**6.30705 > 2.326 indicating statistical significance at 1% level when adjusted for ties**



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Manganese, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	20	3
	3/19/2014	18	2
	9/8/2014	39	9
	3/17/2015	43	10
	9/14/2015	140	31
	3/17/2016	77	14
	9/21/2016	110	20
	3/24/2017	82	15
	9/20/2017	32	4
	3/27/2018	36	8
	9/19/2018	32	5
	3/11/2019	45	11
	9/25/2019	140	32
	3/18/2020	86	16
	9/23/2020	65	12
	3/17/2021	32	6
	9/8/2021	16	1
3/15/2022	100	18	
9/12/2022	95	17	
3/13/2023	68	13	
GWM-2	9/25/2013	410	41
	3/18/2014	120	23
	9/16/2014	120	24
	3/18/2015	120	25
	9/15/2015	120	26
	3/16/2016	100	19
	9/22/2016	110	21
	3/24/2017	120	27
	9/21/2017	110	22
	3/28/2018	130	29
	9/21/2018	150	36
	3/12/2019	170	40
	10/1/2019	160	38
	3/18/2020	130	30
	9/23/2020	120	28
	3/17/2021	160	39
	9/9/2021	140	33
3/15/2022	140	34	
9/12/2022	140	35	
3/13/2023	150	37	
GWM-14	9/24/2013	4770	60
	3/21/2014	4300	58
	9/8/2014	4000	54

3/19/2015	4100	56
9/14/2015	4400	59
3/21/2016	4100	57
9/23/2016	4000	55
3/27/2017	3800	53
9/20/2017	3700	52
3/16/2018	3300	48
9/20/2018	3200	46
3/5/2019	3300	49
9/25/2019	3000	43
3/25/2020	3300	50
9/28/2020	3300	51
3/18/2021	33 R	7
9/15/2021	3200	47
3/22/2022	3100	45
9/14/2022	3000	44
3/16/2023	2900	42

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The Wilcoxon Statistic is 766

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 5.7315

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 5.7315

**5.7315 > 2.326 indicating statistical significance at 1% level**

**5.7315 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Manganese, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	20	3
	3/19/2014	18	2
	9/8/2014	39	8
	3/17/2015	43	9
	9/14/2015	140	30
	3/17/2016	77	13
	9/21/2016	110	19
	3/24/2017	82	14
	9/20/2017	32	4
	3/27/2018	36	7
	9/19/2018	32	5
	3/11/2019	45	10
	9/25/2019	140	31
	3/18/2020	86	15
	9/23/2020	65	11
	3/17/2021	32	6
	9/8/2021	16	1
3/15/2022	100	17	
9/12/2022	95	16	
3/13/2023	68	12	
GWM-2	9/25/2013	410	40
	3/18/2014	120	22
	9/16/2014	120	23
	3/18/2015	120	24
	9/15/2015	120	25
	3/16/2016	100	18
	9/22/2016	110	20
	3/24/2017	120	26
	9/21/2017	110	21
	3/28/2018	130	28
	9/21/2018	150	35
	3/12/2019	170	39
	10/1/2019	160	37
	3/18/2020	130	29
	9/23/2020	120	27
	3/17/2021	160	38
	9/9/2021	140	32
3/15/2022	140	33	
9/12/2022	140	34	
3/13/2023	150	36	
GWM-6	9/24/2013	620	48
	3/21/2014	520	43
	9/17/2014	550	46

3/19/2015	670	51
9/15/2015	730	54
3/21/2016	680	53
9/26/2016	670	52
3/31/2017	740	55
9/21/2017	1100	58
3/30/2018	1200	60
9/26/2018	1000	57
3/13/2019	1100	59
10/3/2019	780	56
4/3/2020	640	49
9/30/2020	600	47
3/22/2021	650	50
9/16/2021	510	42
3/24/2022	540	45
9/16/2022	530	44
3/17/2023	480	41

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The Wilcoxon Statistic is 800

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 6.26466

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 6.26466

**6.26466 > 2.326 indicating statistical significance at 1% level**

**6.26466 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Manganese, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	20	9
	3/19/2014	18	6
	9/8/2014	39	25
	3/17/2015	43	27
	9/14/2015	140	49
	3/17/2016	77	32
	9/21/2016	110	38
	3/24/2017	82	33
	9/20/2017	32	19
	3/27/2018	36	23
	9/19/2018	32	20
	3/11/2019	45	29
	9/25/2019	140	50
	3/18/2020	86	34
	9/23/2020	65	30
	3/17/2021	32	21
	9/8/2021	16	5
3/15/2022	100	36	
9/12/2022	95	35	
3/13/2023	68	31	
GWM-2	9/25/2013	410	59
	3/18/2014	120	41
	9/16/2014	120	42
	3/18/2015	120	43
	9/15/2015	120	44
	3/16/2016	100	37
	9/22/2016	110	39
	3/24/2017	120	45
	9/21/2017	110	40
	3/28/2018	130	47
	9/21/2018	150	54
	3/12/2019	170	58
	10/1/2019	160	56
	3/18/2020	130	48
	9/23/2020	120	46
	3/17/2021	160	57
	9/9/2021	140	51
3/15/2022	140	52	
9/12/2022	140	53	
3/13/2023	150	55	
GWM-3	9/25/2013	20	10
	3/18/2014	25	15
	9/16/2014	22	12

3/18/2015	30	17
9/15/2015	24	14
3/16/2016	33	22
9/22/2016	42	26
3/29/2017	44	28
9/21/2017	37	24
3/28/2018	30	18
9/20/2018	15	3
3/12/2019	21	11
10/1/2019	22	13
3/18/2020	18	7
9/24/2020	15	4
3/17/2021	2300 R	60
9/9/2021	25	16
3/15/2022	18	8
9/16/2022	12	1
3/15/2023	12	2

---

The Wilcoxon Statistic is 101

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -4.69653

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is -4.69653

-4.69653 < 2.326 indicating no statistical significance at 1% level

-4.69653 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Manganese, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	20	3
	3/19/2014	18	2
	9/8/2014	39	8
	3/17/2015	43	9
	9/14/2015	140	30
	3/17/2016	77	13
	9/21/2016	110	19
	3/24/2017	82	14
	9/20/2017	32	4
	3/27/2018	36	7
	9/19/2018	32	5
	3/11/2019	45	10
	9/25/2019	140	31
	3/18/2020	86	15
	9/23/2020	65	11
	3/17/2021	32	6
	9/8/2021	16	1
3/15/2022	100	17	
9/12/2022	95	16	
3/13/2023	68	12	
GWM-2	9/25/2013	410	40
	3/18/2014	120	22
	9/16/2014	120	23
	3/18/2015	120	24
	9/15/2015	120	25
	3/16/2016	100	18
	9/22/2016	110	20
	3/24/2017	120	26
	9/21/2017	110	21
	3/28/2018	130	28
	9/21/2018	150	35
	3/12/2019	170	39
	10/1/2019	160	37
	3/18/2020	130	29
	9/23/2020	120	27
	3/17/2021	160	38
	9/9/2021	140	32
3/15/2022	140	33	
9/12/2022	140	34	
3/13/2023	150	36	
GWM-17S	11/14/2019	4100	44
	3/26/2020	6800	47
	9/29/2020	3600	41

3/16/2021	3900	42
9/14/2021	4000	43
3/18/2022	4600	46
9/13/2022	4300	45
3/14/2023	7600	48

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The Wilcoxon Statistic is 320

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 4.41243

The Standard Deviation adjusted for ties is 36.1478

The Z Score adjusted for ties is 4.41243

**4.41243 > 2.326 indicating statistical significance at 1% level**

**4.41243 > 2.326 indicating statistical significance at 1% level when adjusted for ties**



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Mercury, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 49

Non detect rank is 25

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<0.2	25
	3/19/2014	0.26 J	54
	9/8/2014	ND<0.2 U	25
	3/17/2015	ND<0.2 U	25
	9/14/2015	ND<0.2 U	25
	3/17/2016	ND<0.2 U	25
	9/21/2016	ND<0.2 U	25
	3/24/2017	0.99	59
	9/20/2017	0.35 J	57
	3/27/2018	0.24 J	50
	9/19/2018	ND<0.2 U	25
	3/11/2019	0.25 J	53
	9/25/2019	1.6	60
	3/18/2020	ND<0.2 U	25
	9/23/2020	0.24 J	51
	3/17/2021	0.27 J	55
	9/8/2021	ND<0.2 U	25
3/15/2022	0.24 J	52	
9/12/2022	0.31 J	56	
3/13/2023	0.39 J	58	
GWM-2	9/25/2013	ND<0.2	25
	3/18/2014	ND<0.2 U	25
	9/16/2014	ND<0.2 U	25
	3/18/2015	ND<0.2 U	25
	9/15/2015	ND<0.2 U	25
	3/16/2016	ND<0.2 U	25
	9/22/2016	ND<0.2 U	25
	3/24/2017	ND<0.2 U	25
	9/21/2017	ND<0.2 U	25
	3/28/2018	ND<0.2 U	25
	9/21/2018	ND<0.2 U	25
	3/12/2019	ND<0.2 U	25
	10/1/2019	ND<0.2 U	25
	3/18/2020	ND<0.2 U	25
	9/23/2020	ND<0.2 U	25
	3/17/2021	ND<0.2 U	25
	9/9/2021	ND<0.2 U	25
3/15/2022	ND<0.5	25	
9/12/2022	ND<0.5	25	
3/13/2023	ND<0.5	25	
GWM-4	9/18/2013	ND<0.2	25
	3/20/2014	ND<0.2 U	25
	9/9/2014	ND<0.2 U	25

3/16/2015	ND<0.2 U	25
9/9/2015	ND<0.2 U	25
3/18/2016	ND<0.2 U	25
9/20/2016	ND<0.2 U	25
3/23/2017	ND<0.2 U	25
9/18/2017	ND<0.2 U	25
3/15/2018	ND<0.2 U	25
9/17/2018	ND<0.2 U	25
3/5/2019	ND<0.2 U	25
9/24/2019	ND<0.2 U	25
3/16/2020	ND<0.2 U	25
9/22/2020	ND<0.2 U	25
3/16/2021	ND<0.2 U	25
9/14/2021	ND<0.2 U	25
3/22/2022	ND<0.5	25
9/13/2022	ND<0.5	25
3/14/2023	ND<0.5	25

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The Wilcoxon Statistic is 290

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -1.73278

The Standard Deviation adjusted for ties is 43.0346

The Z Score adjusted for ties is -2.5677

-1.73278 < 2.326 indicating no statistical significance at 1% level

-2.5677 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Mercury, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 32

Non detect rank is 16.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<0.2	16.5
	3/19/2014	0.26 J	37
	9/8/2014	ND<0.2 U	16.5
	3/17/2015	ND<0.2 U	16.5
	9/14/2015	ND<0.2 U	16.5
	3/17/2016	ND<0.2 U	16.5
	9/21/2016	ND<0.2 U	16.5
	3/24/2017	0.99	59
	9/20/2017	0.35 J	41
	3/27/2018	0.24 J	33
	9/19/2018	ND<0.2 U	16.5
	3/11/2019	0.25 J	36
	9/25/2019	1.6	61
	3/18/2020	ND<0.2 U	16.5
	9/23/2020	0.24 J	34
	3/17/2021	0.27 J	38
	9/8/2021	ND<0.2 U	16.5
	3/15/2022	0.24 J	35
	9/12/2022	0.31 J	39
	3/13/2023	0.39 J	42
GWM-2	9/25/2013	ND<0.2	16.5
	3/18/2014	ND<0.2 U	16.5
	9/16/2014	ND<0.2 U	16.5
	3/18/2015	ND<0.2 U	16.5
	9/15/2015	ND<0.2 U	16.5
	3/16/2016	ND<0.2 U	16.5
	9/22/2016	ND<0.2 U	16.5
	3/24/2017	ND<0.2 U	16.5
	9/21/2017	ND<0.2 U	16.5
	3/28/2018	ND<0.2 U	16.5
	9/21/2018	ND<0.2 U	16.5
	3/12/2019	ND<0.2 U	16.5
	10/1/2019	ND<0.2 U	16.5
	3/18/2020	ND<0.2 U	16.5
	9/23/2020	ND<0.2 U	16.5
	3/17/2021	ND<0.2 U	16.5
	9/9/2021	ND<0.2 U	16.5
	3/15/2022	ND<0.5	16.5
	9/12/2022	ND<0.5	16.5
	3/13/2023	ND<0.5	16.5
GWM-5A	9/19/2013	ND<0.2	16.5
	12/5/2013	ND<0.2	16.5
	3/19/2014	0.8	50

9/4/2014	0.61	45
3/17/2015	0.64	46
9/11/2015	0.66	47
3/15/2016	0.83	52
9/21/2016	0.88	54
3/28/2017	0.91	56
9/19/2017	1.2	60
3/26/2018	0.95	58
9/18/2018	0.87	53
3/4/2019	ND<0.2 U	16.5
9/23/2019	0.76	48
3/19/2020	0.33 J	40
9/23/2020	0.82	51
3/19/2021	0.77	49
9/15/2021	0.94	57
3/16/2022	0.88	55
9/14/2022	0.48 J	44
3/16/2023	0.45 J	43

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The Wilcoxon Statistic is 726.5

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is 4.6449

The Standard Deviation adjusted for ties is 60.9418

The Z Score adjusted for ties is 5.02119

**4.6449 > 2.326 indicating statistical significance at 1% level**

**5.02119 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Mercury, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 49

Non detect rank is 25

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<0.2	25
	3/19/2014	0.26 J	54
	9/8/2014	ND<0.2 U	25
	3/17/2015	ND<0.2 U	25
	9/14/2015	ND<0.2 U	25
	3/17/2016	ND<0.2 U	25
	9/21/2016	ND<0.2 U	25
	3/24/2017	0.99	59
	9/20/2017	0.35 J	57
	3/27/2018	0.24 J	50
	9/19/2018	ND<0.2 U	25
	3/11/2019	0.25 J	53
	9/25/2019	1.6	60
	3/18/2020	ND<0.2 U	25
	9/23/2020	0.24 J	51
	3/17/2021	0.27 J	55
	9/8/2021	ND<0.2 U	25
	3/15/2022	0.24 J	52
	9/12/2022	0.31 J	56
3/13/2023	0.39 J	58	
GWM-2	9/25/2013	ND<0.2	25
	3/18/2014	ND<0.2 U	25
	9/16/2014	ND<0.2 U	25
	3/18/2015	ND<0.2 U	25
	9/15/2015	ND<0.2 U	25
	3/16/2016	ND<0.2 U	25
	9/22/2016	ND<0.2 U	25
	3/24/2017	ND<0.2 U	25
	9/21/2017	ND<0.2 U	25
	3/28/2018	ND<0.2 U	25
	9/21/2018	ND<0.2 U	25
	3/12/2019	ND<0.2 U	25
	10/1/2019	ND<0.2 U	25
	3/18/2020	ND<0.2 U	25
	9/23/2020	ND<0.2 U	25
	3/17/2021	ND<0.2 U	25
	9/9/2021	ND<0.2 U	25
	3/15/2022	ND<0.5	25
	9/12/2022	ND<0.5	25
3/13/2023	ND<0.5	25	
GWM-14	9/24/2013	ND<0.2	25
	3/21/2014	ND<0.2 U	25
	9/8/2014	ND<0.2 U	25

3/19/2015	ND<0.2 U	25
9/14/2015	ND<0.2 U	25
3/21/2016	ND<0.2 U	25
9/23/2016	ND<0.2 U	25
3/27/2017	ND<0.2 U	25
9/20/2017	ND<0.2 U	25
3/16/2018	ND<0.2 U	25
9/20/2018	ND<0.2 U	25
3/5/2019	ND<0.2 U	25
9/25/2019	ND<0.2 U	25
3/25/2020	ND<0.2 U	25
9/28/2020	ND<0.2 U	25
3/18/2021	ND<0.2 U	25
9/15/2021	ND<0.2 U	25
3/22/2022	ND<0.5	25
9/14/2022	ND<0.5	25
3/16/2023	ND<0.5	25

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The Wilcoxon Statistic is 290

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -1.73278

The Standard Deviation adjusted for ties is 43.0346

The Z Score adjusted for ties is -2.5677

-1.73278 < 2.326 indicating no statistical significance at 1% level

-2.5677 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Mercury, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 47

Non detect rank is 24

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<0.2	24
	3/19/2014	0.26 J	52
	9/8/2014	ND<0.2 U	24
	3/17/2015	ND<0.2 U	24
	9/14/2015	ND<0.2 U	24
	3/17/2016	ND<0.2 U	24
	9/21/2016	ND<0.2 U	24
	3/24/2017	0.99	59
	9/20/2017	0.35 J	56
	3/27/2018	0.24 J	48
	9/19/2018	ND<0.2 U	24
	3/11/2019	0.25 J	51
	9/25/2019	1.6	60
	3/18/2020	ND<0.2 U	24
	9/23/2020	0.24 J	49
	3/17/2021	0.27 J	53
	9/8/2021	ND<0.2 U	24
	3/15/2022	0.24 J	50
	9/12/2022	0.31 J	55
	3/13/2023	0.39 J	57
GWM-2	9/25/2013	ND<0.2	24
	3/18/2014	ND<0.2 U	24
	9/16/2014	ND<0.2 U	24
	3/18/2015	ND<0.2 U	24
	9/15/2015	ND<0.2 U	24
	3/16/2016	ND<0.2 U	24
	9/22/2016	ND<0.2 U	24
	3/24/2017	ND<0.2 U	24
	9/21/2017	ND<0.2 U	24
	3/28/2018	ND<0.2 U	24
	9/21/2018	ND<0.2 U	24
	3/12/2019	ND<0.2 U	24
	10/1/2019	ND<0.2 U	24
	3/18/2020	ND<0.2 U	24
	9/23/2020	ND<0.2 U	24
	3/17/2021	ND<0.2 U	24
	9/9/2021	ND<0.2 U	24
	3/15/2022	ND<0.5	24
	9/12/2022	ND<0.5	24
	3/13/2023	ND<0.5	24
GWM-6	9/24/2013	ND<0.2	24
	3/21/2014	ND<0.2 U	24
	9/17/2014	ND<0.2 U	24

3/19/2015	ND<0.2 U	24
9/15/2015	ND<0.2 U	24
3/21/2016	ND<0.2 U	24
9/26/2016	ND<0.2 U	24
3/31/2017	ND<0.2 U	24
9/21/2017	ND<0.2 U	24
3/30/2018	0.5	58
9/26/2018	ND<0.2 U	24
3/13/2019	ND<0.2 U	24
10/3/2019	ND<0.2 U	24
4/3/2020	0.29 J	54
9/30/2020	ND<0.2 U	24
3/22/2021	ND<0.2 U	24
9/16/2021	ND<0.2 U	24
3/24/2022	ND<0.5	24
9/16/2022	ND<0.5	24
3/17/2023	ND<0.5	24

---

The Wilcoxon Statistic is 334

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -1.0428

The Standard Deviation adjusted for ties is 45.9599

The Z Score adjusted for ties is -1.44691

-1.0428 < 2.326 indicating no statistical significance at 1% level

-1.44691 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Mercury, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 32

Non detect rank is 16.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<0.2	16.5
	3/19/2014	0.26 J	42
	9/8/2014	ND<0.2 U	16.5
	3/17/2015	ND<0.2 U	16.5
	9/14/2015	ND<0.2 U	16.5
	3/17/2016	ND<0.2 U	16.5
	9/21/2016	ND<0.2 U	16.5
	3/24/2017	0.99	56
	9/20/2017	0.35 J	53
	3/27/2018	0.24 J	35
	9/19/2018	ND<0.2 U	16.5
	3/11/2019	0.25 J	39
	9/25/2019	1.6	58
	3/18/2020	ND<0.2 U	16.5
	9/23/2020	0.24 J	36
	3/17/2021	0.27 J	43
	9/8/2021	ND<0.2 U	16.5
	3/15/2022	0.24 J	37
	9/12/2022	0.31 J	47
	3/13/2023	0.39 J	54
GWM-2	9/25/2013	ND<0.2	16.5
	3/18/2014	ND<0.2 U	16.5
	9/16/2014	ND<0.2 U	16.5
	3/18/2015	ND<0.2 U	16.5
	9/15/2015	ND<0.2 U	16.5
	3/16/2016	ND<0.2 U	16.5
	9/22/2016	ND<0.2 U	16.5
	3/24/2017	ND<0.2 U	16.5
	9/21/2017	ND<0.2 U	16.5
	3/28/2018	ND<0.2 U	16.5
	9/21/2018	ND<0.2 U	16.5
	3/12/2019	ND<0.2 U	16.5
	10/1/2019	ND<0.2 U	16.5
	3/18/2020	ND<0.2 U	16.5
	9/23/2020	ND<0.2 U	16.5
	3/17/2021	ND<0.2 U	16.5
	9/9/2021	ND<0.2 U	16.5
	3/15/2022	ND<0.5	16.5
	9/12/2022	ND<0.5	16.5
	3/13/2023	ND<0.5	16.5
GWM-3	9/25/2013	ND<0.2	16.5
	3/18/2014	0.34 J	51
	9/16/2014	0.28 J	46

3/18/2015	0.33 J	49
9/15/2015	0.27 J	44
3/16/2016	0.33 J	50
9/22/2016	1.7	59
3/29/2017	0.4 J	55
9/21/2017	0.24 J	38
3/28/2018	0.27 J	45
9/20/2018	0.17 J	33
3/12/2019	0.19 J	34
10/1/2019	0.31 J	48
3/18/2020	ND<0.2 U	16.5
9/24/2020	0.25 J	40
3/17/2021	1.8	60
9/9/2021	ND<0.2 U	16.5
3/15/2022	0.25 J	41
9/16/2022	1.2	57
3/15/2023	0.34 J	52

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The Wilcoxon Statistic is 641.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 3.77918

The Standard Deviation adjusted for ties is 58.7381

The Z Score adjusted for ties is 4.10296

**3.77918 > 2.326 indicating statistical significance at 1% level**

**4.10296 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Mercury, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 37

Non detect rank is 19

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<0.2	19
	3/19/2014	0.26 J	42
	9/8/2014	ND<0.2 U	19
	3/17/2015	ND<0.2 U	19
	9/14/2015	ND<0.2 U	19
	3/17/2016	ND<0.2 U	19
	9/21/2016	ND<0.2 U	19
	3/24/2017	0.99	47
	9/20/2017	0.35 J	45
	3/27/2018	0.24 J	38
	9/19/2018	ND<0.2 U	19
	3/11/2019	0.25 J	41
	9/25/2019	1.6	48
	3/18/2020	ND<0.2 U	19
	9/23/2020	0.24 J	39
	3/17/2021	0.27 J	43
	9/8/2021	ND<0.2 U	19
	3/15/2022	0.24 J	40
	9/12/2022	0.31 J	44
3/13/2023	0.39 J	46	
GWM-2	9/25/2013	ND<0.2	19
	3/18/2014	ND<0.2 U	19
	9/16/2014	ND<0.2 U	19
	3/18/2015	ND<0.2 U	19
	9/15/2015	ND<0.2 U	19
	3/16/2016	ND<0.2 U	19
	9/22/2016	ND<0.2 U	19
	3/24/2017	ND<0.2 U	19
	9/21/2017	ND<0.2 U	19
	3/28/2018	ND<0.2 U	19
	9/21/2018	ND<0.2 U	19
	3/12/2019	ND<0.2 U	19
	10/1/2019	ND<0.2 U	19
	3/18/2020	ND<0.2 U	19
	9/23/2020	ND<0.2 U	19
	3/17/2021	ND<0.2 U	19
	9/9/2021	ND<0.2 U	19
	3/15/2022	ND<0.5	19
	9/12/2022	ND<0.5	19
3/13/2023	ND<0.5	19	
GWM-17S	11/14/2019	ND<0.2 U	19
	3/26/2020	ND<0.2 U	19
	9/29/2020	ND<0.2 U	19

3/16/2021	ND<0.2 U	19
9/14/2021	ND<0.2 U	19
3/18/2022	ND<0.5	19
9/13/2022	ND<0.5	19
3/14/2023	ND<0.5	19

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The Wilcoxon Statistic is 116

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is -1.23106

The Standard Deviation adjusted for ties is 26.6152

The Z Score adjusted for ties is -1.67198

-1.23106 < 2.326 indicating no statistical significance at 1% level

-1.67198 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Nickel, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 4

Non detect rank is 2.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	2.5
	3/19/2014	5 J	7
	9/8/2014	9.2	14
	3/17/2015	18	39
	9/14/2015	11	26
	3/17/2016	12	30
	9/21/2016	9	12
	3/24/2017	6.4	8
	9/20/2017	ND<5 U	2.5
	3/27/2018	3.3 J	6
	9/19/2018	2.9 J	5
	3/11/2019	9.2	15
	9/25/2019	9.9	22
	3/18/2020	9.4	19
	9/23/2020	7.7	9
	3/17/2021	9.2	16
	9/8/2021	7.7	10
3/15/2022	16	37	
9/12/2022	13	33	
3/13/2023	10	23	
GWM-2	9/25/2013	ND<5	2.5
	3/18/2014	91	57
	9/16/2014	100	58
	3/18/2015	88	54
	9/15/2015	90	56
	3/16/2016	78	43
	9/22/2016	80	47
	3/24/2017	82	48
	9/21/2017	77	42
	3/28/2018	85	51
	9/21/2018	87	52
	3/12/2019	110	60
	10/1/2019	100	59
	3/18/2020	83	49
	9/23/2020	79	45
	3/17/2021	78	44
	9/9/2021	88	55
3/15/2022	84	50	
9/12/2022	79	46	
3/13/2023	87	53	
GWM-4	9/18/2013	ND<5	2.5
	3/20/2014	22	40
	9/9/2014	10	24

3/16/2015	14	35
9/9/2015	11	27
3/18/2016	13	34
9/20/2016	12	31
3/23/2017	10	25
9/18/2017	15	36
3/15/2018	12	32
9/17/2018	9.8	21
3/5/2019	11	28
9/24/2019	11	29
3/16/2020	17	38
9/22/2020	8.1	11
3/16/2021	9.3	18
9/14/2021	27	41
3/22/2022	9.6	20
9/13/2022	9.2	17
3/14/2023	9	13

---

The Wilcoxon Statistic is 312.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -1.37995

The Standard Deviation adjusted for ties is 63.7616

The Z Score adjusted for ties is -1.38014

-1.37995 < 2.326 indicating no statistical significance at 1% level

-1.38014 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Nickel, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 4

Non detect rank is 2.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	2.5
	3/19/2014	5 J	7
	9/8/2014	9.2	17
	3/17/2015	18	41
	9/14/2015	11	24
	3/17/2016	12	27
	9/21/2016	9	16
	3/24/2017	6.4	8
	9/20/2017	ND<5 U	2.5
	3/27/2018	3.3 J	6
	9/19/2018	2.9 J	5
	3/11/2019	9.2	18
	9/25/2019	9.9	21
	3/18/2020	9.4	20
	9/23/2020	7.7	9
	3/17/2021	9.2	19
	9/8/2021	7.7	10
	3/15/2022	16	40
9/12/2022	13	31	
3/13/2023	10	22	
GWM-2	9/25/2013	ND<5	2.5
	3/18/2014	91	58
	9/16/2014	100	59
	3/18/2015	88	55
	9/15/2015	90	57
	3/16/2016	78	44
	9/22/2016	80	48
	3/24/2017	82	49
	9/21/2017	77	43
	3/28/2018	85	52
	9/21/2018	87	53
	3/12/2019	110	61
	10/1/2019	100	60
	3/18/2020	83	50
	9/23/2020	79	46
	3/17/2021	78	45
	9/9/2021	88	56
	3/15/2022	84	51
9/12/2022	79	47	
3/13/2023	87	54	
GWM-5A	9/19/2013	ND<5	2.5
	12/5/2013	11	25
	3/19/2014	31	42

9/4/2014	14	36
3/17/2015	8	12
9/11/2015	12	28
3/15/2016	8.9	14
9/21/2016	8.1	13
3/28/2017	7.7	11
9/19/2017	10	23
3/26/2018	8.9	15
9/18/2018	15	39
3/4/2019	13	32
9/23/2019	12	29
3/19/2020	11	26
9/23/2020	14	37
3/19/2021	13	33
9/15/2021	14	38
3/16/2022	12	30
9/14/2022	13	34
3/16/2023	13	35

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The Wilcoxon Statistic is 323.5

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is -1.4724

The Standard Deviation adjusted for ties is 65.87

The Z Score adjusted for ties is -1.4726

-1.4724 < 2.326 indicating no statistical significance at 1% level

-1.4726 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Nickel, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 4

Non detect rank is 2.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	2.5
	3/19/2014	5 J	8
	9/8/2014	9.2	29
	3/17/2015	18	41
	9/14/2015	11	37
	3/17/2016	12	38
	9/21/2016	9	27
	3/24/2017	6.4	9
	9/20/2017	ND<5 U	2.5
	3/27/2018	3.3 J	6
	9/19/2018	2.9 J	5
	3/11/2019	9.2	30
	9/25/2019	9.9	34
	3/18/2020	9.4	33
	9/23/2020	7.7	16
	3/17/2021	9.2	31
	9/8/2021	7.7	17
3/15/2022	16	40	
9/12/2022	13	39	
3/13/2023	10	35	
GWM-2	9/25/2013	ND<5	2.5
	3/18/2014	91	57
	9/16/2014	100	58
	3/18/2015	88	54
	9/15/2015	90	56
	3/16/2016	78	43
	9/22/2016	80	47
	3/24/2017	82	48
	9/21/2017	77	42
	3/28/2018	85	51
	9/21/2018	87	52
	3/12/2019	110	60
	10/1/2019	100	59
	3/18/2020	83	49
	9/23/2020	79	45
	3/17/2021	78	44
	9/9/2021	88	55
3/15/2022	84	50	
9/12/2022	79	46	
3/13/2023	87	53	
GWM-14	9/24/2013	ND<5	2.5
	3/21/2014	6.6	10
	9/8/2014	6.6	11

3/19/2015	9.1	28
9/14/2015	8.9	26
3/21/2016	8.2	22
9/23/2016	7.6	15
3/27/2017	7.7	18
9/20/2017	7.5	14
3/16/2018	7.8	20
9/20/2018	7.7	19
3/5/2019	7.8	21
9/25/2019	6.7	12
3/25/2020	8.8	24
9/28/2020	6.8	13
3/18/2021	4.7 JR	7
9/15/2021	8.8	25
3/22/2022	10	36
9/14/2022	8.6	23
3/16/2023	9.2	32

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The Wilcoxon Statistic is 168.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -3.63805

The Standard Deviation adjusted for ties is 63.7616

The Z Score adjusted for ties is -3.63856

-3.63805 < 2.326 indicating no statistical significance at 1% level

-3.63856 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Nickel, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 4

Non detect rank is 2.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	2.5
	3/19/2014	5 J	7
	9/8/2014	9.2	20
	3/17/2015	18	40
	9/14/2015	11	28
	3/17/2016	12	31
	9/21/2016	9	17
	3/24/2017	6.4	9
	9/20/2017	ND<5 U	2.5
	3/27/2018	3.3 J	6
	9/19/2018	2.9 J	5
	3/11/2019	9.2	21
	9/25/2019	9.9	25
	3/18/2020	9.4	23
	9/23/2020	7.7	11
	3/17/2021	9.2	22
	9/8/2021	7.7	12
3/15/2022	16	38	
9/12/2022	13	33	
3/13/2023	10	26	
GWM-2	9/25/2013	ND<5	2.5
	3/18/2014	91	57
	9/16/2014	100	58
	3/18/2015	88	54
	9/15/2015	90	56
	3/16/2016	78	43
	9/22/2016	80	47
	3/24/2017	82	48
	9/21/2017	77	42
	3/28/2018	85	51
	9/21/2018	87	52
	3/12/2019	110	60
	10/1/2019	100	59
	3/18/2020	83	49
	9/23/2020	79	45
	3/17/2021	78	44
	9/9/2021	88	55
3/15/2022	84	50	
9/12/2022	79	46	
3/13/2023	87	53	
GWM-6	9/24/2013	ND<5	2.5
	3/21/2014	9.4	24
	9/17/2014	10	27

3/19/2015	11	29
9/15/2015	12	32
3/21/2016	13	34
9/26/2016	14	36
3/31/2017	15	37
9/21/2017	18	41
3/30/2018	17	39
9/26/2018	13	35
3/13/2019	11	30
10/3/2019	9	18
4/3/2020	8.4	16
9/30/2020	7.7	13
3/22/2021	9	19
9/16/2021	8.3	15
3/24/2022	7.7	14
9/16/2022	7	10
3/17/2023	5.9	8

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The Wilcoxon Statistic is 269.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -2.05424

The Standard Deviation adjusted for ties is 63.7616

The Z Score adjusted for ties is -2.05453

-2.05424 < 2.326 indicating no statistical significance at 1% level

-2.05453 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Nickel, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 4

Non detect rank is 2.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	2.5
	3/19/2014	5 J	23
	9/8/2014	9.2	30
	3/17/2015	18	41
	9/14/2015	11	36
	3/17/2016	12	38
	9/21/2016	9	29
	3/24/2017	6.4	24
	9/20/2017	ND<5 U	2.5
	3/27/2018	3.3 J	10
	9/19/2018	2.9 J	5
	3/11/2019	9.2	31
	9/25/2019	9.9	34
	3/18/2020	9.4	33
	9/23/2020	7.7	26
	3/17/2021	9.2	32
	9/8/2021	7.7	27
3/15/2022	16	40	
9/12/2022	13	39	
3/13/2023	10	35	
GWM-2	9/25/2013	ND<5	2.5
	3/18/2014	91	57
	9/16/2014	100	58
	3/18/2015	88	54
	9/15/2015	90	56
	3/16/2016	78	43
	9/22/2016	80	47
	3/24/2017	82	48
	9/21/2017	77	42
	3/28/2018	85	51
	9/21/2018	87	52
	3/12/2019	110	60
	10/1/2019	100	59
	3/18/2020	83	49
	9/23/2020	79	45
	3/17/2021	78	44
	9/9/2021	88	55
3/15/2022	84	50	
9/12/2022	79	46	
3/13/2023	87	53	
GWM-3	9/25/2013	ND<5	2.5
	3/18/2014	4.3 J	20
	9/16/2014	2.9 J	6

3/18/2015	3.5 J	12
9/15/2015	3.4 J	11
3/16/2016	7.9	28
9/22/2016	11	37
3/29/2017	6.7	25
9/21/2017	4.2 J	19
3/28/2018	3.5 J	13
9/20/2018	3 J	8
3/12/2019	3.8 J	15
10/1/2019	3.5 J	14
3/18/2020	3.2 J	9
9/24/2020	2.9 J	7
3/17/2021	4.6 J	22
9/9/2021	4.5 J	21
3/15/2022	3.8 J	16
9/16/2022	4 J	17
3/15/2023	4 J	18

---

The Wilcoxon Statistic is 110.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -4.54756

The Standard Deviation adjusted for ties is 63.7616

The Z Score adjusted for ties is -4.54819

-4.54756 < 2.326 indicating no statistical significance at 1% level

-4.54819 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Nickel, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 3

Non detect rank is 2

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	2
	3/19/2014	5 J	6
	9/8/2014	9.2	11
	3/17/2015	18	21
	9/14/2015	11	17
	3/17/2016	12	18
	9/21/2016	9	10
	3/24/2017	6.4	7
	9/20/2017	ND<5 U	2
	3/27/2018	3.3 J	5
	9/19/2018	2.9 J	4
	3/11/2019	9.2	12
	9/25/2019	9.9	15
	3/18/2020	9.4	14
	9/23/2020	7.7	8
	3/17/2021	9.2	13
	9/8/2021	7.7	9
3/15/2022	16	20	
9/12/2022	13	19	
3/13/2023	10	16	
GWM-2	9/25/2013	ND<5	2
	3/18/2014	91	45
	9/16/2014	100	46
	3/18/2015	88	42
	9/15/2015	90	44
	3/16/2016	78	31
	9/22/2016	80	35
	3/24/2017	82	36
	9/21/2017	77	30
	3/28/2018	85	39
	9/21/2018	87	40
	3/12/2019	110	48
	10/1/2019	100	47
	3/18/2020	83	37
	9/23/2020	79	33
	3/17/2021	78	32
	9/9/2021	88	43
3/15/2022	84	38	
9/12/2022	79	34	
3/13/2023	87	41	
GWM-17S	11/14/2019	28	28
	3/26/2020	26	24
	9/29/2020	26	25

3/16/2021	26	26
9/14/2021	25	23
3/18/2022	27	27
9/13/2022	31	29
3/14/2023	24	22

---

The Wilcoxon Statistic is 168

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 0.207481

The Standard Deviation adjusted for ties is 36.1439

The Z Score adjusted for ties is 0.207504

0.207481 < 2.326 indicating no statistical significance at 1% level

0.207504 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Potassium, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	1390	1
	3/19/2014	4400	37
	9/8/2014	2000	3
	3/17/2015	5400	40
	9/14/2015	3400	35
	3/17/2016	3300	34
	9/21/2016	2100	4
	3/24/2017	3200	32
	9/20/2017	4400	38
	3/27/2018	5200	39
	9/19/2018	3700	36
	3/11/2019	1900	2
	9/25/2019	2300	5
	3/18/2020	2500	8
	9/23/2020	2300	6
	3/17/2021	2400	7
9/8/2021	2500	9	
3/15/2022	3200	33	
9/12/2022	2500	10	
3/13/2023	2800	19	
GWM-2	9/25/2013	2750	18
	3/18/2014	3100	31
	9/16/2014	2900	24
	3/18/2015	2900	25
	9/15/2015	2900	26
	3/16/2016	2800	20
	9/22/2016	2700	12
	3/24/2017	2700	13
	9/21/2017	2700	14
	3/28/2018	2900	27
	9/21/2018	2900	28
	3/12/2019	2800	21
	10/1/2019	2900	29
	3/18/2020	3000	30
	9/23/2020	2500	11
	3/17/2021	2700	15
9/9/2021	2700	16	
3/15/2022	2800	22	
9/12/2022	2700	17	
3/13/2023	2800	23	
GWM-4	9/18/2013	8110	48
	3/20/2014	6100	41
	9/9/2014	7100	45

3/16/2015	6500	42
9/9/2015	8400	49
3/18/2016	11900	56
9/20/2016	13200	58
3/23/2017	8600	50
9/18/2017	6900	44
3/15/2018	7100	46
9/17/2018	6700	43
3/5/2019	8900	52
9/24/2019	9100	53
3/16/2020	7200	47
9/22/2020	13500	59
3/16/2021	13700	60
9/14/2021	13000	57
3/22/2022	10500	55
9/13/2022	9700	54
3/14/2023	8600	51

---

The Wilcoxon Statistic is 800

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 6.26466

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 6.26466

**6.26466 > 2.326 indicating statistical significance at 1% level**

**6.26466 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Potassium, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	1390	1
	3/19/2014	4400	54
	9/8/2014	2000	3
	3/17/2015	5400	61
	9/14/2015	3400	37
	3/17/2016	3300	35
	9/21/2016	2100	4
	3/24/2017	3200	33
	9/20/2017	4400	55
	3/27/2018	5200	59
	9/19/2018	3700	43
	3/11/2019	1900	2
	9/25/2019	2300	5
	3/18/2020	2500	8
	9/23/2020	2300	6
	3/17/2021	2400	7
9/8/2021	2500	9	
3/15/2022	3200	34	
9/12/2022	2500	10	
3/13/2023	2800	19	
GWM-2	9/25/2013	2750	18
	3/18/2014	3100	31
	9/16/2014	2900	24
	3/18/2015	2900	25
	9/15/2015	2900	26
	3/16/2016	2800	20
	9/22/2016	2700	12
	3/24/2017	2700	13
	9/21/2017	2700	14
	3/28/2018	2900	27
	9/21/2018	2900	28
	3/12/2019	2800	21
	10/1/2019	2900	29
	3/18/2020	3000	30
	9/23/2020	2500	11
	3/17/2021	2700	15
9/9/2021	2700	16	
3/15/2022	2800	22	
9/12/2022	2700	17	
3/13/2023	2800	23	
GWM-5A	9/19/2013	4800	57
	12/5/2013	3430	38
	3/19/2014	4000	50

9/4/2014	4200	52
3/17/2015	4200	53
9/11/2015	4400	56
3/15/2016	3900	48
9/21/2016	3700	44
3/28/2017	3500	39
9/19/2017	3100	32
3/26/2018	3500	40
9/18/2018	3700	45
3/4/2019	5300	60
9/23/2019	4900	58
3/19/2020	4100	51
9/23/2020	3600	41
3/19/2021	3700	46
9/15/2021	3900	49
3/16/2022	3600	42
9/14/2022	3700	47
3/16/2023	3300	36

---

The Wilcoxon Statistic is 753

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is 5.04716

The Standard Deviation adjusted for ties is 65.8787

The Z Score adjusted for ties is 5.04716

**5.04716 > 2.326 indicating statistical significance at 1% level**

**5.04716 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Potassium, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	1390	20
	3/19/2014	4400	57
	9/8/2014	2000	22
	3/17/2015	5400	60
	9/14/2015	3400	55
	3/17/2016	3300	54
	9/21/2016	2100	24
	3/24/2017	3200	52
	9/20/2017	4400	58
	3/27/2018	5200	59
	9/19/2018	3700	56
	3/11/2019	1900	21
	9/25/2019	2300	25
	3/18/2020	2500	28
	9/23/2020	2300	26
	3/17/2021	2400	27
	9/8/2021	2500	29
3/15/2022	3200	53	
9/12/2022	2500	30	
3/13/2023	2800	39	
GWM-2	9/25/2013	2750	38
	3/18/2014	3100	51
	9/16/2014	2900	44
	3/18/2015	2900	45
	9/15/2015	2900	46
	3/16/2016	2800	40
	9/22/2016	2700	32
	3/24/2017	2700	33
	9/21/2017	2700	34
	3/28/2018	2900	47
	9/21/2018	2900	48
	3/12/2019	2800	41
	10/1/2019	2900	49
	3/18/2020	3000	50
	9/23/2020	2500	31
	3/17/2021	2700	35
	9/9/2021	2700	36
3/15/2022	2800	42	
9/12/2022	2700	37	
3/13/2023	2800	43	
GWM-14	9/24/2013	520	5
	3/21/2014	500	3
	9/8/2014	550	9

3/19/2015	520	6
9/14/2015	530	8
3/21/2016	550	10
9/23/2016	550	11
3/27/2017	560	12
9/20/2017	570	13
3/16/2018	480	1
9/20/2018	580	14
3/5/2019	520	7
9/25/2019	500	4
3/25/2020	490	2
9/28/2020	640	18
3/18/2021	2000 R	23
9/15/2021	620	16
3/22/2022	620	17
9/14/2022	850	19
3/16/2023	590	15

---

The Wilcoxon Statistic is 3

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -6.2333

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is -6.2333

-6.2333 < 2.326 indicating no statistical significance at 1% level

-6.2333 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Potassium, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	1390	4
	3/19/2014	4400	57
	9/8/2014	2000	22
	3/17/2015	5400	60
	9/14/2015	3400	55
	3/17/2016	3300	54
	9/21/2016	2100	23
	3/24/2017	3200	52
	9/20/2017	4400	58
	3/27/2018	5200	59
	9/19/2018	3700	56
	3/11/2019	1900	16
	9/25/2019	2300	25
	3/18/2020	2500	28
	9/23/2020	2300	26
	3/17/2021	2400	27
	9/8/2021	2500	29
3/15/2022	3200	53	
9/12/2022	2500	30	
3/13/2023	2800	39	
GWM-2	9/25/2013	2750	38
	3/18/2014	3100	51
	9/16/2014	2900	44
	3/18/2015	2900	45
	9/15/2015	2900	46
	3/16/2016	2800	40
	9/22/2016	2700	32
	3/24/2017	2700	33
	9/21/2017	2700	34
	3/28/2018	2900	47
	9/21/2018	2900	48
	3/12/2019	2800	41
	10/1/2019	2900	49
	3/18/2020	3000	50
	9/23/2020	2500	31
	3/17/2021	2700	35
	9/9/2021	2700	36
3/15/2022	2800	42	
9/12/2022	2700	37	
3/13/2023	2800	43	
GWM-6	9/24/2013	1200	1
	3/21/2014	1200	2
	9/17/2014	1300	3

3/19/2015	1400	5
9/15/2015	1500	6
3/21/2016	1600	8
9/26/2016	1600	9
3/31/2017	1700	10
9/21/2017	1900	17
3/30/2018	2100	24
9/26/2018	1800	12
3/13/2019	1900	18
10/3/2019	1900	19
4/3/2020	1500	7
9/30/2020	1700	11
3/22/2021	1800	13
9/16/2021	1800	14
3/24/2022	1800	15
9/16/2022	1900	20
3/17/2023	1900	21

---

The Wilcoxon Statistic is 25

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -5.88831

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is -5.88831

-5.88831 < 2.326 indicating no statistical significance at 1% level

-5.88831 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Potassium, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	1390	1
	3/19/2014	4400	57
	9/8/2014	2000	9
	3/17/2015	5400	60
	9/14/2015	3400	54
	3/17/2016	3300	53
	9/21/2016	2100	16
	3/24/2017	3200	51
	9/20/2017	4400	58
	3/27/2018	5200	59
	9/19/2018	3700	55
	3/11/2019	1900	5
	9/25/2019	2300	23
	3/18/2020	2500	27
	9/23/2020	2300	24
	3/17/2021	2400	25
	9/8/2021	2500	28
3/15/2022	3200	52	
9/12/2022	2500	29	
3/13/2023	2800	38	
GWM-2	9/25/2013	2750	37
	3/18/2014	3100	50
	9/16/2014	2900	43
	3/18/2015	2900	44
	9/15/2015	2900	45
	3/16/2016	2800	39
	9/22/2016	2700	31
	3/24/2017	2700	32
	9/21/2017	2700	33
	3/28/2018	2900	46
	9/21/2018	2900	47
	3/12/2019	2800	40
	10/1/2019	2900	48
	3/18/2020	3000	49
	9/23/2020	2500	30
	3/17/2021	2700	34
	9/9/2021	2700	35
3/15/2022	2800	41	
9/12/2022	2700	36	
3/13/2023	2800	42	
GWM-3	9/25/2013	1790	3
	3/18/2014	2000	10
	9/16/2014	1800	4

3/18/2015	1600	2
9/15/2015	2000	11
3/16/2016	2000	12
9/22/2016	2100	17
3/29/2017	2000	13
9/21/2017	1900	6
3/28/2018	2100	18
9/20/2018	2000	14
3/12/2019	2200	21
10/1/2019	2200	22
3/18/2020	2400	26
9/24/2020	2000	15
3/17/2021	3900 R	56
9/9/2021	2100	19
3/15/2022	2100	20
9/16/2022	1900	7
3/15/2023	1900	8

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The Wilcoxon Statistic is 94

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -4.8063

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is -4.8063

-4.8063 < 2.326 indicating no statistical significance at 1% level

-4.8063 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Potassium, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	1390	1
	3/19/2014	4400	45
	9/8/2014	2000	3
	3/17/2015	5400	48
	9/14/2015	3400	39
	3/17/2016	3300	37
	9/21/2016	2100	4
	3/24/2017	3200	33
	9/20/2017	4400	46
	3/27/2018	5200	47
	9/19/2018	3700	44
	3/11/2019	1900	2
	9/25/2019	2300	5
	3/18/2020	2500	8
	9/23/2020	2300	6
	3/17/2021	2400	7
9/8/2021	2500	9	
3/15/2022	3200	34	
9/12/2022	2500	10	
3/13/2023	2800	19	
GWM-2	9/25/2013	2750	18
	3/18/2014	3100	31
	9/16/2014	2900	24
	3/18/2015	2900	25
	9/15/2015	2900	26
	3/16/2016	2800	20
	9/22/2016	2700	12
	3/24/2017	2700	13
	9/21/2017	2700	14
	3/28/2018	2900	27
	9/21/2018	2900	28
	3/12/2019	2800	21
	10/1/2019	2900	29
	3/18/2020	3000	30
	9/23/2020	2500	11
	3/17/2021	2700	15
9/9/2021	2700	16	
3/15/2022	2800	22	
9/12/2022	2700	17	
3/13/2023	2800	23	
GWM-17S	11/14/2019	3400	40
	3/26/2020	3100	32
	9/29/2020	3200	35

3/16/2021	3400	41
9/14/2021	3500	42
3/18/2022	3200	36
9/13/2022	3300	38
3/14/2023	3500	43

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The Wilcoxon Statistic is 271

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 3.05689

The Standard Deviation adjusted for ties is 36.1478

The Z Score adjusted for ties is 3.05689

**3.05689 > 2.326 indicating statistical significance at 1% level**

**3.05689 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Selenium, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 59

Non detect rank is 30

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	30
	3/19/2014	ND<5 U	30
	9/8/2014	ND<5 U	30
	3/17/2015	ND<5 U	30
	9/14/2015	ND<5 U	30
	3/17/2016	ND<5 U	30
	9/21/2016	ND<5 U	30
	3/24/2017	ND<5 U	30
	9/20/2017	ND<5 U	30
	3/27/2018	ND<5 U	30
	9/19/2018	ND<5 U	30
	3/11/2019	ND<5 U	30
	9/25/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
9/8/2021	ND<5 U	30	
3/15/2022	ND<5.6	30	
9/12/2022	ND<5.6	30	
3/13/2023	ND<5.6	30	
GWM-2	9/25/2013	ND<5	30
	3/18/2014	ND<5 U	30
	9/16/2014	ND<5 U	30
	3/18/2015	ND<5 U	30
	9/15/2015	ND<5 U	30
	3/16/2016	ND<5 U	30
	9/22/2016	ND<5 U	30
	3/24/2017	ND<5 U	30
	9/21/2017	ND<5 U	30
	3/28/2018	ND<5 U	30
	9/21/2018	ND<5 U	30
	3/12/2019	ND<5 U	30
	10/1/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
9/9/2021	1.2 J	60	
3/15/2022	ND<5.6	30	
9/12/2022	ND<5.6	30	
3/13/2023	ND<5.6	30	
GWM-4	9/18/2013	ND<5	30
	3/20/2014	ND<5 U	30
	9/9/2014	ND<5 U	30

3/16/2015	ND<5 U	30
9/9/2015	ND<5 U	30
3/18/2016	ND<5 U	30
9/20/2016	ND<5 U	30
3/23/2017	ND<5 U	30
9/18/2017	ND<5 U	30
3/15/2018	ND<5 U	30
9/17/2018	ND<5 U	30
3/5/2019	ND<5 U	30
9/24/2019	ND<5 U	30
3/16/2020	ND<5 U	30
9/22/2020	ND<5 U	30
3/16/2021	ND<5 U	30
9/14/2021	ND<5 U	30
3/22/2022	ND<5.6	30
9/13/2022	ND<5.6	30
3/14/2023	ND<5.6	30

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The Wilcoxon Statistic is 390

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -0.164653

The Standard Deviation adjusted for ties is 14.1421

The Z Score adjusted for ties is -0.742462

-0.164653 < 2.326 indicating no statistical significance at 1% level

-0.742462 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Selenium, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 60

Non detect rank is 30.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	30.5
	3/19/2014	ND<5 U	30.5
	9/8/2014	ND<5 U	30.5
	3/17/2015	ND<5 U	30.5
	9/14/2015	ND<5 U	30.5
	3/17/2016	ND<5 U	30.5
	9/21/2016	ND<5 U	30.5
	3/24/2017	ND<5 U	30.5
	9/20/2017	ND<5 U	30.5
	3/27/2018	ND<5 U	30.5
	9/19/2018	ND<5 U	30.5
	3/11/2019	ND<5 U	30.5
	9/25/2019	ND<5 U	30.5
	3/18/2020	ND<5 U	30.5
	9/23/2020	ND<5 U	30.5
	3/17/2021	ND<5 U	30.5
9/8/2021	ND<5 U	30.5	
3/15/2022	ND<5.6	30.5	
9/12/2022	ND<5.6	30.5	
3/13/2023	ND<5.6	30.5	
GWM-2	9/25/2013	ND<5	30.5
	3/18/2014	ND<5 U	30.5
	9/16/2014	ND<5 U	30.5
	3/18/2015	ND<5 U	30.5
	9/15/2015	ND<5 U	30.5
	3/16/2016	ND<5 U	30.5
	9/22/2016	ND<5 U	30.5
	3/24/2017	ND<5 U	30.5
	9/21/2017	ND<5 U	30.5
	3/28/2018	ND<5 U	30.5
	9/21/2018	ND<5 U	30.5
	3/12/2019	ND<5 U	30.5
	10/1/2019	ND<5 U	30.5
	3/18/2020	ND<5 U	30.5
	9/23/2020	ND<5 U	30.5
	3/17/2021	ND<5 U	30.5
9/9/2021	1.2 J	61	
3/15/2022	ND<5.6	30.5	
9/12/2022	ND<5.6	30.5	
3/13/2023	ND<5.6	30.5	
GWM-5A	9/19/2013	ND<5	30.5
	12/5/2013	ND<5	30.5
	3/19/2014	ND<5 U	30.5

9/4/2014	ND<5 U	30.5
3/17/2015	ND<5 U	30.5
9/11/2015	ND<5 U	30.5
3/15/2016	ND<5 U	30.5
9/21/2016	ND<5 U	30.5
3/28/2017	ND<5 U	30.5
9/19/2017	ND<5 U	30.5
3/26/2018	ND<5 U	30.5
9/18/2018	ND<5 U	30.5
3/4/2019	ND<5 U	30.5
9/23/2019	ND<5 U	30.5
3/19/2020	ND<5 U	30.5
9/23/2020	ND<5 U	30.5
3/19/2021	ND<5 U	30.5
9/15/2021	ND<5 U	30.5
3/16/2022	ND<5.6	30.5
9/14/2022	ND<5.6	30.5
3/16/2023	ND<5.6	30.5

---

The Wilcoxon Statistic is 409.5

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is -0.166974

The Standard Deviation adjusted for ties is 14.4914

The Z Score adjusted for ties is -0.759072

-0.166974 < 2.326 indicating no statistical significance at 1% level

-0.759072 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Selenium, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 59

Non detect rank is 30

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	30
	3/19/2014	ND<5 U	30
	9/8/2014	ND<5 U	30
	3/17/2015	ND<5 U	30
	9/14/2015	ND<5 U	30
	3/17/2016	ND<5 U	30
	9/21/2016	ND<5 U	30
	3/24/2017	ND<5 U	30
	9/20/2017	ND<5 U	30
	3/27/2018	ND<5 U	30
	9/19/2018	ND<5 U	30
	3/11/2019	ND<5 U	30
	9/25/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
	9/8/2021	ND<5 U	30
3/15/2022	ND<5.6	30	
9/12/2022	ND<5.6	30	
3/13/2023	ND<5.6	30	
GWM-2	9/25/2013	ND<5	30
	3/18/2014	ND<5 U	30
	9/16/2014	ND<5 U	30
	3/18/2015	ND<5 U	30
	9/15/2015	ND<5 U	30
	3/16/2016	ND<5 U	30
	9/22/2016	ND<5 U	30
	3/24/2017	ND<5 U	30
	9/21/2017	ND<5 U	30
	3/28/2018	ND<5 U	30
	9/21/2018	ND<5 U	30
	3/12/2019	ND<5 U	30
	10/1/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
	9/9/2021	1.2 J	60
3/15/2022	ND<5.6	30	
9/12/2022	ND<5.6	30	
3/13/2023	ND<5.6	30	
GWM-14	9/24/2013	ND<5	30
	3/21/2014	ND<5 U	30
	9/8/2014	ND<5 U	30

3/19/2015	ND<5 U	30
9/14/2015	ND<5 U	30
3/21/2016	ND<5 U	30
9/23/2016	ND<5 U	30
3/27/2017	ND<5 U	30
9/20/2017	ND<5 U	30
3/16/2018	ND<5 U	30
9/20/2018	ND<5 U	30
3/5/2019	ND<5 U	30
9/25/2019	ND<5 U	30
3/25/2020	ND<5 U	30
9/28/2020	ND<5 U	30
3/18/2021	ND<5 U	30
9/15/2021	ND<5 U	30
3/22/2022	ND<5.6	30
9/14/2022	ND<5.6	30
3/16/2023	ND<5.6	30

---

The Wilcoxon Statistic is 390

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -0.164653

The Standard Deviation adjusted for ties is 14.1421

The Z Score adjusted for ties is -0.742462

-0.164653 < 2.326 indicating no statistical significance at 1% level

-0.742462 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Selenium, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 56

Non detect rank is 28.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	28.5
	3/19/2014	ND<5 U	28.5
	9/8/2014	ND<5 U	28.5
	3/17/2015	ND<5 U	28.5
	9/14/2015	ND<5 U	28.5
	3/17/2016	ND<5 U	28.5
	9/21/2016	ND<5 U	28.5
	3/24/2017	ND<5 U	28.5
	9/20/2017	ND<5 U	28.5
	3/27/2018	ND<5 U	28.5
	9/19/2018	ND<5 U	28.5
	3/11/2019	ND<5 U	28.5
	9/25/2019	ND<5 U	28.5
	3/18/2020	ND<5 U	28.5
	9/23/2020	ND<5 U	28.5
	3/17/2021	ND<5 U	28.5
	9/8/2021	ND<5 U	28.5
3/15/2022	ND<5.6	28.5	
9/12/2022	ND<5.6	28.5	
3/13/2023	ND<5.6	28.5	
GWM-2	9/25/2013	ND<5	28.5
	3/18/2014	ND<5 U	28.5
	9/16/2014	ND<5 U	28.5
	3/18/2015	ND<5 U	28.5
	9/15/2015	ND<5 U	28.5
	3/16/2016	ND<5 U	28.5
	9/22/2016	ND<5 U	28.5
	3/24/2017	ND<5 U	28.5
	9/21/2017	ND<5 U	28.5
	3/28/2018	ND<5 U	28.5
	9/21/2018	ND<5 U	28.5
	3/12/2019	ND<5 U	28.5
	10/1/2019	ND<5 U	28.5
	3/18/2020	ND<5 U	28.5
	9/23/2020	ND<5 U	28.5
	3/17/2021	ND<5 U	28.5
	9/9/2021	1.2 J	57
3/15/2022	ND<5.6	28.5	
9/12/2022	ND<5.6	28.5	
3/13/2023	ND<5.6	28.5	
GWM-6	9/24/2013	ND<5	28.5
	3/21/2014	ND<5 U	28.5
	9/17/2014	ND<5 U	28.5

3/19/2015	ND<5 U	28.5
9/15/2015	ND<5 U	28.5
3/21/2016	ND<5 U	28.5
9/26/2016	ND<5 U	28.5
3/31/2017	ND<5 U	28.5
9/21/2017	ND<5 U	28.5
3/30/2018	5.6	60
9/26/2018	ND<5 U	28.5
3/13/2019	ND<5 U	28.5
10/3/2019	ND<5 U	28.5
4/3/2020	2 J	59
9/30/2020	ND<5 U	28.5
3/22/2021	ND<5 U	28.5
9/16/2021	1.4 J	58
3/24/2022	ND<5.6	28.5
9/16/2022	ND<5.6	28.5
3/17/2023	ND<5.6	28.5

---

The Wilcoxon Statistic is 451.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 0.799744

The Standard Deviation adjusted for ties is 27.5763

The Z Score adjusted for ties is 1.84941

0.799744 < 2.326 indicating no statistical significance at 1% level

1.84941 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Selenium, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 56

Non detect rank is 28.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	28.5
	3/19/2014	ND<5 U	28.5
	9/8/2014	ND<5 U	28.5
	3/17/2015	ND<5 U	28.5
	9/14/2015	ND<5 U	28.5
	3/17/2016	ND<5 U	28.5
	9/21/2016	ND<5 U	28.5
	3/24/2017	ND<5 U	28.5
	9/20/2017	ND<5 U	28.5
	3/27/2018	ND<5 U	28.5
	9/19/2018	ND<5 U	28.5
	3/11/2019	ND<5 U	28.5
	9/25/2019	ND<5 U	28.5
	3/18/2020	ND<5 U	28.5
	9/23/2020	ND<5 U	28.5
	3/17/2021	ND<5 U	28.5
	9/8/2021	ND<5 U	28.5
3/15/2022	ND<5.6	28.5	
9/12/2022	ND<5.6	28.5	
3/13/2023	ND<5.6	28.5	
GWM-2	9/25/2013	ND<5	28.5
	3/18/2014	ND<5 U	28.5
	9/16/2014	ND<5 U	28.5
	3/18/2015	ND<5 U	28.5
	9/15/2015	ND<5 U	28.5
	3/16/2016	ND<5 U	28.5
	9/22/2016	ND<5 U	28.5
	3/24/2017	ND<5 U	28.5
	9/21/2017	ND<5 U	28.5
	3/28/2018	ND<5 U	28.5
	9/21/2018	ND<5 U	28.5
	3/12/2019	ND<5 U	28.5
	10/1/2019	ND<5 U	28.5
	3/18/2020	ND<5 U	28.5
	9/23/2020	ND<5 U	28.5
	3/17/2021	ND<5 U	28.5
	9/9/2021	1.2 J	57
3/15/2022	ND<5.6	28.5	
9/12/2022	ND<5.6	28.5	
3/13/2023	ND<5.6	28.5	
GWM-3	9/25/2013	ND<5	28.5
	3/18/2014	ND<5 U	28.5
	9/16/2014	ND<5 U	28.5

3/18/2015	ND<5 U	28.5
9/15/2015	ND<5 U	28.5
3/16/2016	ND<5 U	28.5
9/22/2016	ND<5 U	28.5
3/29/2017	ND<5 U	28.5
9/21/2017	ND<5 U	28.5
3/28/2018	ND<5 U	28.5
9/20/2018	ND<5 U	28.5
3/12/2019	ND<5 U	28.5
10/1/2019	ND<5 U	28.5
3/18/2020	2.1 J	60
9/24/2020	1.9 J	59
3/17/2021	ND<5 U	28.5
9/9/2021	1.2 J	58
3/15/2022	ND<5.6	28.5
9/16/2022	ND<5.6	28.5
3/15/2023	ND<5.6	28.5

---

The Wilcoxon Statistic is 451.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 0.799744

The Standard Deviation adjusted for ties is 27.5763

The Z Score adjusted for ties is 1.84941

0.799744 < 2.326 indicating no statistical significance at 1% level

1.84941 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Selenium, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 46

Non detect rank is 23.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	23.5
	3/19/2014	ND<5 U	23.5
	9/8/2014	ND<5 U	23.5
	3/17/2015	ND<5 U	23.5
	9/14/2015	ND<5 U	23.5
	3/17/2016	ND<5 U	23.5
	9/21/2016	ND<5 U	23.5
	3/24/2017	ND<5 U	23.5
	9/20/2017	ND<5 U	23.5
	3/27/2018	ND<5 U	23.5
	9/19/2018	ND<5 U	23.5
	3/11/2019	ND<5 U	23.5
	9/25/2019	ND<5 U	23.5
	3/18/2020	ND<5 U	23.5
	9/23/2020	ND<5 U	23.5
	3/17/2021	ND<5 U	23.5
9/8/2021	ND<5 U	23.5	
3/15/2022	ND<5.6	23.5	
9/12/2022	ND<5.6	23.5	
3/13/2023	ND<5.6	23.5	
GWM-2	9/25/2013	ND<5	23.5
	3/18/2014	ND<5 U	23.5
	9/16/2014	ND<5 U	23.5
	3/18/2015	ND<5 U	23.5
	9/15/2015	ND<5 U	23.5
	3/16/2016	ND<5 U	23.5
	9/22/2016	ND<5 U	23.5
	3/24/2017	ND<5 U	23.5
	9/21/2017	ND<5 U	23.5
	3/28/2018	ND<5 U	23.5
	9/21/2018	ND<5 U	23.5
	3/12/2019	ND<5 U	23.5
	10/1/2019	ND<5 U	23.5
	3/18/2020	ND<5 U	23.5
	9/23/2020	ND<5 U	23.5
	3/17/2021	ND<5 U	23.5
9/9/2021	1.2 J	48	
3/15/2022	ND<5.6	23.5	
9/12/2022	ND<5.6	23.5	
3/13/2023	ND<5.6	23.5	
GWM-17S	11/14/2019	ND<5 U	23.5
	3/26/2020	ND<5 U	23.5
	9/29/2020	ND<5 U	23.5

3/16/2021	ND<5 U	23.5
9/14/2021	0.64 J	47
3/18/2022	ND<5.6	23.5
9/13/2022	ND<5.6	23.5
3/14/2023	ND<5.6	23.5

---

The Wilcoxon Statistic is 175.5

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 0.414963

The Standard Deviation adjusted for ties is 12.5167

The Z Score adjusted for ties is 1.1984

0.414963 < 2.326 indicating no statistical significance at 1% level

1.1984 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Silver, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 60

Non detect rank is 30.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	30.5
	3/19/2014	ND<5 U	30.5
	9/8/2014	ND<5 U	30.5
	3/17/2015	ND<5 U	30.5
	9/14/2015	ND<5 U	30.5
	3/17/2016	ND<5 U	30.5
	9/21/2016	ND<5 U	30.5
	3/24/2017	ND<5 U	30.5
	9/20/2017	ND<5 U	30.5
	3/27/2018	ND<5 U	30.5
	9/19/2018	ND<5 U	30.5
	3/11/2019	ND<5 U	30.5
	9/25/2019	ND<5 U	30.5
	3/18/2020	ND<5 U	30.5
	9/23/2020	ND<5 U	30.5
	3/17/2021	ND<5 U	30.5
9/8/2021	ND<5 U	30.5	
3/15/2022	ND<2.2	30.5	
9/12/2022	ND<2.2	30.5	
3/13/2023	ND<2.2	30.5	
GWM-2	9/25/2013	ND<5	30.5
	3/18/2014	ND<5 U	30.5
	9/16/2014	ND<5 U	30.5
	3/18/2015	ND<5 U	30.5
	9/15/2015	ND<5 U	30.5
	3/16/2016	ND<5 U	30.5
	9/22/2016	ND<5 U	30.5
	3/24/2017	ND<5 U	30.5
	9/21/2017	ND<5 U	30.5
	3/28/2018	ND<5 U	30.5
	9/21/2018	ND<5 U	30.5
	3/12/2019	ND<5 U	30.5
	10/1/2019	ND<5 U	30.5
	3/18/2020	ND<5 U	30.5
	9/23/2020	ND<5 U	30.5
	3/17/2021	ND<5 U	30.5
9/9/2021	ND<5 U	30.5	
3/15/2022	ND<2.2	30.5	
9/12/2022	ND<2.2	30.5	
3/13/2023	ND<2.2	30.5	
GWM-4	9/18/2013	ND<5	30.5
	3/20/2014	ND<5 U	30.5
	9/9/2014	ND<5 U	30.5

3/16/2015	ND<5 U	30.5
9/9/2015	ND<5 U	30.5
3/18/2016	ND<5 U	30.5
9/20/2016	ND<5 U	30.5
3/23/2017	ND<5 U	30.5
9/18/2017	ND<5 U	30.5
3/15/2018	ND<5 U	30.5
9/17/2018	ND<5 U	30.5
3/5/2019	ND<5 U	30.5
9/24/2019	ND<5 U	30.5
3/16/2020	ND<5 U	30.5
9/22/2020	ND<5 U	30.5
3/16/2021	ND<5 U	30.5
9/14/2021	ND<5 U	30.5
3/22/2022	ND<2.2	30.5
9/13/2022	ND<2.2	30.5
3/14/2023	ND<2.2	30.5

---

The Wilcoxon Statistic is 400

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -0.00784063

The Standard Deviation adjusted for ties is 0

The Z Score adjusted for ties is -1.#INF

-0.00784063 < 2.326 indicating no statistical significance at 1% level

-1.#INF < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Silver, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 59

Non detect rank is 30

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	30
	3/19/2014	ND<5 U	30
	9/8/2014	ND<5 U	30
	3/17/2015	ND<5 U	30
	9/14/2015	ND<5 U	30
	3/17/2016	ND<5 U	30
	9/21/2016	ND<5 U	30
	3/24/2017	ND<5 U	30
	9/20/2017	ND<5 U	30
	3/27/2018	ND<5 U	30
	9/19/2018	ND<5 U	30
	3/11/2019	ND<5 U	30
	9/25/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
	9/8/2021	ND<5 U	30
3/15/2022	ND<2.2	30	
9/12/2022	ND<2.2	30	
3/13/2023	ND<2.2	30	
GWM-2	9/25/2013	ND<5	30
	3/18/2014	ND<5 U	30
	9/16/2014	ND<5 U	30
	3/18/2015	ND<5 U	30
	9/15/2015	ND<5 U	30
	3/16/2016	ND<5 U	30
	9/22/2016	ND<5 U	30
	3/24/2017	ND<5 U	30
	9/21/2017	ND<5 U	30
	3/28/2018	ND<5 U	30
	9/21/2018	ND<5 U	30
	3/12/2019	ND<5 U	30
	10/1/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
	9/9/2021	ND<5 U	30
3/15/2022	ND<2.2	30	
9/12/2022	ND<2.2	30	
3/13/2023	ND<2.2	30	
GWM-5A	9/19/2013	ND<5	30
	3/19/2014	ND<5 U	30
	9/4/2014	ND<5 U	30

3/17/2015	ND<5 U	30
9/11/2015	ND<5 U	30
3/15/2016	6.9	60
9/21/2016	ND<5 U	30
3/28/2017	ND<5 U	30
9/19/2017	ND<5 U	30
3/26/2018	ND<5 U	30
9/18/2018	ND<5 U	30
3/4/2019	ND<5 U	30
9/23/2019	ND<5 U	30
3/19/2020	ND<5 U	30
9/23/2020	ND<5 U	30
3/19/2021	ND<5 U	30
9/15/2021	ND<5 U	30
3/16/2022	ND<2.2	30
9/14/2022	ND<2.2	30
3/16/2023	ND<2.2	30

---

The Wilcoxon Statistic is 420

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 0.305784

The Standard Deviation adjusted for ties is 14.1421

The Z Score adjusted for ties is 1.37886

0.305784 < 2.326 indicating no statistical significance at 1% level

1.37886 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Silver, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 60

Non detect rank is 30.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	30.5
	3/19/2014	ND<5 U	30.5
	9/8/2014	ND<5 U	30.5
	3/17/2015	ND<5 U	30.5
	9/14/2015	ND<5 U	30.5
	3/17/2016	ND<5 U	30.5
	9/21/2016	ND<5 U	30.5
	3/24/2017	ND<5 U	30.5
	9/20/2017	ND<5 U	30.5
	3/27/2018	ND<5 U	30.5
	9/19/2018	ND<5 U	30.5
	3/11/2019	ND<5 U	30.5
	9/25/2019	ND<5 U	30.5
	3/18/2020	ND<5 U	30.5
	9/23/2020	ND<5 U	30.5
	3/17/2021	ND<5 U	30.5
9/8/2021	ND<5 U	30.5	
3/15/2022	ND<2.2	30.5	
9/12/2022	ND<2.2	30.5	
3/13/2023	ND<2.2	30.5	
GWM-2	9/25/2013	ND<5	30.5
	3/18/2014	ND<5 U	30.5
	9/16/2014	ND<5 U	30.5
	3/18/2015	ND<5 U	30.5
	9/15/2015	ND<5 U	30.5
	3/16/2016	ND<5 U	30.5
	9/22/2016	ND<5 U	30.5
	3/24/2017	ND<5 U	30.5
	9/21/2017	ND<5 U	30.5
	3/28/2018	ND<5 U	30.5
	9/21/2018	ND<5 U	30.5
	3/12/2019	ND<5 U	30.5
	10/1/2019	ND<5 U	30.5
	3/18/2020	ND<5 U	30.5
	9/23/2020	ND<5 U	30.5
	3/17/2021	ND<5 U	30.5
9/9/2021	ND<5 U	30.5	
3/15/2022	ND<2.2	30.5	
9/12/2022	ND<2.2	30.5	
3/13/2023	ND<2.2	30.5	
GWM-14	9/24/2013	ND<5	30.5
	3/21/2014	ND<5 U	30.5
	9/8/2014	ND<5 U	30.5

3/19/2015	ND<5 U	30.5
9/14/2015	ND<5 U	30.5
3/21/2016	ND<5 U	30.5
9/23/2016	ND<5 U	30.5
3/27/2017	ND<5 U	30.5
9/20/2017	ND<5 U	30.5
3/16/2018	ND<5 U	30.5
9/20/2018	ND<5 U	30.5
3/5/2019	ND<5 U	30.5
9/25/2019	ND<5 U	30.5
3/25/2020	ND<5 U	30.5
9/28/2020	ND<5 U	30.5
3/18/2021	ND<5 U	30.5
9/15/2021	ND<5 U	30.5
3/22/2022	ND<2.2	30.5
9/14/2022	ND<2.2	30.5
3/16/2023	ND<2.2	30.5

---

The Wilcoxon Statistic is 400

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -0.00784063

The Standard Deviation adjusted for ties is 0

The Z Score adjusted for ties is -1.#INF

-0.00784063 < 2.326 indicating no statistical significance at 1% level

-1.#INF < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Silver, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 59

Non detect rank is 30

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	30
	3/19/2014	ND<5 U	30
	9/8/2014	ND<5 U	30
	3/17/2015	ND<5 U	30
	9/14/2015	ND<5 U	30
	3/17/2016	ND<5 U	30
	9/21/2016	ND<5 U	30
	3/24/2017	ND<5 U	30
	9/20/2017	ND<5 U	30
	3/27/2018	ND<5 U	30
	9/19/2018	ND<5 U	30
	3/11/2019	ND<5 U	30
	9/25/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
9/8/2021	ND<5 U	30	
3/15/2022	ND<2.2	30	
9/12/2022	ND<2.2	30	
3/13/2023	ND<2.2	30	
GWM-2	9/25/2013	ND<5	30
	3/18/2014	ND<5 U	30
	9/16/2014	ND<5 U	30
	3/18/2015	ND<5 U	30
	9/15/2015	ND<5 U	30
	3/16/2016	ND<5 U	30
	9/22/2016	ND<5 U	30
	3/24/2017	ND<5 U	30
	9/21/2017	ND<5 U	30
	3/28/2018	ND<5 U	30
	9/21/2018	ND<5 U	30
	3/12/2019	ND<5 U	30
	10/1/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
9/9/2021	ND<5 U	30	
3/15/2022	ND<2.2	30	
9/12/2022	ND<2.2	30	
3/13/2023	ND<2.2	30	
GWM-6	9/24/2013	ND<5	30
	3/21/2014	ND<5 U	30
	9/17/2014	ND<5 U	30

3/19/2015	ND<5 U	30
9/15/2015	ND<5 U	30
3/21/2016	ND<5 U	30
9/26/2016	ND<5 U	30
3/31/2017	ND<5 U	30
9/21/2017	ND<5 U	30
3/30/2018	2.2	60
9/26/2018	ND<5 U	30
3/13/2019	ND<5 U	30
10/3/2019	ND<5 U	30
4/3/2020	ND<5 U	30
9/30/2020	ND<5 U	30
3/22/2021	ND<5 U	30
9/16/2021	ND<5 U	30
3/24/2022	ND<2.2	30
9/16/2022	ND<2.2	30
3/17/2023	ND<2.2	30

---

The Wilcoxon Statistic is 420

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 0.305784

The Standard Deviation adjusted for ties is 14.1421

The Z Score adjusted for ties is 1.37886

0.305784 < 2.326 indicating no statistical significance at 1% level

1.37886 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Silver, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 60

Non detect rank is 30.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	30.5
	3/19/2014	ND<5 U	30.5
	9/8/2014	ND<5 U	30.5
	3/17/2015	ND<5 U	30.5
	9/14/2015	ND<5 U	30.5
	3/17/2016	ND<5 U	30.5
	9/21/2016	ND<5 U	30.5
	3/24/2017	ND<5 U	30.5
	9/20/2017	ND<5 U	30.5
	3/27/2018	ND<5 U	30.5
	9/19/2018	ND<5 U	30.5
	3/11/2019	ND<5 U	30.5
	9/25/2019	ND<5 U	30.5
	3/18/2020	ND<5 U	30.5
	9/23/2020	ND<5 U	30.5
3/17/2021	ND<5 U	30.5	
9/8/2021	ND<5 U	30.5	
3/15/2022	ND<2.2	30.5	
9/12/2022	ND<2.2	30.5	
3/13/2023	ND<2.2	30.5	
GWM-2	9/25/2013	ND<5	30.5
	3/18/2014	ND<5 U	30.5
	9/16/2014	ND<5 U	30.5
	3/18/2015	ND<5 U	30.5
	9/15/2015	ND<5 U	30.5
	3/16/2016	ND<5 U	30.5
	9/22/2016	ND<5 U	30.5
	3/24/2017	ND<5 U	30.5
	9/21/2017	ND<5 U	30.5
	3/28/2018	ND<5 U	30.5
	9/21/2018	ND<5 U	30.5
	3/12/2019	ND<5 U	30.5
	10/1/2019	ND<5 U	30.5
	3/18/2020	ND<5 U	30.5
	9/23/2020	ND<5 U	30.5
3/17/2021	ND<5 U	30.5	
9/9/2021	ND<5 U	30.5	
3/15/2022	ND<2.2	30.5	
9/12/2022	ND<2.2	30.5	
3/13/2023	ND<2.2	30.5	
GWM-3	9/25/2013	ND<5	30.5
	3/18/2014	ND<5 U	30.5
	9/16/2014	ND<5 U	30.5

3/18/2015	ND<5 U	30.5
9/15/2015	ND<5 U	30.5
3/16/2016	ND<5 U	30.5
9/22/2016	ND<5 U	30.5
3/29/2017	ND<5 U	30.5
9/21/2017	ND<5 U	30.5
3/28/2018	ND<5 U	30.5
9/20/2018	ND<5 U	30.5
3/12/2019	ND<5 U	30.5
10/1/2019	ND<5 U	30.5
3/18/2020	ND<5 U	30.5
9/24/2020	ND<5 U	30.5
3/17/2021	ND<5 U	30.5
9/9/2021	ND<5 U	30.5
3/15/2022	ND<2.2	30.5
9/16/2022	ND<2.2	30.5
3/15/2023	ND<2.2	30.5

---

The Wilcoxon Statistic is 400

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -0.00784063

The Standard Deviation adjusted for ties is 0

The Z Score adjusted for ties is -1.#INF

-0.00784063 < 2.326 indicating no statistical significance at 1% level

-1.#INF < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Silver, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 47

Non detect rank is 24

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	24
	3/19/2014	ND<5 U	24
	9/8/2014	ND<5 U	24
	3/17/2015	ND<5 U	24
	9/14/2015	ND<5 U	24
	3/17/2016	ND<5 U	24
	9/21/2016	ND<5 U	24
	3/24/2017	ND<5 U	24
	9/20/2017	ND<5 U	24
	3/27/2018	ND<5 U	24
	9/19/2018	ND<5 U	24
	3/11/2019	ND<5 U	24
	9/25/2019	ND<5 U	24
	3/18/2020	ND<5 U	24
	9/23/2020	ND<5 U	24
	3/17/2021	ND<5 U	24
9/8/2021	ND<5 U	24	
3/15/2022	ND<2.2	24	
9/12/2022	ND<2.2	24	
3/13/2023	ND<2.2	24	
GWM-2	9/25/2013	ND<5	24
	3/18/2014	ND<5 U	24
	9/16/2014	ND<5 U	24
	3/18/2015	ND<5 U	24
	9/15/2015	ND<5 U	24
	3/16/2016	ND<5 U	24
	9/22/2016	ND<5 U	24
	3/24/2017	ND<5 U	24
	9/21/2017	ND<5 U	24
	3/28/2018	ND<5 U	24
	9/21/2018	ND<5 U	24
	3/12/2019	ND<5 U	24
	10/1/2019	ND<5 U	24
	3/18/2020	ND<5 U	24
	9/23/2020	ND<5 U	24
	3/17/2021	ND<5 U	24
9/9/2021	ND<5 U	24	
3/15/2022	ND<2.2	24	
9/12/2022	ND<2.2	24	
3/13/2023	ND<2.2	24	
GWM-17S	11/14/2019	ND<5 U	24
	3/26/2020	ND<5 U	24
	9/29/2020	ND<5 U	24

3/16/2021	0.94 J	48
9/14/2021	ND<5 U	24
3/18/2022	ND<2.2	24
9/13/2022	ND<2.2	24
3/14/2023	ND<2.2	24

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The Wilcoxon Statistic is 180

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 0.539451

The Standard Deviation adjusted for ties is 8.94427

The Z Score adjusted for ties is 2.18017

0.539451 < 2.326 indicating no statistical significance at 1% level

2.18017 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Sodium, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	23410	3
	3/19/2014	60800	42
	9/8/2014	33800	5
	3/17/2015	154000	59
	9/14/2015	76500	52
	3/17/2016	59600	39
	9/21/2016	53300	31
	3/24/2017	45700	25
	9/20/2017	51800	29
	3/27/2018	80100	53
	9/19/2018	59400	38
	3/11/2019	47500	27
	9/25/2019	99000	56
	3/18/2020	88400	55
	9/23/2020	62800	44
	3/17/2021	58800	37
	9/8/2021	45000	24
3/15/2022	171000	60	
9/12/2022	139000	58	
3/13/2023	120000	57	
GWM-2	9/25/2013	15710	1
	3/18/2014	38600	18
	9/16/2014	37300	15
	3/18/2015	36800	13
	9/15/2015	36700	12
	3/16/2016	36500	11
	9/22/2016	34900	6
	3/24/2017	32800	4
	9/21/2017	35400	8
	3/28/2018	40400	22
	9/21/2018	40200	21
	3/12/2019	37300	16
	10/1/2019	38600	19
	3/18/2020	40900	23
	9/23/2020	34900	7
	3/17/2021	37200	14
	9/9/2021	36000	10
3/15/2022	39000	20	
9/12/2022	35700	9	
3/13/2023	38300	17	
GWM-4	9/18/2013	20440	2
	3/20/2014	47100	26
	9/9/2014	52700	30

3/16/2015	56200	33
9/9/2015	49600	28
3/18/2016	54800	32
9/20/2016	58100	36
3/23/2017	60300	40
9/18/2017	63500	46
3/15/2018	65600	48
9/17/2018	58000	35
3/5/2019	69000	50
9/24/2019	60500	41
3/16/2020	83000	54
9/22/2020	62900	45
3/16/2021	71400	51
9/14/2021	64000	47
3/22/2022	66600	49
9/13/2022	60800	43
3/14/2023	56900	34

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The Wilcoxon Statistic is 560

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 2.50116

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is 2.50116

**2.50116 > 2.326 indicating statistical significance at 1% level**

**2.50116 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Sodium, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	23410	2
	3/19/2014	60800	51
	9/8/2014	33800	19
	3/17/2015	154000	59
	9/14/2015	76500	53
	3/17/2016	59600	50
	9/21/2016	53300	47
	3/24/2017	45700	44
	9/20/2017	51800	46
	3/27/2018	80100	54
	9/19/2018	59400	49
	3/11/2019	47500	45
	9/25/2019	99000	56
	3/18/2020	88400	55
	9/23/2020	62800	52
	3/17/2021	58800	48
	9/8/2021	45000	43
3/15/2022	171000	60	
9/12/2022	139000	58	
3/13/2023	120000	57	
GWM-2	9/25/2013	15710	1
	3/18/2014	38600	35
	9/16/2014	37300	32
	3/18/2015	36800	29
	9/15/2015	36700	28
	3/16/2016	36500	27
	9/22/2016	34900	22
	3/24/2017	32800	17
	9/21/2017	35400	24
	3/28/2018	40400	40
	9/21/2018	40200	39
	3/12/2019	37300	33
	10/1/2019	38600	36
	3/18/2020	40900	41
	9/23/2020	34900	23
	3/17/2021	37200	31
	9/9/2021	36000	26
3/15/2022	39000	37	
9/12/2022	35700	25	
3/13/2023	38300	34	
GWM-5A	9/19/2013	244200	61
	12/5/2013	24110	3
	3/19/2014	25300	5

9/4/2014	27300	9
3/17/2015	28100	10
9/11/2015	34300	21
3/15/2016	30100	15
9/21/2016	28300	11
3/28/2017	26000	7
9/19/2017	25200	4
3/26/2018	28900	12
9/18/2018	37000	30
3/4/2019	41700	42
9/23/2019	39700	38
3/19/2020	32000	16
9/23/2020	34100	20
3/19/2021	33500	18
9/15/2021	29000	13
3/16/2022	25300	6
9/14/2022	29100	14
3/16/2023	27100	8

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The Wilcoxon Statistic is 132

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is -4.37926

The Standard Deviation adjusted for ties is 65.8787

The Z Score adjusted for ties is -4.37926

-4.37926 < 2.326 indicating no statistical significance at 1% level

-4.37926 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Sodium, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	23410	18
	3/19/2014	60800	51
	9/8/2014	33800	24
	3/17/2015	154000	59
	9/14/2015	76500	53
	3/17/2016	59600	50
	9/21/2016	53300	47
	3/24/2017	45700	44
	9/20/2017	51800	46
	3/27/2018	80100	54
	9/19/2018	59400	49
	3/11/2019	47500	45
	9/25/2019	99000	56
	3/18/2020	88400	55
	9/23/2020	62800	52
	3/17/2021	58800	48
	9/8/2021	45000	43
3/15/2022	171000	60	
9/12/2022	139000	58	
3/13/2023	120000	57	
GWM-2	9/25/2013	15710	3
	3/18/2014	38600	37
	9/16/2014	37300	34
	3/18/2015	36800	32
	9/15/2015	36700	31
	3/16/2016	36500	30
	9/22/2016	34900	25
	3/24/2017	32800	23
	9/21/2017	35400	27
	3/28/2018	40400	41
	9/21/2018	40200	40
	3/12/2019	37300	35
	10/1/2019	38600	38
	3/18/2020	40900	42
	9/23/2020	34900	26
	3/17/2021	37200	33
	9/9/2021	36000	29
3/15/2022	39000	39	
9/12/2022	35700	28	
3/13/2023	38300	36	
GWM-14	9/24/2013	16100	4
	3/21/2014	14300	1
	9/8/2014	17300	9

3/19/2015	16700	6
9/14/2015	18900	11
3/21/2016	15500	2
9/23/2016	17300	10
3/27/2017	17200	7
9/20/2017	22200	15
3/16/2018	22500	16
9/20/2018	20800	14
3/5/2019	20200	13
9/25/2019	16600	5
3/25/2020	19200	12
9/28/2020	22600	17
3/18/2021	17200 R	8
9/15/2021	25000	19
3/22/2022	28200	20
9/14/2022	28700	21
3/16/2023	29900	22

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The Wilcoxon Statistic is 22

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -5.93535

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is -5.93535

-5.93535 < 2.326 indicating no statistical significance at 1% level

-5.93535 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Sodium, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	23410	10
	3/19/2014	60800	51
	9/8/2014	33800	17
	3/17/2015	154000	59
	9/14/2015	76500	53
	3/17/2016	59600	50
	9/21/2016	53300	47
	3/24/2017	45700	44
	9/20/2017	51800	46
	3/27/2018	80100	54
	9/19/2018	59400	49
	3/11/2019	47500	45
	9/25/2019	99000	56
	3/18/2020	88400	55
	9/23/2020	62800	52
	3/17/2021	58800	48
	9/8/2021	45000	43
3/15/2022	171000	60	
9/12/2022	139000	58	
3/13/2023	120000	57	
GWM-2	9/25/2013	15710	1
	3/18/2014	38600	34
	9/16/2014	37300	30
	3/18/2015	36800	28
	9/15/2015	36700	27
	3/16/2016	36500	26
	9/22/2016	34900	20
	3/24/2017	32800	15
	9/21/2017	35400	23
	3/28/2018	40400	39
	9/21/2018	40200	38
	3/12/2019	37300	31
	10/1/2019	38600	35
	3/18/2020	40900	41
	9/23/2020	34900	21
	3/17/2021	37200	29
	9/9/2021	36000	25
3/15/2022	39000	36	
9/12/2022	35700	24	
3/13/2023	38300	33	
GWM-6	9/24/2013	17740	6
	3/21/2014	16800	3
	9/17/2014	16700	2

3/19/2015	17500	5
9/15/2015	18300	7
3/21/2016	19100	9
9/26/2016	16800	4
3/31/2017	18300	8
9/21/2017	24000	11
3/30/2018	30700	14
9/26/2018	34000	18
3/13/2019	34300	19
10/3/2019	33400	16
4/3/2020	28100	12
9/30/2020	29000	13
3/22/2021	37900	32
9/16/2021	35000	22
3/24/2022	41900	42
9/16/2022	40000	37
3/17/2023	40600	40

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The Wilcoxon Statistic is 110

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -4.5554

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is -4.5554

-4.5554 < 2.326 indicating no statistical significance at 1% level

-4.5554 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Sodium, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	23410	6
	3/19/2014	60800	50
	9/8/2014	33800	21
	3/17/2015	154000	58
	9/14/2015	76500	52
	3/17/2016	59600	49
	9/21/2016	53300	46
	3/24/2017	45700	43
	9/20/2017	51800	45
	3/27/2018	80100	53
	9/19/2018	59400	48
	3/11/2019	47500	44
	9/25/2019	99000	55
	3/18/2020	88400	54
	9/23/2020	62800	51
	3/17/2021	58800	47
	9/8/2021	45000	42
3/15/2022	171000	59	
9/12/2022	139000	57	
3/13/2023	120000	56	
GWM-2	9/25/2013	15710	1
	3/18/2014	38600	36
	9/16/2014	37300	33
	3/18/2015	36800	31
	9/15/2015	36700	30
	3/16/2016	36500	29
	9/22/2016	34900	23
	3/24/2017	32800	18
	9/21/2017	35400	26
	3/28/2018	40400	40
	9/21/2018	40200	39
	3/12/2019	37300	34
	10/1/2019	38600	37
	3/18/2020	40900	41
	9/23/2020	34900	24
	3/17/2021	37200	32
	9/9/2021	36000	28
3/15/2022	39000	38	
9/12/2022	35700	27	
3/13/2023	38300	35	
GWM-3	9/25/2013	22520	5
	3/18/2014	25200	8
	9/16/2014	24200	7

3/18/2015	21200	4
9/15/2015	27100	9
3/16/2016	31100	15
9/22/2016	33400	20
3/29/2017	31100	16
9/21/2017	27500	10
3/28/2018	30800	14
9/20/2018	29100	12
3/12/2019	29700	13
10/1/2019	34600	22
3/18/2020	35000	25
9/24/2020	28400	11
3/17/2021	706000 R	60
9/9/2021	33000	19
3/15/2022	31100	17
9/16/2022	20800	3
3/15/2023	19100	2

---

The Wilcoxon Statistic is 82

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -4.99448

The Standard Deviation adjusted for ties is 63.7704

The Z Score adjusted for ties is -4.99448

-4.99448 < 2.326 indicating no statistical significance at 1% level

-4.99448 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Sodium, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	23410	2
	3/19/2014	60800	39
	9/8/2014	33800	4
	3/17/2015	154000	47
	9/14/2015	76500	41
	3/17/2016	59600	38
	9/21/2016	53300	35
	3/24/2017	45700	29
	9/20/2017	51800	34
	3/27/2018	80100	42
	9/19/2018	59400	37
	3/11/2019	47500	32
	9/25/2019	99000	44
	3/18/2020	88400	43
	9/23/2020	62800	40
	3/17/2021	58800	36
	9/8/2021	45000	26
3/15/2022	171000	48	
9/12/2022	139000	46	
3/13/2023	120000	45	
GWM-2	9/25/2013	15710	1
	3/18/2014	38600	17
	9/16/2014	37300	14
	3/18/2015	36800	12
	9/15/2015	36700	11
	3/16/2016	36500	10
	9/22/2016	34900	5
	3/24/2017	32800	3
	9/21/2017	35400	7
	3/28/2018	40400	22
	9/21/2018	40200	21
	3/12/2019	37300	15
	10/1/2019	38600	18
	3/18/2020	40900	24
	9/23/2020	34900	6
	3/17/2021	37200	13
	9/9/2021	36000	9
3/15/2022	39000	19	
9/12/2022	35700	8	
3/13/2023	38300	16	
GWM-17S	11/14/2019	40500	23
	3/26/2020	39500	20
	9/29/2020	44000	25

3/16/2021	45400	28
9/14/2021	47000	31
3/18/2022	45100	27
9/13/2022	45900	30
3/14/2023	49100	33

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The Wilcoxon Statistic is 181

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 0.567115

The Standard Deviation adjusted for ties is 36.1478

The Z Score adjusted for ties is 0.567115

0.567115 < 2.326 indicating no statistical significance at 1% level

0.567115 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Thallium, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 59

Non detect rank is 30

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	30
	3/19/2014	ND<5 U	30
	9/8/2014	ND<5 U	30
	3/17/2015	ND<5 U	30
	9/14/2015	ND<5 U	30
	3/17/2016	ND<5 U	30
	9/21/2016	ND<5 U	30
	3/24/2017	ND<5 U	30
	9/20/2017	ND<5 U	30
	3/27/2018	ND<5 U	30
	9/19/2018	ND<5 U	30
	3/11/2019	ND<5 U	30
	9/25/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
	9/8/2021	ND<5 U	30
3/15/2022	ND<1.1	30	
9/12/2022	ND<1.1	30	
3/13/2023	ND<1.1	30	
GWM-2	9/25/2013	ND<5	30
	3/18/2014	ND<5 U	30
	9/16/2014	ND<5 U	30
	3/18/2015	ND<5 U	30
	9/15/2015	ND<5 U	30
	3/16/2016	ND<5 U	30
	9/22/2016	ND<5 U	30
	3/24/2017	ND<5 U	30
	9/21/2017	ND<5 U	30
	3/28/2018	ND<5 U	30
	9/21/2018	ND<5 U	30
	3/12/2019	ND<5 U	30
	10/1/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
	9/9/2021	0.2 J	60
3/15/2022	ND<1.1	30	
9/12/2022	ND<1.1	30	
3/13/2023	ND<1.1	30	
GWM-4	9/18/2013	ND<5	30
	3/20/2014	ND<5 U	30
	9/9/2014	ND<5 U	30

3/16/2015	ND<5 U	30
9/9/2015	ND<5 U	30
3/18/2016	ND<5 U	30
9/20/2016	ND<5 U	30
3/23/2017	ND<5 U	30
9/18/2017	ND<5 U	30
3/15/2018	ND<5 U	30
9/17/2018	ND<5 U	30
3/5/2019	ND<5 U	30
9/24/2019	ND<5 U	30
3/16/2020	ND<5 U	30
9/22/2020	ND<5 U	30
3/16/2021	ND<5 U	30
9/14/2021	ND<5 U	30
3/22/2022	ND<1.1	30
9/13/2022	ND<1.1	30
3/14/2023	ND<1.1	30

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The Wilcoxon Statistic is 390

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -0.164653

The Standard Deviation adjusted for ties is 14.1421

The Z Score adjusted for ties is -0.742462

-0.164653 < 2.326 indicating no statistical significance at 1% level

-0.742462 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Thallium, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 60

Non detect rank is 30.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	30.5
	3/19/2014	ND<5 U	30.5
	9/8/2014	ND<5 U	30.5
	3/17/2015	ND<5 U	30.5
	9/14/2015	ND<5 U	30.5
	3/17/2016	ND<5 U	30.5
	9/21/2016	ND<5 U	30.5
	3/24/2017	ND<5 U	30.5
	9/20/2017	ND<5 U	30.5
	3/27/2018	ND<5 U	30.5
	9/19/2018	ND<5 U	30.5
	3/11/2019	ND<5 U	30.5
	9/25/2019	ND<5 U	30.5
	3/18/2020	ND<5 U	30.5
	9/23/2020	ND<5 U	30.5
	3/17/2021	ND<5 U	30.5
9/8/2021	ND<5 U	30.5	
3/15/2022	ND<1.1	30.5	
9/12/2022	ND<1.1	30.5	
3/13/2023	ND<1.1	30.5	
GWM-2	9/25/2013	ND<5	30.5
	3/18/2014	ND<5 U	30.5
	9/16/2014	ND<5 U	30.5
	3/18/2015	ND<5 U	30.5
	9/15/2015	ND<5 U	30.5
	3/16/2016	ND<5 U	30.5
	9/22/2016	ND<5 U	30.5
	3/24/2017	ND<5 U	30.5
	9/21/2017	ND<5 U	30.5
	3/28/2018	ND<5 U	30.5
	9/21/2018	ND<5 U	30.5
	3/12/2019	ND<5 U	30.5
	10/1/2019	ND<5 U	30.5
	3/18/2020	ND<5 U	30.5
	9/23/2020	ND<5 U	30.5
	3/17/2021	ND<5 U	30.5
9/9/2021	0.2 J	61	
3/15/2022	ND<1.1	30.5	
9/12/2022	ND<1.1	30.5	
3/13/2023	ND<1.1	30.5	
GWM-5A	9/19/2013	ND<5	30.5
	12/5/2013	ND<5	30.5
	3/19/2014	ND<5 U	30.5

9/4/2014	ND<5 U	30.5
3/17/2015	ND<5 U	30.5
9/11/2015	ND<5 U	30.5
3/15/2016	ND<5 U	30.5
9/21/2016	ND<5 U	30.5
3/28/2017	ND<5 U	30.5
9/19/2017	ND<5 U	30.5
3/26/2018	ND<5 U	30.5
9/18/2018	ND<5 U	30.5
3/4/2019	ND<5 U	30.5
9/23/2019	ND<5 U	30.5
3/19/2020	ND<5 U	30.5
9/23/2020	ND<5 U	30.5
3/19/2021	ND<5 U	30.5
9/15/2021	ND<5 U	30.5
3/16/2022	ND<1.1	30.5
9/14/2022	ND<1.1	30.5
3/16/2023	ND<1.1	30.5

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The Wilcoxon Statistic is 409.5

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is -0.166974

The Standard Deviation adjusted for ties is 14.4914

The Z Score adjusted for ties is -0.759072

-0.166974 < 2.326 indicating no statistical significance at 1% level

-0.759072 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Thallium, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 59

Non detect rank is 30

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	30
	3/19/2014	ND<5 U	30
	9/8/2014	ND<5 U	30
	3/17/2015	ND<5 U	30
	9/14/2015	ND<5 U	30
	3/17/2016	ND<5 U	30
	9/21/2016	ND<5 U	30
	3/24/2017	ND<5 U	30
	9/20/2017	ND<5 U	30
	3/27/2018	ND<5 U	30
	9/19/2018	ND<5 U	30
	3/11/2019	ND<5 U	30
	9/25/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
	9/8/2021	ND<5 U	30
3/15/2022	ND<1.1	30	
9/12/2022	ND<1.1	30	
3/13/2023	ND<1.1	30	
GWM-2	9/25/2013	ND<5	30
	3/18/2014	ND<5 U	30
	9/16/2014	ND<5 U	30
	3/18/2015	ND<5 U	30
	9/15/2015	ND<5 U	30
	3/16/2016	ND<5 U	30
	9/22/2016	ND<5 U	30
	3/24/2017	ND<5 U	30
	9/21/2017	ND<5 U	30
	3/28/2018	ND<5 U	30
	9/21/2018	ND<5 U	30
	3/12/2019	ND<5 U	30
	10/1/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
	9/9/2021	0.2 J	60
3/15/2022	ND<1.1	30	
9/12/2022	ND<1.1	30	
3/13/2023	ND<1.1	30	
GWM-14	9/24/2013	ND<5	30
	3/21/2014	ND<5 U	30
	9/8/2014	ND<5 U	30

3/19/2015	ND<5 U	30
9/14/2015	ND<5 U	30
3/21/2016	ND<5 U	30
9/23/2016	ND<5 U	30
3/27/2017	ND<5 U	30
9/20/2017	ND<5 U	30
3/16/2018	ND<5 U	30
9/20/2018	ND<5 U	30
3/5/2019	ND<5 U	30
9/25/2019	ND<5 U	30
3/25/2020	ND<5 U	30
9/28/2020	ND<5 U	30
3/18/2021	ND<5 U	30
9/15/2021	ND<5 U	30
3/22/2022	ND<1.1	30
9/14/2022	ND<1.1	30
3/16/2023	ND<1.1	30

---

The Wilcoxon Statistic is 390

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -0.164653

The Standard Deviation adjusted for ties is 14.1421

The Z Score adjusted for ties is -0.742462

-0.164653 < 2.326 indicating no statistical significance at 1% level

-0.742462 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Thallium, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 58

Non detect rank is 29.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	29.5
	3/19/2014	ND<5 U	29.5
	9/8/2014	ND<5 U	29.5
	3/17/2015	ND<5 U	29.5
	9/14/2015	ND<5 U	29.5
	3/17/2016	ND<5 U	29.5
	9/21/2016	ND<5 U	29.5
	3/24/2017	ND<5 U	29.5
	9/20/2017	ND<5 U	29.5
	3/27/2018	ND<5 U	29.5
	9/19/2018	ND<5 U	29.5
	3/11/2019	ND<5 U	29.5
	9/25/2019	ND<5 U	29.5
	3/18/2020	ND<5 U	29.5
	9/23/2020	ND<5 U	29.5
	3/17/2021	ND<5 U	29.5
9/8/2021	ND<5 U	29.5	
3/15/2022	ND<1.1	29.5	
9/12/2022	ND<1.1	29.5	
3/13/2023	ND<1.1	29.5	
GWM-2	9/25/2013	ND<5	29.5
	3/18/2014	ND<5 U	29.5
	9/16/2014	ND<5 U	29.5
	3/18/2015	ND<5 U	29.5
	9/15/2015	ND<5 U	29.5
	3/16/2016	ND<5 U	29.5
	9/22/2016	ND<5 U	29.5
	3/24/2017	ND<5 U	29.5
	9/21/2017	ND<5 U	29.5
	3/28/2018	ND<5 U	29.5
	9/21/2018	ND<5 U	29.5
	3/12/2019	ND<5 U	29.5
	10/1/2019	ND<5 U	29.5
	3/18/2020	ND<5 U	29.5
	9/23/2020	ND<5 U	29.5
	3/17/2021	ND<5 U	29.5
9/9/2021	0.2 J	59	
3/15/2022	ND<1.1	29.5	
9/12/2022	ND<1.1	29.5	
3/13/2023	ND<1.1	29.5	
GWM-6	9/24/2013	ND<5	29.5
	3/21/2014	ND<5 U	29.5
	9/17/2014	ND<5 U	29.5

3/19/2015	ND<5 U	29.5
9/15/2015	ND<5 U	29.5
3/21/2016	ND<5 U	29.5
9/26/2016	ND<5 U	29.5
3/31/2017	ND<5 U	29.5
9/21/2017	ND<5 U	29.5
3/30/2018	1.1	60
9/26/2018	ND<5 U	29.5
3/13/2019	ND<5 U	29.5
10/3/2019	ND<5 U	29.5
4/3/2020	ND<5 U	29.5
9/30/2020	ND<5 U	29.5
3/22/2021	ND<5 U	29.5
9/16/2021	ND<5 U	29.5
3/24/2022	ND<1.1	29.5
9/16/2022	ND<1.1	29.5
3/17/2023	ND<1.1	29.5

---

The Wilcoxon Statistic is 410.5

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 0.156813

The Standard Deviation adjusted for ties is 19.8326

The Z Score adjusted for ties is 0.504219

0.156813 < 2.326 indicating no statistical significance at 1% level

0.504219 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Thallium, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 59

Non detect rank is 30

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	30
	3/19/2014	ND<5 U	30
	9/8/2014	ND<5 U	30
	3/17/2015	ND<5 U	30
	9/14/2015	ND<5 U	30
	3/17/2016	ND<5 U	30
	9/21/2016	ND<5 U	30
	3/24/2017	ND<5 U	30
	9/20/2017	ND<5 U	30
	3/27/2018	ND<5 U	30
	9/19/2018	ND<5 U	30
	3/11/2019	ND<5 U	30
	9/25/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
	9/8/2021	ND<5 U	30
3/15/2022	ND<1.1	30	
9/12/2022	ND<1.1	30	
3/13/2023	ND<1.1	30	
GWM-2	9/25/2013	ND<5	30
	3/18/2014	ND<5 U	30
	9/16/2014	ND<5 U	30
	3/18/2015	ND<5 U	30
	9/15/2015	ND<5 U	30
	3/16/2016	ND<5 U	30
	9/22/2016	ND<5 U	30
	3/24/2017	ND<5 U	30
	9/21/2017	ND<5 U	30
	3/28/2018	ND<5 U	30
	9/21/2018	ND<5 U	30
	3/12/2019	ND<5 U	30
	10/1/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
	9/9/2021	0.2 J	60
3/15/2022	ND<1.1	30	
9/12/2022	ND<1.1	30	
3/13/2023	ND<1.1	30	
GWM-3	9/25/2013	ND<5	30
	3/18/2014	ND<5 U	30
	9/16/2014	ND<5 U	30

3/18/2015	ND<5 U	30
9/15/2015	ND<5 U	30
3/16/2016	ND<5 U	30
9/22/2016	ND<5 U	30
3/29/2017	ND<5 U	30
9/21/2017	ND<5 U	30
3/28/2018	ND<5 U	30
9/20/2018	ND<5 U	30
3/12/2019	ND<5 U	30
10/1/2019	ND<5 U	30
3/18/2020	ND<5 U	30
9/24/2020	ND<5 U	30
3/17/2021	ND<5 U	30
9/9/2021	ND<5 U	30
3/15/2022	ND<1.1	30
9/16/2022	ND<1.1	30
3/15/2023	ND<1.1	30

---

The Wilcoxon Statistic is 390

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -0.164653

The Standard Deviation adjusted for ties is 14.1421

The Z Score adjusted for ties is -0.742462

-0.164653 < 2.326 indicating no statistical significance at 1% level

-0.742462 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Thallium, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 45

Non detect rank is 23

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	23
	3/19/2014	ND<5 U	23
	9/8/2014	ND<5 U	23
	3/17/2015	ND<5 U	23
	9/14/2015	ND<5 U	23
	3/17/2016	ND<5 U	23
	9/21/2016	ND<5 U	23
	3/24/2017	ND<5 U	23
	9/20/2017	ND<5 U	23
	3/27/2018	ND<5 U	23
	9/19/2018	ND<5 U	23
	3/11/2019	ND<5 U	23
	9/25/2019	ND<5 U	23
	3/18/2020	ND<5 U	23
	9/23/2020	ND<5 U	23
	3/17/2021	ND<5 U	23
	9/8/2021	ND<5 U	23
3/15/2022	ND<1.1	23	
9/12/2022	ND<1.1	23	
3/13/2023	ND<1.1	23	
GWM-2	9/25/2013	ND<5	23
	3/18/2014	ND<5 U	23
	9/16/2014	ND<5 U	23
	3/18/2015	ND<5 U	23
	9/15/2015	ND<5 U	23
	3/16/2016	ND<5 U	23
	9/22/2016	ND<5 U	23
	3/24/2017	ND<5 U	23
	9/21/2017	ND<5 U	23
	3/28/2018	ND<5 U	23
	9/21/2018	ND<5 U	23
	3/12/2019	ND<5 U	23
	10/1/2019	ND<5 U	23
	3/18/2020	ND<5 U	23
	9/23/2020	ND<5 U	23
	3/17/2021	ND<5 U	23
	9/9/2021	0.2 J	46
3/15/2022	ND<1.1	23	
9/12/2022	ND<1.1	23	
3/13/2023	ND<1.1	23	
GWM-17S	11/14/2019	ND<5 U	23
	3/26/2020	ND<5 U	23
	9/29/2020	ND<5 U	23

3/16/2021	ND<5 U	23
9/14/2021	0.24 J	47
3/18/2022	ND<1.1	23
9/13/2022	ND<1.1	23
3/14/2023	0.46 J	48

---

The Wilcoxon Statistic is 197

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 1.00974

The Standard Deviation adjusted for ties is 15.1681

The Z Score adjusted for ties is 2.40637

1.00974 < 2.326 indicating no statistical significance at 1% level

**2.40637 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Vanadium, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 59

Non detect rank is 30

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	30
	3/19/2014	ND<5 U	30
	9/8/2014	ND<5 U	30
	3/17/2015	ND<5 U	30
	9/14/2015	ND<5 U	30
	3/17/2016	ND<5 U	30
	9/21/2016	ND<5 U	30
	3/24/2017	ND<5 U	30
	9/20/2017	ND<5 U	30
	3/27/2018	ND<5 U	30
	9/19/2018	ND<5 U	30
	3/11/2019	ND<5 U	30
	9/25/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
	9/8/2021	ND<5 U	30
3/15/2022	ND<2.2	30	
9/12/2022	ND<2.2	30	
3/13/2023	ND<2.2	30	
GWM-2	9/25/2013	ND<5	30
	3/18/2014	ND<5 U	30
	9/16/2014	ND<5 U	30
	3/18/2015	ND<5 U	30
	9/15/2015	ND<5 U	30
	3/16/2016	ND<5 U	30
	9/22/2016	ND<5 U	30
	3/24/2017	ND<5 U	30
	9/21/2017	ND<5 U	30
	3/28/2018	ND<5 U	30
	9/21/2018	ND<5 U	30
	3/12/2019	ND<5 U	30
	10/1/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
	9/9/2021	ND<5 U	30
3/15/2022	ND<2.2	30	
9/12/2022	ND<2.2	30	
3/13/2023	ND<2.2	30	
GWM-4	9/18/2013	ND<5	30
	3/20/2014	ND<5 U	30
	9/9/2014	ND<5 U	30

3/16/2015	ND<5 U	30
9/9/2015	ND<5 U	30
3/18/2016	ND<5 U	30
9/20/2016	ND<5 U	30
3/23/2017	ND<5 U	30
9/18/2017	ND<5 U	30
3/15/2018	2.2	60
9/17/2018	ND<5 U	30
3/5/2019	ND<5 U	30
9/24/2019	ND<5 U	30
3/16/2020	ND<5 U	30
9/22/2020	ND<5 U	30
3/16/2021	ND<5 U	30
9/14/2021	ND<5 U	30
3/22/2022	ND<2.2	30
9/13/2022	ND<2.2	30
3/14/2023	ND<2.2	30

---

The Wilcoxon Statistic is 420

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 0.305784

The Standard Deviation adjusted for ties is 14.1421

The Z Score adjusted for ties is 1.37886

0.305784 < 2.326 indicating no statistical significance at 1% level

1.37886 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Vanadium, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 61

Non detect rank is 31

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	31
	3/19/2014	ND<5 U	31
	9/8/2014	ND<5 U	31
	3/17/2015	ND<5 U	31
	9/14/2015	ND<5 U	31
	3/17/2016	ND<5 U	31
	9/21/2016	ND<5 U	31
	3/24/2017	ND<5 U	31
	9/20/2017	ND<5 U	31
	3/27/2018	ND<5 U	31
	9/19/2018	ND<5 U	31
	3/11/2019	ND<5 U	31
	9/25/2019	ND<5 U	31
	3/18/2020	ND<5 U	31
	9/23/2020	ND<5 U	31
	3/17/2021	ND<5 U	31
	9/8/2021	ND<5 U	31
3/15/2022	ND<2.2	31	
9/12/2022	ND<2.2	31	
3/13/2023	ND<2.2	31	
GWM-2	9/25/2013	ND<5	31
	3/18/2014	ND<5 U	31
	9/16/2014	ND<5 U	31
	3/18/2015	ND<5 U	31
	9/15/2015	ND<5 U	31
	3/16/2016	ND<5 U	31
	9/22/2016	ND<5 U	31
	3/24/2017	ND<5 U	31
	9/21/2017	ND<5 U	31
	3/28/2018	ND<5 U	31
	9/21/2018	ND<5 U	31
	3/12/2019	ND<5 U	31
	10/1/2019	ND<5 U	31
	3/18/2020	ND<5 U	31
	9/23/2020	ND<5 U	31
	3/17/2021	ND<5 U	31
	9/9/2021	ND<5 U	31
3/15/2022	ND<2.2	31	
9/12/2022	ND<2.2	31	
3/13/2023	ND<2.2	31	
GWM-5A	9/19/2013	ND<5	31
	12/5/2013	ND<5	31
	3/19/2014	ND<5 U	31

9/4/2014	ND<5 U	31
3/17/2015	ND<5 U	31
9/11/2015	ND<5 U	31
3/15/2016	ND<5 U	31
9/21/2016	ND<5 U	31
3/28/2017	ND<5 U	31
9/19/2017	ND<5 U	31
3/26/2018	ND<5 U	31
9/18/2018	ND<5 U	31
3/4/2019	ND<5 U	31
9/23/2019	ND<5 U	31
3/19/2020	ND<5 U	31
9/23/2020	ND<5 U	31
3/19/2021	ND<5 U	31
9/15/2021	ND<5 U	31
3/16/2022	ND<2.2	31
9/14/2022	ND<2.2	31
3/16/2023	ND<2.2	31

---

The Wilcoxon Statistic is 420

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is -0.00758971

The Standard Deviation adjusted for ties is 0

The Z Score adjusted for ties is -1.#INF

-0.00758971 < 2.326 indicating no statistical significance at 1% level

-1.#INF < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Vanadium, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 59

Non detect rank is 30

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	30
	3/19/2014	ND<5 U	30
	9/8/2014	ND<5 U	30
	3/17/2015	ND<5 U	30
	9/14/2015	ND<5 U	30
	3/17/2016	ND<5 U	30
	9/21/2016	ND<5 U	30
	3/24/2017	ND<5 U	30
	9/20/2017	ND<5 U	30
	3/27/2018	ND<5 U	30
	9/19/2018	ND<5 U	30
	3/11/2019	ND<5 U	30
	9/25/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
9/8/2021	ND<5 U	30	
3/15/2022	ND<2.2	30	
9/12/2022	ND<2.2	30	
3/13/2023	ND<2.2	30	
GWM-2	9/25/2013	ND<5	30
	3/18/2014	ND<5 U	30
	9/16/2014	ND<5 U	30
	3/18/2015	ND<5 U	30
	9/15/2015	ND<5 U	30
	3/16/2016	ND<5 U	30
	9/22/2016	ND<5 U	30
	3/24/2017	ND<5 U	30
	9/21/2017	ND<5 U	30
	3/28/2018	ND<5 U	30
	9/21/2018	ND<5 U	30
	3/12/2019	ND<5 U	30
	10/1/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
9/9/2021	ND<5 U	30	
3/15/2022	ND<2.2	30	
9/12/2022	ND<2.2	30	
3/13/2023	ND<2.2	30	
GWM-14	9/24/2013	ND<5	30
	3/21/2014	ND<5 U	30
	9/8/2014	ND<5 U	30

3/19/2015	ND<5 U	30
9/14/2015	ND<5 U	30
3/21/2016	ND<5 U	30
9/23/2016	ND<5 U	30
3/27/2017	ND<5 U	30
9/20/2017	ND<5 U	30
3/16/2018	ND<5 U	30
9/20/2018	ND<5 U	30
3/5/2019	ND<5 U	30
9/25/2019	3.9	60
3/25/2020	ND<5 U	30
9/28/2020	ND<5 U	30
3/18/2021	ND<5 U	30
9/15/2021	ND<5 U	30
3/22/2022	ND<2.2	30
9/14/2022	ND<2.2	30
3/16/2023	ND<2.2	30

---

The Wilcoxon Statistic is 420

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 0.305784

The Standard Deviation adjusted for ties is 14.1421

The Z Score adjusted for ties is 1.37886

0.305784 < 2.326 indicating no statistical significance at 1% level

1.37886 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Vanadium, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 59

Non detect rank is 30

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	30
	3/19/2014	ND<5 U	30
	9/8/2014	ND<5 U	30
	3/17/2015	ND<5 U	30
	9/14/2015	ND<5 U	30
	3/17/2016	ND<5 U	30
	9/21/2016	ND<5 U	30
	3/24/2017	ND<5 U	30
	9/20/2017	ND<5 U	30
	3/27/2018	ND<5 U	30
	9/19/2018	ND<5 U	30
	3/11/2019	ND<5 U	30
	9/25/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
9/8/2021	ND<5 U	30	
3/15/2022	ND<2.2	30	
9/12/2022	ND<2.2	30	
3/13/2023	ND<2.2	30	
GWM-2	9/25/2013	ND<5	30
	3/18/2014	ND<5 U	30
	9/16/2014	ND<5 U	30
	3/18/2015	ND<5 U	30
	9/15/2015	ND<5 U	30
	3/16/2016	ND<5 U	30
	9/22/2016	ND<5 U	30
	3/24/2017	ND<5 U	30
	9/21/2017	ND<5 U	30
	3/28/2018	ND<5 U	30
	9/21/2018	ND<5 U	30
	3/12/2019	ND<5 U	30
	10/1/2019	ND<5 U	30
	3/18/2020	ND<5 U	30
	9/23/2020	ND<5 U	30
	3/17/2021	ND<5 U	30
9/9/2021	ND<5 U	30	
3/15/2022	ND<2.2	30	
9/12/2022	ND<2.2	30	
3/13/2023	ND<2.2	30	
GWM-6	9/24/2013	ND<5	30
	3/21/2014	ND<5 U	30
	9/17/2014	ND<5 U	30

3/19/2015	ND<5 U	30
9/15/2015	ND<5 U	30
3/21/2016	ND<5 U	30
9/26/2016	ND<5 U	30
3/31/2017	ND<5 U	30
9/21/2017	ND<5 U	30
3/30/2018	2.2	60
9/26/2018	ND<5 U	30
3/13/2019	ND<5 U	30
10/3/2019	ND<5 U	30
4/3/2020	ND<5 U	30
9/30/2020	ND<5 U	30
3/22/2021	ND<5 U	30
9/16/2021	ND<5 U	30
3/24/2022	ND<2.2	30
9/16/2022	ND<2.2	30
3/17/2023	ND<2.2	30

---

The Wilcoxon Statistic is 420

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is 0.305784

The Standard Deviation adjusted for ties is 14.1421

The Z Score adjusted for ties is 1.37886

0.305784 < 2.326 indicating no statistical significance at 1% level

1.37886 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Vanadium, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 60

Non detect rank is 30.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	30.5
	3/19/2014	ND<5 U	30.5
	9/8/2014	ND<5 U	30.5
	3/17/2015	ND<5 U	30.5
	9/14/2015	ND<5 U	30.5
	3/17/2016	ND<5 U	30.5
	9/21/2016	ND<5 U	30.5
	3/24/2017	ND<5 U	30.5
	9/20/2017	ND<5 U	30.5
	3/27/2018	ND<5 U	30.5
	9/19/2018	ND<5 U	30.5
	3/11/2019	ND<5 U	30.5
	9/25/2019	ND<5 U	30.5
	3/18/2020	ND<5 U	30.5
	9/23/2020	ND<5 U	30.5
	3/17/2021	ND<5 U	30.5
9/8/2021	ND<5 U	30.5	
3/15/2022	ND<2.2	30.5	
9/12/2022	ND<2.2	30.5	
3/13/2023	ND<2.2	30.5	
GWM-2	9/25/2013	ND<5	30.5
	3/18/2014	ND<5 U	30.5
	9/16/2014	ND<5 U	30.5
	3/18/2015	ND<5 U	30.5
	9/15/2015	ND<5 U	30.5
	3/16/2016	ND<5 U	30.5
	9/22/2016	ND<5 U	30.5
	3/24/2017	ND<5 U	30.5
	9/21/2017	ND<5 U	30.5
	3/28/2018	ND<5 U	30.5
	9/21/2018	ND<5 U	30.5
	3/12/2019	ND<5 U	30.5
	10/1/2019	ND<5 U	30.5
	3/18/2020	ND<5 U	30.5
	9/23/2020	ND<5 U	30.5
	3/17/2021	ND<5 U	30.5
9/9/2021	ND<5 U	30.5	
3/15/2022	ND<2.2	30.5	
9/12/2022	ND<2.2	30.5	
3/13/2023	ND<2.2	30.5	
GWM-3	9/25/2013	ND<5	30.5
	3/18/2014	ND<5 U	30.5
	9/16/2014	ND<5 U	30.5

3/18/2015	ND<5 U	30.5
9/15/2015	ND<5 U	30.5
3/16/2016	ND<5 U	30.5
9/22/2016	ND<5 U	30.5
3/29/2017	ND<5 U	30.5
9/21/2017	ND<5 U	30.5
3/28/2018	ND<5 U	30.5
9/20/2018	ND<5 U	30.5
3/12/2019	ND<5 U	30.5
10/1/2019	ND<5 U	30.5
3/18/2020	ND<5 U	30.5
9/24/2020	ND<5 U	30.5
3/17/2021	ND<5 U	30.5
9/9/2021	ND<5 U	30.5
3/15/2022	ND<2.2	30.5
9/16/2022	ND<2.2	30.5
3/15/2023	ND<2.2	30.5

---

The Wilcoxon Statistic is 400

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -0.00784063

The Standard Deviation adjusted for ties is 0

The Z Score adjusted for ties is -1.#INF

-0.00784063 < 2.326 indicating no statistical significance at 1% level

-1.#INF < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Vanadium, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 46

Non detect rank is 23.5

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### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<5	23.5
	3/19/2014	ND<5 U	23.5
	9/8/2014	ND<5 U	23.5
	3/17/2015	ND<5 U	23.5
	9/14/2015	ND<5 U	23.5
	3/17/2016	ND<5 U	23.5
	9/21/2016	ND<5 U	23.5
	3/24/2017	ND<5 U	23.5
	9/20/2017	ND<5 U	23.5
	3/27/2018	ND<5 U	23.5
	9/19/2018	ND<5 U	23.5
	3/11/2019	ND<5 U	23.5
	9/25/2019	ND<5 U	23.5
	3/18/2020	ND<5 U	23.5
	9/23/2020	ND<5 U	23.5
	3/17/2021	ND<5 U	23.5
	9/8/2021	ND<5 U	23.5
3/15/2022	ND<2.2	23.5	
9/12/2022	ND<2.2	23.5	
3/13/2023	ND<2.2	23.5	
GWM-2	9/25/2013	ND<5	23.5
	3/18/2014	ND<5 U	23.5
	9/16/2014	ND<5 U	23.5
	3/18/2015	ND<5 U	23.5
	9/15/2015	ND<5 U	23.5
	3/16/2016	ND<5 U	23.5
	9/22/2016	ND<5 U	23.5
	3/24/2017	ND<5 U	23.5
	9/21/2017	ND<5 U	23.5
	3/28/2018	ND<5 U	23.5
	9/21/2018	ND<5 U	23.5
	3/12/2019	ND<5 U	23.5
	10/1/2019	ND<5 U	23.5
	3/18/2020	ND<5 U	23.5
	9/23/2020	ND<5 U	23.5
	3/17/2021	ND<5 U	23.5
	9/9/2021	ND<5 U	23.5
3/15/2022	ND<2.2	23.5	
9/12/2022	ND<2.2	23.5	
3/13/2023	ND<2.2	23.5	
GWM-17S	11/14/2019	0.86 J	48
	3/26/2020	ND<5 U	23.5
	9/29/2020	ND<5 U	23.5

3/16/2021	ND<5 U	23.5
9/14/2021	ND<5 U	23.5
3/18/2022	ND<2.2	23.5
9/13/2022	ND<2.2	23.5
3/14/2023	0.78 J	47

---

The Wilcoxon Statistic is 200

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is 1.09273

The Standard Deviation adjusted for ties is 12.5167

The Z Score adjusted for ties is 3.1558

1.09273 < 2.326 indicating no statistical significance at 1% level

**3.1558 > 2.326 indicating statistical significance at 1% level when adjusted for ties**



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Zinc, Total

Location: GWM-4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 3

Non detect rank is 2

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<10	2
	3/19/2014	7.8	14
	9/8/2014	12	19
	3/17/2015	12	20
	9/14/2015	23	35
	3/17/2016	16	25
	9/21/2016	19	32
	3/24/2017	16	26
	9/20/2017	6.8	9
	3/27/2018	6	8
	9/19/2018	15	22
	3/11/2019	28	39
	9/25/2019	25	38
	3/18/2020	21	34
	9/23/2020	23	36
	3/17/2021	17	30
	9/8/2021	18	31
3/15/2022	39	40	
9/12/2022	44	41	
3/13/2023	19	33	
GWM-2	9/25/2013	ND<10	2
	3/18/2014	69	53
	9/16/2014	78	59
	3/18/2015	72	55
	9/15/2015	67	48
	3/16/2016	68	50
	9/22/2016	63	44
	3/24/2017	72	56
	9/21/2017	76	58
	3/28/2018	63	45
	9/21/2018	62	43
	3/12/2019	80	60
	10/1/2019	72	57
	3/18/2020	65	47
	9/23/2020	63	46
	3/17/2021	60	42
	9/9/2021	68	51
3/15/2022	68	52	
9/12/2022	67	49	
3/13/2023	69	54	
GWM-4	9/18/2013	ND<10	2
	3/20/2014	7.2	12
	9/9/2014	15	23

3/16/2015	8.6	17
9/9/2015	15	24
3/18/2016	7.6	13
9/20/2016	16	27
3/23/2017	16	28
9/18/2017	24	37
3/15/2018	4.6 J	5
9/17/2018	14	21
3/5/2019	11	18
9/24/2019	16	29
3/16/2020	7	11
9/22/2020	6.9	10
3/16/2021	5.5 J	7
9/14/2021	8.1 J	15
3/22/2022	5.4 J	6
9/13/2022	3.5 J	4
3/14/2023	8.4	16

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The Wilcoxon Statistic is 115

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -4.477

The Standard Deviation adjusted for ties is 63.7669

The Z Score adjusted for ties is -4.47725

-4.477 < 2.326 indicating no statistical significance at 1% level

-4.47725 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Zinc, Total

Location: GWM-5A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 2

Non detect rank is 1.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<10	1.5
	3/19/2014	7.8	15
	9/8/2014	12	25
	3/17/2015	12	26
	9/14/2015	23	36
	3/17/2016	16	29
	9/21/2016	19	33
	3/24/2017	16	30
	9/20/2017	6.8	10
	3/27/2018	6	7
	9/19/2018	15	28
	3/11/2019	28	39
	9/25/2019	25	38
	3/18/2020	21	35
	9/23/2020	23	37
	3/17/2021	17	31
	9/8/2021	18	32
3/15/2022	39	40	
9/12/2022	44	42	
3/13/2023	19	34	
GWM-2	9/25/2013	ND<10	1.5
	3/18/2014	69	54
	9/16/2014	78	60
	3/18/2015	72	56
	9/15/2015	67	49
	3/16/2016	68	51
	9/22/2016	63	45
	3/24/2017	72	57
	9/21/2017	76	59
	3/28/2018	63	46
	9/21/2018	62	44
	3/12/2019	80	61
	10/1/2019	72	58
	3/18/2020	65	48
	9/23/2020	63	47
	3/17/2021	60	43
	9/9/2021	68	52
3/15/2022	68	53	
9/12/2022	67	50	
3/13/2023	69	55	
GWM-5A	9/19/2013	40	41
	12/5/2013	10	22
	3/19/2014	7.3	12

9/4/2014	12	27
3/17/2015	6.3	9
9/11/2015	7.5	13
3/15/2016	9.3	20
9/21/2016	5.5 J	5
3/28/2017	4.2 J	3
9/19/2017	7.1	11
3/26/2018	4.9 J	4
9/18/2018	8	16
3/4/2019	7.6	14
9/23/2019	10	23
3/19/2020	8.5	18
9/23/2020	8.4	17
3/19/2021	5.7	6
9/15/2021	10	24
3/16/2022	9.9	21
9/14/2022	6	8
3/16/2023	8.5	19

---

The Wilcoxon Statistic is 102

The Expected value is 420

The Standard Deviation is 65.8787

The Z Score is -4.83464

The Standard Deviation adjusted for ties is 65.8778

The Z Score adjusted for ties is -4.83471

-4.83464 < 2.326 indicating no statistical significance at 1% level

-4.83471 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Zinc, Total

Location: GWM-14

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 2

Non detect rank is 1.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<10	1.5
	3/19/2014	7.8	5
	9/8/2014	12	13
	3/17/2015	12	14
	9/14/2015	23	36
	3/17/2016	16	28
	9/21/2016	19	32
	3/24/2017	16	29
	9/20/2017	6.8	4
	3/27/2018	6	3
	9/19/2018	15	26
	3/11/2019	28	39
	9/25/2019	25	38
	3/18/2020	21	35
	9/23/2020	23	37
	3/17/2021	17	30
	9/8/2021	18	31
3/15/2022	39	40	
9/12/2022	44	41	
3/13/2023	19	33	
GWM-2	9/25/2013	ND<10	1.5
	3/18/2014	69	53
	9/16/2014	78	59
	3/18/2015	72	55
	9/15/2015	67	48
	3/16/2016	68	50
	9/22/2016	63	44
	3/24/2017	72	56
	9/21/2017	76	58
	3/28/2018	63	45
	9/21/2018	62	43
	3/12/2019	80	60
	10/1/2019	72	57
	3/18/2020	65	47
	9/23/2020	63	46
	3/17/2021	60	42
	9/9/2021	68	51
3/15/2022	68	52	
9/12/2022	67	49	
3/13/2023	69	54	
GWM-14	9/24/2013	10	7
	3/21/2014	11	10
	9/8/2014	10	8

3/19/2015	20	34
9/14/2015	11	11
3/21/2016	12	15
9/23/2016	10	9
3/27/2017	9.7	6
9/20/2017	11	12
3/16/2018	12	16
9/20/2018	13	20
3/5/2019	12	17
9/25/2019	14	24
3/25/2020	13	21
9/28/2020	12	18
3/18/2021	13 R	22
9/15/2021	15	27
3/22/2022	14	25
9/14/2022	13	23
3/16/2023	12	19

---

The Wilcoxon Statistic is 134

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -4.17905

The Standard Deviation adjusted for ties is 63.7695

The Z Score adjusted for ties is -4.17911

-4.17905 < 2.326 indicating no statistical significance at 1% level

-4.17911 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Zinc, Total

Location: GWM-6

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 7

Non detect rank is 4

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<10	4
	3/19/2014	7.8	23
	9/8/2014	12	25
	3/17/2015	12	26
	9/14/2015	23	36
	3/17/2016	16	29
	9/21/2016	19	33
	3/24/2017	16	30
	9/20/2017	6.8	21
	3/27/2018	6	20
	9/19/2018	15	28
	3/11/2019	28	39
	9/25/2019	25	38
	3/18/2020	21	35
	9/23/2020	23	37
	3/17/2021	17	31
	9/8/2021	18	32
3/15/2022	39	40	
9/12/2022	44	41	
3/13/2023	19	34	
GWM-2	9/25/2013	ND<10	4
	3/18/2014	69	53
	9/16/2014	78	59
	3/18/2015	72	55
	9/15/2015	67	48
	3/16/2016	68	50
	9/22/2016	63	44
	3/24/2017	72	56
	9/21/2017	76	58
	3/28/2018	63	45
	9/21/2018	62	43
	3/12/2019	80	60
	10/1/2019	72	57
	3/18/2020	65	47
	9/23/2020	63	46
	3/17/2021	60	42
	9/9/2021	68	51
3/15/2022	68	52	
9/12/2022	67	49	
3/13/2023	69	54	
GWM-6	9/24/2013	ND<10	4
	3/21/2014	5.8	19
	9/17/2014	8.5	24

3/19/2015	4.2 J	15
9/15/2015	3.3 J	12
3/21/2016	3.7 J	14
9/26/2016	12	27
3/31/2017	3.5 J	13
9/21/2017	7.7	22
3/30/2018	5.6	18
9/26/2018	ND<10 U	4
3/13/2019	2.6 J	11
10/3/2019	4.6 J	16
4/3/2020	5.5 J	17
9/30/2020	2 J	8
3/22/2021	2.1 J	9
9/16/2021	ND<10 U	4
3/24/2022	ND<5.6	4
9/16/2022	2.2 J	10
3/17/2023	ND<5.6	4

---

The Wilcoxon Statistic is 45

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -5.57468

The Standard Deviation adjusted for ties is 63.7208

The Z Score adjusted for ties is -5.57903

-5.57468 < 2.326 indicating no statistical significance at 1% level

-5.57903 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Zinc, Total

Location: GWM-3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 3

Non detect rank is 2

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<10	2
	3/19/2014	7.8	21
	9/8/2014	12	26
	3/17/2015	12	27
	9/14/2015	23	36
	3/17/2016	16	29
	9/21/2016	19	33
	3/24/2017	16	30
	9/20/2017	6.8	17
	3/27/2018	6	14
	9/19/2018	15	28
	3/11/2019	28	39
	9/25/2019	25	38
	3/18/2020	21	35
	9/23/2020	23	37
	3/17/2021	17	31
	9/8/2021	18	32
3/15/2022	39	40	
9/12/2022	44	41	
3/13/2023	19	34	
GWM-2	9/25/2013	ND<10	2
	3/18/2014	69	53
	9/16/2014	78	59
	3/18/2015	72	55
	9/15/2015	67	48
	3/16/2016	68	50
	9/22/2016	63	44
	3/24/2017	72	56
	9/21/2017	76	58
	3/28/2018	63	45
	9/21/2018	62	43
	3/12/2019	80	60
	10/1/2019	72	57
	3/18/2020	65	47
	9/23/2020	63	46
	3/17/2021	60	42
	9/9/2021	68	51
3/15/2022	68	52	
9/12/2022	67	49	
3/13/2023	69	54	
GWM-3	9/25/2013	ND<10	2
	3/18/2014	9.6	22
	9/16/2014	4.1 J	7

3/18/2015	3.4 J	5
9/15/2015	3.2 J	4
3/16/2016	7.2	20
9/22/2016	5.1 J	11
3/29/2017	5.7	13
9/21/2017	4.7 J	10
3/28/2018	4 J	6
9/20/2018	4.4 J	9
3/12/2019	5.1 J	12
10/1/2019	6.9	18
3/18/2020	6	15
9/24/2020	6.9	19
3/17/2021	9.6 R	23
9/9/2021	9.7 J	24
3/15/2022	6	16
9/16/2022	11	25
3/15/2023	4.2 J	8

---

The Wilcoxon Statistic is 59

The Expected value is 400

The Standard Deviation is 63.7704

The Z Score is -5.35515

The Standard Deviation adjusted for ties is 63.7669

The Z Score adjusted for ties is -5.35544

-5.35515 < 2.326 indicating no statistical significance at 1% level

-5.35544 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Zinc, Total

Location: GWM-17S

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 2

Non detect rank is 1.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-9	9/24/2013	ND<10	1.5
	3/19/2014	7.8	5
	9/8/2014	12	13
	3/17/2015	12	14
	9/14/2015	23	24
	3/17/2016	16	17
	9/21/2016	19	21
	3/24/2017	16	18
	9/20/2017	6.8	4
	3/27/2018	6	3
	9/19/2018	15	15
	3/11/2019	28	27
	9/25/2019	25	26
	3/18/2020	21	23
	9/23/2020	23	25
	3/17/2021	17	19
	9/8/2021	18	20
3/15/2022	39	28	
9/12/2022	44	29	
3/13/2023	19	22	
GWM-2	9/25/2013	ND<10	1.5
	3/18/2014	69	41
	9/16/2014	78	47
	3/18/2015	72	43
	9/15/2015	67	36
	3/16/2016	68	38
	9/22/2016	63	32
	3/24/2017	72	44
	9/21/2017	76	46
	3/28/2018	63	33
	9/21/2018	62	31
	3/12/2019	80	48
	10/1/2019	72	45
	3/18/2020	65	35
	9/23/2020	63	34
	3/17/2021	60	30
	9/9/2021	68	39
3/15/2022	68	40	
9/12/2022	67	37	
3/13/2023	69	42	
GWM-17S	11/14/2019	11	12
	3/26/2020	8	6
	9/29/2020	8.3	7

3/16/2021	10	10
9/14/2021	15	16
3/18/2022	10	11
9/13/2022	9	8
3/14/2023	9	9

---

The Wilcoxon Statistic is 43

The Expected value is 160

The Standard Deviation is 36.1478

The Z Score is -3.25054

The Standard Deviation adjusted for ties is 36.1469

The Z Score adjusted for ties is -3.25063

-3.25054 < 2.326 indicating no statistical significance at 1% level

-3.25063 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

# 10) Patapsco Aquifer Metals Intra-well Statistics

APPENDIX F

## Shapiro-Francia Test of Normality

Parameter: Antimony, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	0	-1.55477	33.5744	0
10	0	-1.50626	35.8432	0
11	0	-1.4538	37.9567	0
12	0	-1.40507	39.931	0
13	0	-1.36581	41.7964	0
14	0	-1.32251	43.5454	0
15	0	-1.28155	45.1878	0
16	0	-1.24809	46.7455	0
17	0	-1.21073	48.2114	0
18	0	-1.17499	49.592	0
19	0	-1.1455	50.9042	0
20	0	-1.11232	52.1414	0
21	0	-1.08032	53.3085	0
22	0	-1.05375	54.4189	0
23	0	-1.02365	55.4667	0
24	0	-0.994457	56.4557	0
25	0	-0.970094	57.3968	0
26	0	-0.942375	58.2848	0
27	0	-0.919183	59.1297	0
28	0	-0.892733	59.9267	0
29	0	-0.866894	60.6782	0
30	0	-0.841621	61.3865	0
31	0	-0.820379	62.0596	0
32	0	-0.796056	62.6933	0
33	0	-0.772193	63.2896	0
34	0	-0.752084	63.8552	0
35	0	-0.729003	64.3866	0
36	0	-0.706302	64.8855	0
37	0	-0.687131	65.3576	0
38	0	-0.665079	65.8	0
39	0	-0.643345	66.2139	0
40	0	-0.624956	66.6044	0
41	0	-0.603765	66.969	0
42	0	-0.582841	67.3087	0
43	0	-0.565108	67.628	0
44	0	-0.544642	67.9247	0
45	0	-0.524401	68.1996	0
46	0	-0.507221	68.4569	0
47	0	-0.487364	68.6944	0

48	0	-0.467699	68.9132	0
49	0	-0.450985	69.1166	0
50	0	-0.431644	69.3029	0
51	0	-0.412463	69.473	0
52	0	-0.396142	69.6299	0
53	0	-0.377233	69.7723	0
54	0	-0.358459	69.9007	0
55	0	-0.342466	70.018	0
56	0	-0.323919	70.1229	0
57	0	-0.305481	70.2163	0
58	0	-0.28976	70.3002	0
59	0	-0.271509	70.3739	0
60	0	-0.253347	70.4381	0
61	0	-0.237847	70.4947	0
62	0	-0.219834	70.543	0
63	0	-0.204452	70.5848	0
64	0	-0.186567	70.6196	0
65	0	-0.168741	70.6481	0
66	0	-0.150969	70.6709	0
67	0	-0.135774	70.6893	0
68	0	-0.118085	70.7033	0
69	0	-0.100433	70.7134	0
70	0	-0.0853288	70.7206	0
71	0	-0.0677301	70.7252	0
72	0	-0.0501541	70.7278	0
73	0	-0.0350997	70.729	0
74	0	-0.0175476	70.7293	0
75	0	0	70.7293	0
76	0	0.0175476	70.7296	0
77	0	0.0350997	70.7308	0
78	0	0.0501541	70.7333	0
79	0	0.0677301	70.7379	0
80	0	0.0853288	70.7452	0
81	0	0.100433	70.7553	0
82	0	0.118085	70.7692	0
83	0	0.135774	70.7877	0
84	0	0.150969	70.8105	0
85	0	0.168741	70.8389	0
86	0	0.186567	70.8738	0
87	0	0.201894	70.9145	0
88	0	0.219834	70.9628	0
89	0	0.237847	71.0194	0
90	0	0.253347	71.0836	0
91	0	0.271509	71.1573	0
92	0	0.28976	71.2413	0
93	0	0.305481	71.3346	0
94	0	0.323919	71.4395	0
95	0	0.342466	71.5568	0
96	0	0.358459	71.6853	0
97	0	0.377233	71.8276	0
98	0	0.396142	71.9845	0
99	0	0.412463	72.1547	0
100	0	0.431644	72.341	0
101	0	0.450985	72.5444	0
102	0	0.467699	72.7631	0
103	0	0.487364	73.0006	0
104	0	0.507221	73.2579	0

105	0	0.524401	73.5329	0
106	0	0.544642	73.8295	0
107	0	0.565108	74.1489	0
108	0	0.582841	74.4886	0
109	0	0.603765	74.8531	0
110	0	0.624956	75.2437	0
111	0	0.643345	75.6576	0
112	0	0.665079	76.0999	0
113	0	0.687131	76.572	0
114	0	0.706302	77.0709	0
115	0	0.729003	77.6024	0
116	0	0.752084	78.168	0
117	0	0.772193	78.7643	0
118	0	0.796056	79.398	0
119	0	0.820379	80.071	0
120	0	0.841621	80.7793	0
121	0	0.866894	81.5308	0
122	0	0.892733	82.3278	0
123	0	0.915365	83.1657	0
124	0	0.942375	84.0538	0
125	0	0.970094	84.9948	0
126	0	0.994457	85.9838	0
127	0	1.02365	87.0317	0
128	0	1.05375	88.142	0
129	0	1.08032	89.3091	0
130	0	1.11232	90.5464	0
131	0	1.1455	91.8586	0
132	0	1.17499	93.2392	0
133	0	1.21073	94.705	0
134	0	1.24809	96.2627	0
135	0	1.28155	97.9051	0
136	0	1.32251	99.6541	0
137	0	1.36581	101.52	0
138	0	1.40507	103.494	0
139	0	1.4538	105.607	0
140	0	1.50626	107.876	0
141	0	1.55477	110.293	0
142	0	1.61644	112.906	0
143	0	1.68494	115.745	0
144	0	1.75069	118.81	0
145	0.8	1.83843	122.19	1.47074
146	1	1.94314	125.966	3.41388
147	1.3	2.05375	130.184	6.08375
148	1.4	2.22621	135.14	9.20044
149	2.2	2.51213	141.451	14.7271

Data Set Standard Deviation = 0.257702  
Numerator = 216.888  
Denominator = 1390.28  
W Statistic = 0.156004 = 216.888 / 1390.28

**5% Critical value of 0.976 exceeds 0.156004**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.156004**  
**Evidence of non-normality at 99% level of significance**



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Antimony, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 94.7368%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 1

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	ND<0
	3/20/2014	ND<0 U
	9/9/2014	ND<0 U
	3/16/2015	ND<0 U
	9/9/2015	ND<0 U
	3/18/2016	ND<0 U
	9/20/2016	ND<0 U
	3/23/2017	ND<0 U
	9/18/2017	ND<0 U
	3/15/2018	ND<0 U
	9/17/2018	ND<0 U
	3/5/2019	1 J
	9/24/2019	ND<0 U
	3/16/2020	ND<0 U
	9/22/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/22/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Antimony, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 95%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 0.8

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	ND<0 U
	9/4/2014	0.8 J
	3/17/2015	ND<0 U
	9/11/2015	ND<0 U
	3/15/2016	ND<0 U
	9/21/2016	ND<0 U
	3/28/2017	ND<0 U
	9/19/2017	ND<0 U
	3/26/2018	ND<0 U
	9/18/2018	ND<0 U
	3/4/2019	ND<0 U
	9/23/2019	ND<0 U
	3/19/2020	ND<0 U
	9/23/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	ND<0 U
	3/16/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Antimony, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 94.7368%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 1.4

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/19/2015	ND<0 U
	9/14/2015	ND<0 U
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/27/2017	1.4 J
	9/20/2017	ND<0 U
	3/16/2018	ND<0 U
	9/20/2018	ND<0 U
	3/5/2019	ND<0 U
	9/25/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/18/2021	ND<0 U
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Antimony, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 94.7368%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 2.2

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/17/2014	ND<0 U
	3/19/2015	ND<0 U
	9/15/2015	ND<0 U
	3/21/2016	ND<0 U
	9/26/2016	ND<0 U
	3/31/2017	ND<0 U
	9/21/2017	ND<0 U
	3/30/2018	2.2
	9/26/2018	ND<0 U
	3/13/2019	ND<0 U
	10/3/2019	ND<0 U
	4/3/2020	ND<0 U
	9/30/2020	ND<0 U
	3/22/2021	ND<0 U
	9/16/2021	ND<0 U
	3/24/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Antimony, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	ND<0
	3/18/2014	ND<0 U
	9/16/2014	ND<0 U
	3/18/2015	ND<0 U
	9/15/2015	ND<0 U
	3/16/2016	ND<0 U
	9/22/2016	ND<0 U
	3/29/2017	ND<0 U
	9/21/2017	ND<0 U
	3/28/2018	ND<0 U
	9/20/2018	ND<0 U
	3/12/2019	ND<0 U
	10/1/2019	ND<0 U
	3/18/2020	ND<0 U
	9/24/2020	ND<0 U
	3/17/2021	ND<0 U
	9/9/2021	ND<0 U
	3/15/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/15/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Antimony, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	ND<0 U
	9/29/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Shapiro-Francia Test of Normality

Parameter: Arsenic, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	0	-1.55477	33.5744	0
10	0	-1.50626	35.8432	0
11	0	-1.4538	37.9567	0
12	0	-1.40507	39.931	0
13	0	-1.36581	41.7964	0
14	0	-1.32251	43.5454	0
15	0	-1.28155	45.1878	0
16	0	-1.24809	46.7455	0
17	0	-1.21073	48.2114	0
18	0	-1.17499	49.592	0
19	0	-1.1455	50.9042	0
20	0	-1.11232	52.1414	0
21	0	-1.08032	53.3085	0
22	0	-1.05375	54.4189	0
23	0	-1.02365	55.4667	0
24	0	-0.994457	56.4557	0
25	0	-0.970094	57.3968	0
26	0	-0.942375	58.2848	0
27	0	-0.919183	59.1297	0
28	0	-0.892733	59.9267	0
29	0	-0.866894	60.6782	0
30	0	-0.841621	61.3865	0
31	0	-0.820379	62.0596	0
32	0	-0.796056	62.6933	0
33	0	-0.772193	63.2896	0
34	0	-0.752084	63.8552	0
35	0	-0.729003	64.3866	0
36	0	-0.706302	64.8855	0
37	0	-0.687131	65.3576	0
38	0	-0.665079	65.8	0
39	0	-0.643345	66.2139	0
40	0	-0.624956	66.6044	0
41	0	-0.603765	66.969	0
42	0	-0.582841	67.3087	0
43	0	-0.565108	67.628	0
44	0	-0.544642	67.9247	0
45	0	-0.524401	68.1996	0
46	0	-0.507221	68.4569	0
47	0	-0.487364	68.6944	0

48	0	-0.467699	68.9132	0
49	0	-0.450985	69.1166	0
50	0	-0.431644	69.3029	0
51	0	-0.412463	69.473	0
52	0	-0.396142	69.6299	0
53	0	-0.377233	69.7723	0
54	0	-0.358459	69.9007	0
55	0	-0.342466	70.018	0
56	0	-0.323919	70.1229	0
57	0	-0.305481	70.2163	0
58	0	-0.28976	70.3002	0
59	0	-0.271509	70.3739	0
60	0	-0.253347	70.4381	0
61	0	-0.237847	70.4947	0
62	0	-0.219834	70.543	0
63	0	-0.204452	70.5848	0
64	0	-0.186567	70.6196	0
65	0	-0.168741	70.6481	0
66	0	-0.150969	70.6709	0
67	0	-0.135774	70.6893	0
68	0	-0.118085	70.7033	0
69	0	-0.100433	70.7134	0
70	0	-0.0853288	70.7206	0
71	0	-0.0677301	70.7252	0
72	0	-0.0501541	70.7278	0
73	0	-0.0350997	70.729	0
74	0	-0.0175476	70.7293	0
75	0	0	70.7293	0
76	0	0.0175476	70.7296	0
77	0	0.0350997	70.7308	0
78	0	0.0501541	70.7333	0
79	0	0.0677301	70.7379	0
80	0	0.0853288	70.7452	0
81	0	0.100433	70.7553	0
82	0	0.118085	70.7692	0
83	0	0.135774	70.7877	0
84	0	0.150969	70.8105	0
85	0	0.168741	70.8389	0
86	0	0.186567	70.8738	0
87	0	0.201894	70.9145	0
88	0	0.219834	70.9628	0
89	0	0.237847	71.0194	0
90	0	0.253347	71.0836	0
91	0	0.271509	71.1573	0
92	0	0.28976	71.2413	0
93	0	0.305481	71.3346	0
94	0	0.323919	71.4395	0
95	0	0.342466	71.5568	0
96	0	0.358459	71.6853	0
97	0	0.377233	71.8276	0
98	0	0.396142	71.9845	0
99	0	0.412463	72.1547	0
100	0	0.431644	72.341	0
101	0	0.450985	72.5444	0
102	0	0.467699	72.7631	0
103	0	0.487364	73.0006	0
104	0	0.507221	73.2579	0



105	0	0.524401	73.5329	0
106	0.2	0.544642	73.8295	0.108928
107	0.28	0.565108	74.1489	0.267159
108	0.7	0.582841	74.4886	0.675147
109	1	0.603765	74.8531	1.27891
110	1	0.624956	75.2437	1.90387
111	1.1	0.643345	75.6576	2.61155
112	1.1	0.665079	76.0999	3.34313
113	1.1	0.687131	76.572	4.09898
114	1.1	0.706302	77.0709	4.87591
115	1.2	0.729003	77.6024	5.75071
116	1.2	0.752084	78.168	6.65322
117	1.2	0.772193	78.7643	7.57985
118	1.2	0.796056	79.398	8.53511
119	1.2	0.820379	80.071	9.51957
120	1.2	0.841621	80.7793	10.5295
121	1.2	0.866894	81.5308	11.5698
122	1.2	0.892733	82.3278	12.6411
123	1.2	0.915365	83.1657	13.7395
124	1.3	0.942375	84.0538	14.9646
125	1.3	0.970094	84.9948	16.2257
126	1.3	0.994457	85.9838	17.5185
127	1.3	1.02365	87.0317	18.8493
128	1.3	1.05375	88.142	20.2191
129	1.3	1.08032	89.3091	21.6235
130	1.3	1.11232	90.5464	23.0696
131	1.4	1.1455	91.8586	24.6733
132	1.4	1.17499	93.2392	26.3182
133	1.4	1.21073	94.705	28.0133
134	1.4	1.24809	96.2627	29.7606
135	1.4	1.28155	97.9051	31.5548
136	1.4	1.32251	99.6541	33.4063
137	1.5	1.36581	101.52	35.455
138	1.5	1.40507	103.494	37.5626
139	1.6	1.4538	105.607	39.8887
140	1.6	1.50626	107.876	42.2987
141	1.6	1.55477	110.293	44.7863
142	1.7	1.61644	112.906	47.5343
143	1.7	1.68494	115.745	50.3987
144	1.8	1.75069	118.81	53.5499
145	1.8	1.83843	122.19	56.8591
146	1.9	1.94314	125.966	60.551
147	1.9	2.05375	130.184	64.4531
148	3.2	2.22621	135.14	71.577
149	6.3	2.51213	141.451	87.4034

Data Set Standard Deviation = 0.814213  
 Numerator = 7639.36  
 Denominator = 13878.5  
 W Statistic = 0.550445 = 7639.36 / 13878.5

**5% Critical value of 0.976 exceeds 0.550445**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.550445**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Arsenic, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 47.3684%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 1.9

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	ND<0
	3/20/2014	1.3 J
	9/9/2014	1 J
	3/16/2015	1.4 J
	9/9/2015	1.4 J
	3/18/2016	1.4 J
	9/20/2016	ND<0 U
	3/23/2017	1.2 J
	9/18/2017	1.9 J
	3/15/2018	ND<0 U
	9/17/2018	ND<0 U
	3/5/2019	ND<0 U
	9/24/2019	1.8 J
	3/16/2020	1.3 J
	9/22/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	0.7 J
	3/22/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Arsenic, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 95%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 0.28

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	ND<0 U
	9/4/2014	ND<0 U
	3/17/2015	ND<0 U
	9/11/2015	ND<0 U
	3/15/2016	ND<0 U
	9/21/2016	ND<0 U
	3/28/2017	ND<0 U
	9/19/2017	ND<0 U
	3/26/2018	ND<0 U
	9/18/2018	ND<0 U
	3/4/2019	ND<0 U
	9/23/2019	ND<0 U
	3/19/2020	ND<0 U
	9/23/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	0.28 J
	3/16/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Arsenic, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 31.5789%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 6.3

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	1.3 J
	3/19/2015	ND<0 U
	9/14/2015	1.1 J
	3/21/2016	ND<0 U
	9/23/2016	1.1 J
	3/27/2017	1.3 J
	9/20/2017	1.2 J
	3/16/2018	ND<0 U
	9/20/2018	1.5 J
	3/5/2019	1.1 J
	9/25/2019	6.3
	3/25/2020	1.2 J
	9/28/2020	1.6 J
	3/18/2021	ND<0 U
	9/15/2021	1.6 J
	3/22/2022	1.2 J
	9/14/2022	1.4 J

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Arsenic, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 47.3684%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 1.8

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/17/2014	ND<0 U
	3/19/2015	ND<0 U
	9/15/2015	ND<0 U
	3/21/2016	ND<0 U
	9/26/2016	ND<0 U
	3/31/2017	ND<0 U
	9/21/2017	ND<0 U
	3/30/2018	1.2
	9/26/2018	1.4 J
	3/13/2019	1.1 J
	10/3/2019	1.2 J
	4/3/2020	1.8 J
	9/30/2020	1.3 J
	3/22/2021	1.7 J
	9/16/2021	1.2 J
	3/24/2022	1.3 J
	9/16/2022	1.5 J

---

Date	Count	Mean	Significant
3/17/2023	1	1.7	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Arsenic, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 94.7368%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0.2

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	ND<0
	3/18/2014	ND<0 U
	9/16/2014	ND<0 U
	3/18/2015	ND<0 U
	9/15/2015	ND<0 U
	3/16/2016	ND<0 U
	9/22/2016	ND<0 U
	3/29/2017	ND<0 U
	9/21/2017	ND<0 U
	3/28/2018	ND<0 U
	9/20/2018	ND<0 U
	3/12/2019	ND<0 U
	10/1/2019	ND<0 U
	3/18/2020	ND<0 U
	9/24/2020	ND<0 U
	3/17/2021	ND<0 U
	9/9/2021	0.2 J
	3/15/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/15/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Arsenic, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 42.8571%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 1.4

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	1.2 J
	3/26/2020	ND<0 U
	9/29/2020	1.3 J
	3/16/2021	ND<0 U
	9/14/2021	1 J
	3/18/2022	ND<0
	9/13/2022	1.4 J

---

Date	Count	Mean	Significant
3/14/2023	1	1.2	FALSE

## Shapiro-Francia Test of Normality

Parameter: Barium, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	20	-2.51213	6.31081	-50.2427
2	30	-2.22621	11.2668	-117.029
3	42	-2.05375	15.4847	-203.286
4	42	-1.94314	19.2605	-284.898
5	43	-1.83843	22.6403	-363.95
6	44	-1.75069	25.7052	-440.98
7	44	-1.68494	28.5442	-515.118
8	45	-1.61644	31.1571	-587.857
9	45	-1.55477	33.5744	-657.822
10	46	-1.50626	35.8432	-727.11
11	47	-1.4538	37.9567	-795.439
12	48	-1.40507	39.931	-862.882
13	48	-1.36581	41.7964	-928.441
14	48	-1.32251	43.5454	-991.921
15	48	-1.28155	45.1878	-1053.44
16	48	-1.24809	46.7455	-1113.34
17	48	-1.21073	48.2114	-1171.46
18	49	-1.17499	49.592	-1229.03
19	49	-1.1455	50.9042	-1285.16
20	49	-1.11232	52.1414	-1339.67
21	50	-1.08032	53.3085	-1393.68
22	51	-1.05375	54.4189	-1447.42
23	52	-1.02365	55.4667	-1500.65
24	53	-0.994457	56.4557	-1553.36
25	56	-0.970094	57.3968	-1607.69
26	58	-0.942375	58.2848	-1662.34
27	59	-0.919183	59.1297	-1716.57
28	60	-0.892733	59.9267	-1770.14
29	60	-0.866894	60.6782	-1822.15
30	60	-0.841621	61.3865	-1872.65
31	67	-0.820379	62.0596	-1927.62
32	67	-0.796056	62.6933	-1980.95
33	67	-0.772193	63.2896	-2032.69
34	68	-0.752084	63.8552	-2083.83
35	68	-0.729003	64.3866	-2133.4
36	69	-0.706302	64.8855	-2182.14
37	69	-0.687131	65.3576	-2229.55
38	70	-0.665079	65.8	-2276.1
39	71	-0.643345	66.2139	-2321.78
40	74	-0.624956	66.6044	-2368.03
41	75	-0.603765	66.969	-2413.31
42	75	-0.582841	67.3087	-2457.02
43	78	-0.565108	67.628	-2501.1
44	79	-0.544642	67.9247	-2544.13
45	80	-0.524401	68.1996	-2586.08
46	81	-0.507221	68.4569	-2627.17
47	81	-0.487364	68.6944	-2666.64



48	81	-0.467699	68.9132	-2704.53
49	81	-0.450985	69.1166	-2741.06
50	82	-0.431644	69.3029	-2776.45
51	83	-0.412463	69.473	-2810.68
52	84	-0.396142	69.6299	-2843.96
53	85	-0.377233	69.7723	-2876.03
54	85	-0.358459	69.9007	-2906.49
55	85	-0.342466	70.018	-2935.6
56	86	-0.323919	70.1229	-2963.46
57	86	-0.305481	70.2163	-2989.73
58	87	-0.28976	70.3002	-3014.94
59	88	-0.271509	70.3739	-3038.83
60	89	-0.253347	70.4381	-3061.38
61	90	-0.237847	70.4947	-3082.79
62	90	-0.219834	70.543	-3102.57
63	91	-0.204452	70.5848	-3121.18
64	91	-0.186567	70.6196	-3138.16
65	92	-0.168741	70.6481	-3153.68
66	92	-0.150969	70.6709	-3167.57
67	92	-0.135774	70.6893	-3180.06
68	92	-0.118085	70.7033	-3190.92
69	92	-0.100433	70.7134	-3200.16
70	93	-0.0853288	70.7206	-3208.1
71	93	-0.0677301	70.7252	-3214.4
72	94	-0.0501541	70.7278	-3219.11
73	94	-0.0350997	70.729	-3222.41
74	95	-0.0175476	70.7293	-3224.08
75	95	0	70.7293	-3224.08
76	95	0.0175476	70.7296	-3222.41
77	95	0.0350997	70.7308	-3219.08
78	95	0.0501541	70.7333	-3214.31
79	95	0.0677301	70.7379	-3207.88
80	98	0.0853288	70.7452	-3199.52
81	99	0.100433	70.7553	-3189.57
82	99	0.118085	70.7692	-3177.88
83	99	0.135774	70.7877	-3164.44
84	99	0.150969	70.8105	-3149.5
85	100	0.168741	70.8389	-3132.62
86	100	0.186567	70.8738	-3113.97
87	100	0.201894	70.9145	-3093.78
88	100	0.219834	70.9628	-3071.79
89	100	0.237847	71.0194	-3048.01
90	100	0.253347	71.0836	-3022.67
91	100	0.271509	71.1573	-2995.52
92	100	0.28976	71.2413	-2966.55
93	110	0.305481	71.3346	-2932.94
94	110	0.323919	71.4395	-2897.31
95	110	0.342466	71.5568	-2859.64
96	110	0.358459	71.6853	-2820.21
97	110	0.377233	71.8276	-2778.72
98	110	0.396142	71.9845	-2735.14
99	110	0.412463	72.1547	-2689.77
100	110	0.431644	72.341	-2642.29
101	110	0.450985	72.5444	-2592.68
102	110	0.467699	72.7631	-2541.23
103	120	0.487364	73.0006	-2482.75
104	120	0.507221	73.2579	-2421.88

105	120	0.524401	73.5329	-2358.95
106	120	0.544642	73.8295	-2293.6
107	120	0.565108	74.1489	-2225.78
108	120	0.582841	74.4886	-2155.84
109	120	0.603765	74.8531	-2083.39
110	130	0.624956	75.2437	-2002.15
111	130	0.643345	75.6576	-1918.51
112	130	0.665079	76.0999	-1832.05
113	130	0.687131	76.572	-1742.73
114	130	0.706302	77.0709	-1650.91
115	130	0.729003	77.6024	-1556.14
116	130	0.752084	78.168	-1458.36
117	130	0.772193	78.7643	-1357.98
118	130	0.796056	79.398	-1254.49
119	140	0.820379	80.071	-1139.64
120	140	0.841621	80.7793	-1021.81
121	140	0.866894	81.5308	-900.447
122	140	0.892733	82.3278	-775.465
123	140	0.915365	83.1657	-647.313
124	140	0.942375	84.0538	-515.381
125	150	0.970094	84.9948	-369.867
126	150	0.994457	85.9838	-220.698
127	150	1.02365	87.0317	-67.1502
128	150	1.05375	88.142	90.9115
129	150	1.08032	89.3091	252.96
130	150	1.11232	90.5464	419.808
131	150	1.1455	91.8586	591.633
132	150	1.17499	93.2392	767.882
133	160	1.21073	94.705	961.598
134	160	1.24809	96.2627	1161.29
135	170	1.28155	97.9051	1379.16
136	180	1.32251	99.6541	1617.21
137	180	1.36581	101.52	1863.05
138	190	1.40507	103.494	2130.02
139	200	1.4538	105.607	2420.78
140	210	1.50626	107.876	2737.09
141	230	1.55477	110.293	3094.69
142	230	1.61644	112.906	3466.47
143	230	1.68494	115.745	3854
144	240	1.75069	118.81	4274.17
145	250	1.83843	122.19	4733.78
146	250	1.94314	125.966	5219.56
147	260	2.05375	130.184	5753.53
148	280	2.22621	135.14	6376.87
149	360	2.51213	141.451	7281.24

Data Set Standard Deviation = 54.051  
 Numerator = 5.30165e+007  
 Denominator = 6.1161e+007  
 W Statistic = 0.866835 = 5.30165e+007 / 6.1161e+007

**5% Critical value of 0.976 exceeds 0.866835**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.866835**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Barium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 250

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	30
	3/20/2014	190
	9/9/2014	130
	3/16/2015	140
	9/9/2015	130
	3/18/2016	150
	9/20/2016	150
	3/23/2017	140
	9/18/2017	140
	3/15/2018	150
	9/17/2018	150
	3/5/2019	180
	9/24/2019	150
	3/16/2020	250
	9/22/2020	140
	3/16/2021	180
	9/14/2021	160
	3/22/2022	160
	9/13/2022	150

---

Date	Count	Mean	Significant
3/14/2023	1	150	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Barium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 360

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	360
	12/5/2013	130
	3/19/2014	110
	9/4/2014	100
	3/17/2015	99
	9/11/2015	99
	3/15/2016	95
	9/21/2016	92
	3/28/2017	90
	9/19/2017	86
	3/26/2018	81
	9/18/2018	120
	3/4/2019	140
	9/23/2019	120
	3/19/2020	100
	9/23/2020	110
	3/19/2021	110
	9/15/2021	110
	3/16/2022	95
	9/14/2022	100

---

Date	Count	Mean	Significant
3/16/2023	1	99	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Barium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 110

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	60
	3/21/2014	48
	9/8/2014	49
	3/19/2015	47
	9/14/2015	48
	3/21/2016	48
	9/23/2016	48
	3/27/2017	49
	9/20/2017	45
	3/16/2018	42
	9/20/2018	44
	3/5/2019	48
	9/25/2019	45
	3/25/2020	44
	9/28/2020	43
	3/18/2021	110 R
	9/15/2021	48
	3/22/2022	50
	9/14/2022	53

---

Date	Count	Mean	Significant
3/16/2023	1	52	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Barium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 140

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	70
	3/21/2014	58
	9/17/2014	60
	3/19/2015	67
	9/15/2015	68
	3/21/2016	75
	9/26/2016	79
	3/31/2017	81
	9/21/2017	100
	3/30/2018	120
	9/26/2018	140
	3/13/2019	130
	10/3/2019	110
	4/3/2020	87
	9/30/2020	100
	3/22/2021	120
	9/16/2021	110
	3/24/2022	130
	9/16/2022	130

---

Date	Count	Mean	Significant
3/17/2023	1	120	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Barium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 200

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	90
	3/18/2014	80
	9/16/2014	74
	3/18/2015	84
	9/15/2015	81
	3/16/2016	86
	9/22/2016	94
	3/29/2017	95
	9/21/2017	85
	3/28/2018	85
	9/20/2018	85
	3/12/2019	91
	10/1/2019	92
	3/18/2020	81
	9/24/2020	69
	3/17/2021	200 R
	9/9/2021	82
	3/15/2022	78
	9/16/2022	68

---

Date	Count	Mean	Significant
3/15/2023	1	67	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Barium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 260

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	230
	3/26/2020	230
	9/29/2020	210
	3/16/2021	250
	9/14/2021	260
	3/18/2022	230
	9/13/2022	240

---

Date	Count	Mean	Significant
3/14/2023	1	280	TRUE



## Shapiro-Francia Test of Normality

Parameter: Beryllium, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	0	-1.55477	33.5744	0
10	0	-1.50626	35.8432	0
11	0	-1.4538	37.9567	0
12	0	-1.40507	39.931	0
13	0	-1.36581	41.7964	0
14	0	-1.32251	43.5454	0
15	0	-1.28155	45.1878	0
16	0	-1.24809	46.7455	0
17	0	-1.21073	48.2114	0
18	0	-1.17499	49.592	0
19	0	-1.1455	50.9042	0
20	0	-1.11232	52.1414	0
21	0	-1.08032	53.3085	0
22	0	-1.05375	54.4189	0
23	0	-1.02365	55.4667	0
24	0	-0.994457	56.4557	0
25	0	-0.970094	57.3968	0
26	0	-0.942375	58.2848	0
27	0	-0.919183	59.1297	0
28	0	-0.892733	59.9267	0
29	0	-0.866894	60.6782	0
30	0	-0.841621	61.3865	0
31	0	-0.820379	62.0596	0
32	0	-0.796056	62.6933	0
33	0	-0.772193	63.2896	0
34	0	-0.752084	63.8552	0
35	0	-0.729003	64.3866	0
36	0	-0.706302	64.8855	0
37	0	-0.687131	65.3576	0
38	0	-0.665079	65.8	0
39	0	-0.643345	66.2139	0
40	0	-0.624956	66.6044	0
41	0	-0.603765	66.969	0
42	0	-0.582841	67.3087	0
43	0	-0.565108	67.628	0
44	0	-0.544642	67.9247	0
45	0	-0.524401	68.1996	0
46	0	-0.507221	68.4569	0
47	0	-0.487364	68.6944	0

48	0	-0.467699	68.9132	0
49	0	-0.450985	69.1166	0
50	0	-0.431644	69.3029	0
51	0	-0.412463	69.473	0
52	0	-0.396142	69.6299	0
53	0	-0.377233	69.7723	0
54	0	-0.358459	69.9007	0
55	0	-0.342466	70.018	0
56	0	-0.323919	70.1229	0
57	0	-0.305481	70.2163	0
58	0	-0.28976	70.3002	0
59	0	-0.271509	70.3739	0
60	0	-0.253347	70.4381	0
61	0	-0.237847	70.4947	0
62	0	-0.219834	70.543	0
63	0	-0.204452	70.5848	0
64	0	-0.186567	70.6196	0
65	0	-0.168741	70.6481	0
66	0	-0.150969	70.6709	0
67	0	-0.135774	70.6893	0
68	0	-0.118085	70.7033	0
69	0	-0.100433	70.7134	0
70	0	-0.0853288	70.7206	0
71	0	-0.0677301	70.7252	0
72	0	-0.0501541	70.7278	0
73	0	-0.0350997	70.729	0
74	0	-0.0175476	70.7293	0
75	0	0	70.7293	0
76	0	0.0175476	70.7296	0
77	0	0.0350997	70.7308	0
78	0	0.0501541	70.7333	0
79	0	0.0677301	70.7379	0
80	0	0.0853288	70.7452	0
81	0	0.100433	70.7553	0
82	0	0.118085	70.7692	0
83	0	0.135774	70.7877	0
84	0	0.150969	70.8105	0
85	0	0.168741	70.8389	0
86	0	0.186567	70.8738	0
87	0	0.201894	70.9145	0
88	0	0.219834	70.9628	0
89	0	0.237847	71.0194	0
90	0	0.253347	71.0836	0
91	0	0.271509	71.1573	0
92	0	0.28976	71.2413	0
93	0	0.305481	71.3346	0
94	0	0.323919	71.4395	0
95	0	0.342466	71.5568	0
96	0	0.358459	71.6853	0
97	0	0.377233	71.8276	0
98	0	0.396142	71.9845	0
99	0	0.412463	72.1547	0
100	0	0.431644	72.341	0
101	0	0.450985	72.5444	0
102	0	0.467699	72.7631	0
103	0	0.487364	73.0006	0
104	0	0.507221	73.2579	0

105	0	0.524401	73.5329	0
106	0	0.544642	73.8295	0
107	0	0.565108	74.1489	0
108	0	0.582841	74.4886	0
109	0	0.603765	74.8531	0
110	0	0.624956	75.2437	0
111	0	0.643345	75.6576	0
112	0	0.665079	76.0999	0
113	0	0.687131	76.572	0
114	0	0.706302	77.0709	0
115	0	0.729003	77.6024	0
116	0	0.752084	78.168	0
117	0	0.772193	78.7643	0
118	0	0.796056	79.398	0
119	0	0.820379	80.071	0
120	0	0.841621	80.7793	0
121	0	0.866894	81.5308	0
122	0	0.892733	82.3278	0
123	0	0.915365	83.1657	0
124	0	0.942375	84.0538	0
125	0	0.970094	84.9948	0
126	0	0.994457	85.9838	0
127	0	1.02365	87.0317	0
128	0	1.05375	88.142	0
129	0	1.08032	89.3091	0
130	0	1.11232	90.5464	0
131	0	1.1455	91.8586	0
132	0	1.17499	93.2392	0
133	0	1.21073	94.705	0
134	0	1.24809	96.2627	0
135	0	1.28155	97.9051	0
136	0	1.32251	99.6541	0
137	0	1.36581	101.52	0
138	0	1.40507	103.494	0
139	0	1.4538	105.607	0
140	0	1.50626	107.876	0
141	0	1.55477	110.293	0
142	0.14	1.61644	112.906	0.226301
143	0.32	1.68494	115.745	0.765481
144	0.32	1.75069	118.81	1.3257
145	0.38	1.83843	122.19	2.0243
146	0.4	1.94314	125.966	2.80156
147	0.44	2.05375	130.184	3.70521
148	0.77	2.22621	135.14	5.41939
149	1.1	2.51213	141.451	8.18273

---

Data Set Standard Deviation = 0.127999  
 Numerator = 66.9571  
 Denominator = 342.987  
 W Statistic = 0.195218 = 66.9571 / 342.987

**5% Critical value of 0.976 exceeds 0.195218**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.195218**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Beryllium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	ND<0
	3/20/2014	ND<0 U
	9/9/2014	ND<0 U
	3/16/2015	ND<0 U
	9/9/2015	ND<0 U
	3/18/2016	ND<0 U
	9/20/2016	ND<0 U
	3/23/2017	ND<0 U
	9/18/2017	ND<0 U
	3/15/2018	ND<0 U
	9/17/2018	ND<0 U
	3/5/2019	ND<0 U
	9/24/2019	ND<0 U
	3/16/2020	ND<0 U
	9/22/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/22/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Beryllium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 0

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	ND<0 U
	9/4/2014	ND<0 U
	3/17/2015	ND<0 U
	9/11/2015	ND<0 U
	3/15/2016	ND<0 U
	9/21/2016	ND<0 U
	3/28/2017	ND<0 U
	9/19/2017	ND<0 U
	3/26/2018	ND<0 U
	9/18/2018	ND<0 U
	3/4/2019	ND<0 U
	9/23/2019	ND<0 U
	3/19/2020	ND<0 U
	9/23/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	ND<0 U
	3/16/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Beryllium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 94.7368%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0.77

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/19/2015	ND<0 U
	9/14/2015	ND<0 U
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/27/2017	ND<0 U
	9/20/2017	ND<0 U
	3/16/2018	ND<0 U
	9/20/2018	ND<0 U
	3/5/2019	ND<0 U
	9/25/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/18/2021	0.77 JR
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Beryllium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 94.7368%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 1.1

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/17/2014	ND<0 U
	3/19/2015	ND<0 U
	9/15/2015	ND<0 U
	3/21/2016	ND<0 U
	9/26/2016	ND<0 U
	3/31/2017	ND<0 U
	9/21/2017	ND<0 U
	3/30/2018	1.1
	9/26/2018	ND<0 U
	3/13/2019	ND<0 U
	10/3/2019	ND<0 U
	4/3/2020	ND<0 U
	9/30/2020	ND<0 U
	3/22/2021	ND<0 U
	9/16/2021	ND<0 U
	3/24/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Beryllium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	ND<0
	3/18/2014	ND<0 U
	9/16/2014	ND<0 U
	3/18/2015	ND<0 U
	9/15/2015	ND<0 U
	3/16/2016	ND<0 U
	9/22/2016	ND<0 U
	3/29/2017	ND<0 U
	9/21/2017	ND<0 U
	3/28/2018	ND<0 U
	9/20/2018	ND<0 U
	3/12/2019	ND<0 U
	10/1/2019	ND<0 U
	3/18/2020	ND<0 U
	9/24/2020	ND<0 U
	3/17/2021	ND<0 U
	9/9/2021	ND<0 U
	3/15/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/15/2023	1	0	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Beryllium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	ND<0 U
	9/29/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

# Shapiro-Francia Test of Normality

Parameter: Cadmium, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	0	-1.55477	33.5744	0
10	0	-1.50626	35.8432	0
11	0	-1.4538	37.9567	0
12	0	-1.40507	39.931	0
13	0	-1.36581	41.7964	0
14	0	-1.32251	43.5454	0
15	0	-1.28155	45.1878	0
16	0	-1.24809	46.7455	0
17	0	-1.21073	48.2114	0
18	0	-1.17499	49.592	0
19	0	-1.1455	50.9042	0
20	0	-1.11232	52.1414	0
21	0	-1.08032	53.3085	0
22	0	-1.05375	54.4189	0
23	0	-1.02365	55.4667	0
24	0	-0.994457	56.4557	0
25	0	-0.970094	57.3968	0
26	0	-0.942375	58.2848	0
27	0	-0.919183	59.1297	0
28	0	-0.892733	59.9267	0
29	0	-0.866894	60.6782	0
30	0	-0.841621	61.3865	0
31	0	-0.820379	62.0596	0
32	0	-0.796056	62.6933	0
33	0	-0.772193	63.2896	0
34	0	-0.752084	63.8552	0
35	0	-0.729003	64.3866	0
36	0	-0.706302	64.8855	0
37	0	-0.687131	65.3576	0
38	0	-0.665079	65.8	0
39	0	-0.643345	66.2139	0
40	0	-0.624956	66.6044	0
41	0	-0.603765	66.969	0
42	0	-0.582841	67.3087	0
43	0	-0.565108	67.628	0
44	0	-0.544642	67.9247	0
45	0	-0.524401	68.1996	0
46	0	-0.507221	68.4569	0
47	0	-0.487364	68.6944	0

48	0	-0.467699	68.9132	0
49	0	-0.450985	69.1166	0
50	0	-0.431644	69.3029	0
51	0	-0.412463	69.473	0
52	0	-0.396142	69.6299	0
53	0	-0.377233	69.7723	0
54	0	-0.358459	69.9007	0
55	0	-0.342466	70.018	0
56	0	-0.323919	70.1229	0
57	0	-0.305481	70.2163	0
58	0	-0.28976	70.3002	0
59	0	-0.271509	70.3739	0
60	0	-0.253347	70.4381	0
61	0	-0.237847	70.4947	0
62	0	-0.219834	70.543	0
63	0	-0.204452	70.5848	0
64	0	-0.186567	70.6196	0
65	0	-0.168741	70.6481	0
66	0	-0.150969	70.6709	0
67	0	-0.135774	70.6893	0
68	0	-0.118085	70.7033	0
69	0	-0.100433	70.7134	0
70	0	-0.0853288	70.7206	0
71	0	-0.0677301	70.7252	0
72	0	-0.0501541	70.7278	0
73	0	-0.0350997	70.729	0
74	0	-0.0175476	70.7293	0
75	0	0	70.7293	0
76	0	0.0175476	70.7296	0
77	0	0.0350997	70.7308	0
78	0	0.0501541	70.7333	0
79	0	0.0677301	70.7379	0
80	0	0.0853288	70.7452	0
81	0	0.100433	70.7553	0
82	0	0.118085	70.7692	0
83	0	0.135774	70.7877	0
84	0	0.150969	70.8105	0
85	0	0.168741	70.8389	0
86	0	0.186567	70.8738	0
87	0	0.201894	70.9145	0
88	0	0.219834	70.9628	0
89	0	0.237847	71.0194	0
90	0	0.253347	71.0836	0
91	0	0.271509	71.1573	0
92	0	0.28976	71.2413	0
93	0	0.305481	71.3346	0
94	0	0.323919	71.4395	0
95	0	0.342466	71.5568	0
96	0	0.358459	71.6853	0
97	0	0.377233	71.8276	0
98	0	0.396142	71.9845	0
99	0	0.412463	72.1547	0
100	0	0.431644	72.341	0
101	0	0.450985	72.5444	0
102	0	0.467699	72.7631	0
103	0	0.487364	73.0006	0
104	0	0.507221	73.2579	0

105	0	0.524401	73.5329	0
106	0	0.544642	73.8295	0
107	0	0.565108	74.1489	0
108	0	0.582841	74.4886	0
109	0	0.603765	74.8531	0
110	0	0.624956	75.2437	0
111	0	0.643345	75.6576	0
112	0	0.665079	76.0999	0
113	0	0.687131	76.572	0
114	0	0.706302	77.0709	0
115	0	0.729003	77.6024	0
116	0	0.752084	78.168	0
117	0	0.772193	78.7643	0
118	0	0.796056	79.398	0
119	0	0.820379	80.071	0
120	0	0.841621	80.7793	0
121	0	0.866894	81.5308	0
122	0	0.892733	82.3278	0
123	0	0.915365	83.1657	0
124	0	0.942375	84.0538	0
125	0	0.970094	84.9948	0
126	0	0.994457	85.9838	0
127	0	1.02365	87.0317	0
128	0	1.05375	88.142	0
129	0	1.08032	89.3091	0
130	0	1.11232	90.5464	0
131	0	1.1455	91.8586	0
132	0.38	1.17499	93.2392	0.446495
133	0.41	1.21073	94.705	0.942894
134	0.42	1.24809	96.2627	1.46709
135	0.44	1.28155	97.9051	2.03097
136	0.49	1.32251	99.6541	2.679
137	0.5	1.36581	101.52	3.3619
138	0.53	1.40507	103.494	4.10659
139	0.53	1.4538	105.607	4.87711
140	0.54	1.50626	107.876	5.69049
141	0.58	1.55477	110.293	6.59226
142	0.68	1.61644	112.906	7.69143
143	0.76	1.68494	115.745	8.97199
144	0.8	1.75069	118.81	10.3725
145	0.8	1.83843	122.19	11.8433
146	1.1	1.94314	125.966	13.9807
147	1.2	2.05375	130.184	16.4452
148	1.2	2.22621	135.14	19.1167
149	1.8	2.51213	141.451	23.6385

Data Set Standard Deviation = 0.270761  
 Numerator = 558.779  
 Denominator = 1534.75  
 W Statistic = 0.364085 = 558.779 / 1534.75

**5% Critical value of 0.976 exceeds 0.364085**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.364085**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Cadmium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 89.4737%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 1.2

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	ND<0
	3/20/2014	ND<0 U
	9/9/2014	ND<0 U
	3/16/2015	ND<0 U
	9/9/2015	ND<0 U
	3/18/2016	ND<0 U
	9/20/2016	ND<0 U
	3/23/2017	ND<0 U
	9/18/2017	1.2
	3/15/2018	ND<0 U
	9/17/2018	ND<0 U
	3/5/2019	ND<0 U
	9/24/2019	ND<0 U
	3/16/2020	0.44 J
	9/22/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/22/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Cadmium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 0

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	ND<0 U
	9/4/2014	ND<0 U
	3/17/2015	ND<0 U
	9/11/2015	ND<0 U
	3/15/2016	ND<0 U
	9/21/2016	ND<0 U
	3/28/2017	ND<0 U
	9/19/2017	ND<0 U
	3/26/2018	ND<0 U
	9/18/2018	ND<0 U
	3/4/2019	ND<0 U
	9/23/2019	ND<0 U
	3/19/2020	ND<0 U
	9/23/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	ND<0 U
	3/16/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Cadmium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/19/2015	ND<0 U
	9/14/2015	ND<0 U
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/27/2017	ND<0 U
	9/20/2017	ND<0 U
	3/16/2018	ND<0 U
	9/20/2018	ND<0 U
	3/5/2019	ND<0 U
	9/25/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/18/2021	ND<0 U
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Cadmium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 94.7368%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 1.1

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/17/2014	ND<0 U
	3/19/2015	ND<0 U
	9/15/2015	ND<0 U
	3/21/2016	ND<0 U
	9/26/2016	ND<0 U
	3/31/2017	ND<0 U
	9/21/2017	ND<0 U
	3/30/2018	1.1
	9/26/2018	ND<0 U
	3/13/2019	ND<0 U
	10/3/2019	ND<0 U
	4/3/2020	ND<0 U
	9/30/2020	ND<0 U
	3/22/2021	ND<0 U
	9/16/2021	ND<0 U
	3/24/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Cadmium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 57.8947%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 1.2

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	ND<0
	3/18/2014	ND<0 U
	9/16/2014	ND<0 U
	3/18/2015	0.49 J
	9/15/2015	ND<0 U
	3/16/2016	0.68 J
	9/22/2016	0.76 J
	3/29/2017	ND<0 U
	9/21/2017	ND<0 U
	3/28/2018	0.54 J
	9/20/2018	0.53 J
	3/12/2019	ND<0 U
	10/1/2019	ND<0 U
	3/18/2020	ND<0 U
	9/24/2020	ND<0 U
	3/17/2021	0.38 J
	9/9/2021	ND<0 U
	3/15/2022	1.2
	9/16/2022	0.5 J

---

Date	Count	Mean	Significant
3/15/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Cadmium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	ND<0 U
	9/29/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Shapiro-Francia Test of Normality

Parameter: Calcium, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	1950	-2.51213	6.31081	-4898.66
2	4400	-2.22621	11.2668	-14694
3	5060	-2.05375	15.4847	-25085.9
4	5110	-1.94314	19.2605	-35015.4
5	5900	-1.83843	22.6403	-45862.1
6	7100	-1.75069	25.7052	-58291.9
7	7100	-1.68494	28.5442	-70255
8	7200	-1.61644	31.1571	-81893.3
9	7400	-1.55477	33.5744	-93398.7
10	7500	-1.50626	35.8432	-104696
11	7600	-1.4538	37.9567	-115745
12	7600	-1.40507	39.931	-126423
13	7700	-1.36581	41.7964	-136940
14	7900	-1.32251	43.5454	-147388
15	8000	-1.28155	45.1878	-157640
16	8000	-1.24809	46.7455	-167625
17	8100	-1.21073	48.2114	-177432
18	8100	-1.17499	49.592	-186949
19	8200	-1.1455	50.9042	-196342
20	8200	-1.11232	52.1414	-205463
21	8300	-1.08032	53.3085	-214430
22	8300	-1.05375	54.4189	-223176
23	8300	-1.02365	55.4667	-231672
24	8500	-0.994457	56.4557	-240125
25	8500	-0.970094	57.3968	-248371
26	8500	-0.942375	58.2848	-256381
27	8500	-0.919183	59.1297	-264194
28	8500	-0.892733	59.9267	-271782
29	8600	-0.866894	60.6782	-279238
30	8800	-0.841621	61.3865	-286644
31	8800	-0.820379	62.0596	-293863
32	8800	-0.796056	62.6933	-300869
33	9000	-0.772193	63.2896	-307818
34	9100	-0.752084	63.8552	-314662
35	9100	-0.729003	64.3866	-321296
36	9100	-0.706302	64.8855	-327724
37	9200	-0.687131	65.3576	-334045
38	9200	-0.665079	65.8	-340164
39	9300	-0.643345	66.2139	-346147
40	9300	-0.624956	66.6044	-351959
41	9500	-0.603765	66.969	-357695
42	9500	-0.582841	67.3087	-363232
43	9500	-0.565108	67.628	-368600
44	9500	-0.544642	67.9247	-373774
45	9640	-0.524401	68.1996	-378830
46	10000	-0.507221	68.4569	-383902
47	10000	-0.487364	68.6944	-388775

48	10100	-0.467699	68.9132	-393499
49	10200	-0.450985	69.1166	-398099
50	10400	-0.431644	69.3029	-402588
51	10400	-0.412463	69.473	-406878
52	10400	-0.396142	69.6299	-410998
53	10800	-0.377233	69.7723	-415072
54	10900	-0.358459	69.9007	-418979
55	11100	-0.342466	70.018	-422781
56	11100	-0.323919	70.1229	-426376
57	11200	-0.305481	70.2163	-429797
58	11200	-0.28976	70.3002	-433043
59	11300	-0.271509	70.3739	-436111
60	11300	-0.253347	70.4381	-438974
61	11400	-0.237847	70.4947	-441685
62	11500	-0.219834	70.543	-444213
63	11600	-0.204452	70.5848	-446585
64	11600	-0.186567	70.6196	-448749
65	11700	-0.168741	70.6481	-450723
66	11800	-0.150969	70.6709	-452505
67	11900	-0.135774	70.6893	-454120
68	12000	-0.118085	70.7033	-455537
69	12100	-0.100433	70.7134	-456753
70	12200	-0.0853288	70.7206	-457794
71	12300	-0.0677301	70.7252	-458627
72	12400	-0.0501541	70.7278	-459249
73	12400	-0.0350997	70.729	-459684
74	12700	-0.0175476	70.7293	-459907
75	12800	0	70.7293	-459907
76	12880	0.0175476	70.7296	-459681
77	13000	0.0350997	70.7308	-459224
78	13200	0.0501541	70.7333	-458562
79	13500	0.0677301	70.7379	-457648
80	13900	0.0853288	70.7452	-456462
81	14000	0.100433	70.7553	-455056
82	14200	0.118085	70.7692	-453379
83	14400	0.135774	70.7877	-451424
84	14600	0.150969	70.8105	-449220
85	15600	0.168741	70.8389	-446587
86	16800	0.186567	70.8738	-443453
87	17000	0.201894	70.9145	-440021
88	17900	0.219834	70.9628	-436086
89	18600	0.237847	71.0194	-431662
90	19000	0.253347	71.0836	-426848
91	19200	0.271509	71.1573	-421635
92	21100	0.28976	71.2413	-415521
93	21300	0.305481	71.3346	-409015
94	21500	0.323919	71.4395	-402050
95	21600	0.342466	71.5568	-394653
96	22000	0.358459	71.6853	-386767
97	23200	0.377233	71.8276	-378015
98	23500	0.396142	71.9845	-368706
99	23800	0.412463	72.1547	-358889
100	23900	0.431644	72.341	-348573
101	28100	0.450985	72.5444	-335900
102	29000	0.467699	72.7631	-322337
103	30000	0.487364	73.0006	-307716
104	31400	0.507221	73.2579	-291789

105	31500	0.524401	73.5329	-275271
106	31900	0.544642	73.8295	-257897
107	33300	0.565108	74.1489	-239079
108	34500	0.582841	74.4886	-218971
109	34900	0.603765	74.8531	-197899
110	35400	0.624956	75.2437	-175776
111	35700	0.643345	75.6576	-152808
112	36100	0.665079	76.0999	-128799
113	37100	0.687131	76.572	-103307
114	37130	0.706302	77.0709	-77081.5
115	37400	0.729003	77.6024	-49816.8
116	38000	0.752084	78.168	-21237.6
117	38000	0.772193	78.7643	8105.71
118	38400	0.796056	79.398	38674.3
119	38600	0.820379	80.071	70340.9
120	39000	0.841621	80.7793	103164
121	39100	0.866894	81.5308	137060
122	39900	0.892733	82.3278	172680
123	41500	0.915365	83.1657	210667
124	43200	0.942375	84.0538	251378
125	43600	0.970094	84.9948	293674
126	43620	0.994457	85.9838	337052
127	44800	1.02365	87.0317	382912
128	45300	1.05375	88.142	430647
129	46400	1.08032	89.3091	480773
130	46700	1.11232	90.5464	532719
131	47200	1.1455	91.8586	586787
132	47500	1.17499	93.2392	642599
133	48500	1.21073	94.705	701319
134	49500	1.24809	96.2627	763099
135	51200	1.28155	97.9051	828715
136	52000	1.32251	99.6541	897485
137	52200	1.36581	101.52	968780
138	56000	1.40507	103.494	1.04746e+006
139	57300	1.4538	105.607	1.13077e+006
140	59300	1.50626	107.876	1.22009e+006
141	59600	1.55477	110.293	1.31275e+006
142	60000	1.61644	112.906	1.40974e+006
143	61300	1.68494	115.745	1.51303e+006
144	64600	1.75069	118.81	1.62612e+006
145	66600	1.83843	122.19	1.74856e+006
146	67000	1.94314	125.966	1.87875e+006
147	69100	2.05375	130.184	2.02066e+006
148	73000	2.22621	135.14	2.18318e+006
149	318000	2.51213	141.451	2.98203e+006

---

Data Set Standard Deviation = 29884.1  
 Numerator = 8.89253e+012  
 Denominator = 1.86959e+013  
 W Statistic = 0.475641 = 8.89253e+012 / 1.86959e+013

**5% Critical value of 0.976 exceeds 0.475641**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.475641**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Calcium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 73000

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	5110
	3/20/2014	31900
	9/9/2014	52200
	3/16/2015	41500
	9/9/2015	46400
	3/18/2016	49500
	9/20/2016	59300
	3/23/2017	46700
	9/18/2017	47200
	3/15/2018	48500
	9/17/2018	59600
	3/5/2019	60000
	9/24/2019	51200
	3/16/2020	52000
	9/22/2020	69100
	3/16/2021	64600
	9/14/2021	73000
	3/22/2022	66600
	9/13/2022	67000

---

Date	Count	Mean	Significant
3/14/2023	1	61300	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Calcium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 57300

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	37130
	12/5/2013	43620
	3/19/2014	57300
	9/4/2014	44800
	3/17/2015	43600
	9/11/2015	39900
	3/15/2016	38000
	9/21/2016	38400
	3/28/2017	31500
	9/19/2017	30000
	3/26/2018	34500
	9/18/2018	47500
	3/4/2019	56000
	9/23/2019	37400
	3/19/2020	43200
	9/23/2020	31400
	3/19/2021	45300
	9/15/2021	29000
	3/16/2022	23200
	9/14/2022	33300

---

Date	Count	Mean	Significant
3/16/2023	1	23900	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Calcium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 14600

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	9500
	3/21/2014	11600
	9/8/2014	13500
	3/19/2015	12400
	9/14/2015	13000
	3/21/2016	14600
	9/23/2016	12700
	3/27/2017	12400
	9/20/2017	11500
	3/16/2018	11100
	9/20/2018	10900
	3/5/2019	12300
	9/25/2019	10400
	3/25/2020	12100
	9/28/2020	11200
	3/18/2021	4400 R
	9/15/2021	12000
	3/22/2022	11800
	9/14/2022	11100

---

Date	Count	Mean	Significant
3/16/2023	1	11200	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Calcium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 23800

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	9640
	3/21/2014	10000
	9/17/2014	10800
	3/19/2015	11600
	9/15/2015	13200
	3/21/2016	13900
	9/26/2016	12800
	3/31/2017	14400
	9/21/2017	21300
	3/30/2018	23500
	9/26/2018	22000
	3/13/2019	23800
	10/3/2019	21100
	4/3/2020	19200
	9/30/2020	17900
	3/22/2021	21600
	9/16/2021	19000
	3/24/2022	18600
	9/16/2022	17000

---

Date	Count	Mean	Significant
3/17/2023	1	15600	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Calcium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 318000

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	5060
	3/18/2014	7900
	9/16/2014	7700
	3/18/2015	8200
	9/15/2015	9000
	3/16/2016	9500
	9/22/2016	9300
	3/29/2017	9300
	9/21/2017	8500
	3/28/2018	9100
	9/20/2018	9100
	3/12/2019	10400
	10/1/2019	10200
	3/18/2020	10100
	9/24/2020	8500
	3/17/2021	318000 R
	9/9/2021	9500
	3/15/2022	8800
	9/16/2022	8000

---

Date	Count	Mean	Significant
3/15/2023	1	8300	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Calcium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 39000

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	38600
	3/26/2020	39000
	9/29/2020	35400
	3/16/2021	34900
	9/14/2021	38000
	3/18/2022	35700
	9/13/2022	36100

---

Date	Count	Mean	Significant
3/14/2023	1	39100	TRUE

# Shapiro-Francia Test of Normality

Parameter: Chromium, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	0	-1.55477	33.5744	0
10	0	-1.50626	35.8432	0
11	0	-1.4538	37.9567	0
12	0	-1.40507	39.931	0
13	0	-1.36581	41.7964	0
14	0	-1.32251	43.5454	0
15	0	-1.28155	45.1878	0
16	0	-1.24809	46.7455	0
17	0	-1.21073	48.2114	0
18	0	-1.17499	49.592	0
19	0	-1.1455	50.9042	0
20	0	-1.11232	52.1414	0
21	0	-1.08032	53.3085	0
22	0	-1.05375	54.4189	0
23	0	-1.02365	55.4667	0
24	0	-0.994457	56.4557	0
25	0	-0.970094	57.3968	0
26	0	-0.942375	58.2848	0
27	0	-0.919183	59.1297	0
28	0	-0.892733	59.9267	0
29	0.8	-0.866894	60.6782	-0.693515
30	0.81	-0.841621	61.3865	-1.37523
31	0.85	-0.820379	62.0596	-2.07255
32	0.85	-0.796056	62.6933	-2.7492
33	0.86	-0.772193	63.2896	-3.41328
34	0.87	-0.752084	63.8552	-4.0676
35	0.89	-0.729003	64.3866	-4.71641
36	0.94	-0.706302	64.8855	-5.38033
37	0.94	-0.687131	65.3576	-6.02624
38	0.95	-0.665079	65.8	-6.65806
39	0.95	-0.643345	66.2139	-7.26924
40	0.98	-0.624956	66.6044	-7.8817
41	0.98	-0.603765	66.969	-8.47339
42	1	-0.582841	67.3087	-9.05623
43	1.1	-0.565108	67.628	-9.67785
44	1.1	-0.544642	67.9247	-10.277
45	1.1	-0.524401	68.1996	-10.8538
46	1.2	-0.507221	68.4569	-11.4625
47	1.2	-0.487364	68.6944	-12.0473

48	1.2	-0.467699	68.9132	-12.6085
49	1.2	-0.450985	69.1166	-13.1497
50	1.2	-0.431644	69.3029	-13.6677
51	1.3	-0.412463	69.473	-14.2039
52	1.3	-0.396142	69.6299	-14.7189
53	1.3	-0.377233	69.7723	-15.2093
54	1.4	-0.358459	69.9007	-15.7111
55	1.4	-0.342466	70.018	-16.1906
56	1.4	-0.323919	70.1229	-16.6441
57	1.5	-0.305481	70.2163	-17.1023
58	1.5	-0.28976	70.3002	-17.5369
59	1.6	-0.271509	70.3739	-17.9713
60	1.6	-0.253347	70.4381	-18.3767
61	1.6	-0.237847	70.4947	-18.7572
62	1.6	-0.219834	70.543	-19.109
63	1.6	-0.204452	70.5848	-19.4361
64	1.6	-0.186567	70.6196	-19.7346
65	1.6	-0.168741	70.6481	-20.0046
66	1.6	-0.150969	70.6709	-20.2461
67	1.7	-0.135774	70.6893	-20.477
68	1.7	-0.118085	70.7033	-20.6777
69	1.7	-0.100433	70.7134	-20.8484
70	1.8	-0.0853288	70.7206	-21.002
71	1.8	-0.0677301	70.7252	-21.1239
72	1.8	-0.0501541	70.7278	-21.2142
73	1.8	-0.0350997	70.729	-21.2774
74	1.8	-0.0175476	70.7293	-21.309
75	1.9	0	70.7293	-21.309
76	1.9	0.0175476	70.7296	-21.2756
77	1.9	0.0350997	70.7308	-21.209
78	1.9	0.0501541	70.7333	-21.1137
79	1.9	0.0677301	70.7379	-20.985
80	2.1	0.0853288	70.7452	-20.8058
81	2.1	0.100433	70.7553	-20.5949
82	2.1	0.118085	70.7692	-20.3469
83	2.3	0.135774	70.7877	-20.0346
84	2.3	0.150969	70.8105	-19.6874
85	2.4	0.168741	70.8389	-19.2824
86	2.4	0.186567	70.8738	-18.8347
87	2.4	0.201894	70.9145	-18.3501
88	2.5	0.219834	70.9628	-17.8005
89	2.5	0.237847	71.0194	-17.2059
90	2.6	0.253347	71.0836	-16.5472
91	2.8	0.271509	71.1573	-15.787
92	2.9	0.28976	71.2413	-14.9467
93	3	0.305481	71.3346	-14.0302
94	3	0.323919	71.4395	-13.0585
95	3	0.342466	71.5568	-12.0311
96	3.1	0.358459	71.6853	-10.9199
97	3.1	0.377233	71.8276	-9.75043
98	3.2	0.396142	71.9845	-8.48278
99	3.2	0.412463	72.1547	-7.1629
100	3.2	0.431644	72.341	-5.78164
101	3.3	0.450985	72.5444	-4.29338
102	3.3	0.467699	72.7631	-2.74998
103	3.3	0.487364	73.0006	-1.14168
104	3.4	0.507221	73.2579	0.582874

105	3.5	0.524401	73.5329	2.41828
106	3.5	0.544642	73.8295	4.32452
107	3.5	0.565108	74.1489	6.3024
108	3.7	0.582841	74.4886	8.45891
109	3.7	0.603765	74.8531	10.6928
110	3.7	0.624956	75.2437	13.0052
111	3.8	0.643345	75.6576	15.4499
112	3.8	0.665079	76.0999	17.9772
113	3.8	0.687131	76.572	20.5883
114	3.9	0.706302	77.0709	23.3429
115	4	0.729003	77.6024	26.2589
116	4	0.752084	78.168	29.2672
117	4.1	0.772193	78.7643	32.4332
118	4.3	0.796056	79.398	35.8562
119	4.5	0.820379	80.071	39.5479
120	4.5	0.841621	80.7793	43.3352
121	4.7	0.866894	81.5308	47.4096
122	4.7	0.892733	82.3278	51.6055
123	4.8	0.915365	83.1657	55.9992
124	4.8	0.942375	84.0538	60.5226
125	4.8	0.970094	84.9948	65.1791
126	4.9	0.994457	85.9838	70.0519
127	5	1.02365	87.0317	75.1702
128	5.1	1.05375	88.142	80.5443
129	5.5	1.08032	89.3091	86.4861
130	5.5	1.11232	90.5464	92.6038
131	5.6	1.1455	91.8586	99.0187
132	5.6	1.17499	93.2392	105.599
133	5.9	1.21073	94.705	112.742
134	6.7	1.24809	96.2627	121.104
135	7	1.28155	97.9051	130.075
136	7.7	1.32251	99.6541	140.258
137	8.2	1.36581	101.52	151.458
138	8.8	1.40507	103.494	163.822
139	9.4	1.4538	105.607	177.488
140	12	1.50626	107.876	195.563
141	12	1.55477	110.293	214.221
142	14	1.61644	112.906	236.851
143	16	1.68494	115.745	263.81
144	17	1.75069	118.81	293.571
145	17	1.83843	122.19	324.825
146	18	1.94314	125.966	359.801
147	19	2.05375	130.184	398.822
148	24	2.22621	135.14	452.251
149	52	2.51213	141.451	582.882

Data Set Standard Deviation = 5.67416

Numerator = 339752

Denominator = 674014

W Statistic = 0.504072 = 339752 / 674014

**5% Critical value of 0.976 exceeds 0.504072  
Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.504072  
Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Chromium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 5.1

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	ND<0
	3/20/2014	1.6 J
	9/9/2014	2.4
	3/16/2015	2.4
	9/9/2015	2.3
	3/18/2016	4.8
	9/20/2016	3.2
	3/23/2017	4.7
	9/18/2017	3
	3/15/2018	3.3
	9/17/2018	1.9 J
	3/5/2019	1.9 J
	9/24/2019	0.86 J
	3/16/2020	3.5
	9/22/2020	0.89 J
	3/16/2021	0.98 J
	9/14/2021	5.1
	3/22/2022	0.87 J
	9/13/2022	1.4 J

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Date	Count	Mean	Significant
3/14/2023	1	1.4	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Chromium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 15%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 12

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	5
	9/4/2014	2.5
	3/17/2015	1.7 J
	9/11/2015	1.9 J
	3/15/2016	1.6 J
	9/21/2016	2.9
	3/28/2017	1.6 J
	9/19/2017	2.1 J
	3/26/2018	1.7 J
	9/18/2018	ND<0 U
	3/4/2019	1.1 J
	9/23/2019	0.95 J
	3/19/2020	4.1
	9/23/2020	2.4
	3/19/2021	0.98 J
	9/15/2021	12
	3/16/2022	1.6 J
	9/14/2022	3.5

---

Date	Count	Mean	Significant
3/16/2023	1	4.5	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Chromium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 47.3684%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 2.1

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	0.95 J
	9/8/2014	1.2 J
	3/19/2015	1.6 J
	9/14/2015	2.1 J
	3/21/2016	1.2 J
	9/23/2016	1.4 J
	3/27/2017	1.3 J
	9/20/2017	1.9 J
	3/16/2018	ND<0 U
	9/20/2018	0.94 J
	3/5/2019	ND<0 U
	9/25/2019	ND<0 U
	3/25/2020	0.85 J
	9/28/2020	ND<0 U
	3/18/2021	ND<0 U
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Chromium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 36.8421%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 3.8

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	1.1 J
	9/17/2014	1.3 J
	3/19/2015	1.1 J
	9/15/2015	1.2 J
	3/21/2016	0.94 J
	9/26/2016	3.8
	3/31/2017	1.3 J
	9/21/2017	1.8 J
	3/30/2018	0.85
	9/26/2018	ND<0 U
	3/13/2019	1.8 J
	10/3/2019	ND<0 U
	4/3/2020	ND<0 U
	9/30/2020	ND<0 U
	3/22/2021	ND<0 U
	9/16/2021	1.2 J
	3/24/2022	ND<0
	9/16/2022	1 J

---

Date	Count	Mean	Significant
3/17/2023	1	0.8	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Chromium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 14

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	ND<0
	3/18/2014	4.9
	9/16/2014	3.3
	3/18/2015	3.7
	9/15/2015	4
	3/16/2016	8.2
	9/22/2016	14
	3/29/2017	5.9
	9/21/2017	4
	3/28/2018	3.8
	9/20/2018	3.3
	3/12/2019	4.7
	10/1/2019	3
	3/18/2020	3
	9/24/2020	3.4
	3/17/2021	5.6 R
	9/9/2021	9.4
	3/15/2022	7
	9/16/2022	5.5

---

Date	Count	Mean	Significant
3/15/2023	1	6.7	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Chromium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 57.1429%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 1.6

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	1.6 J
	9/29/2020	0.81 J
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/18/2022	1.5 J
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	1.8	TRUE

## Shapiro-Francia Test of Normality

Parameter: Cobalt, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	0	-1.55477	33.5744	0
10	0	-1.50626	35.8432	0
11	0.62	-1.4538	37.9567	-0.901359
12	1.9	-1.40507	39.931	-3.571
13	2.3	-1.36581	41.7964	-6.71235
14	2.4	-1.32251	43.5454	-9.88637
15	2.6	-1.28155	45.1878	-13.2184
16	2.9	-1.24809	46.7455	-16.8378
17	2.9	-1.21073	48.2114	-20.349
18	3	-1.17499	49.592	-23.8739
19	3.2	-1.1455	50.9042	-27.5395
20	3.6	-1.11232	52.1414	-31.5439
21	3.7	-1.08032	53.3085	-35.5411
22	3.8	-1.05375	54.4189	-39.5453
23	4	-1.02365	55.4667	-43.6399
24	4	-0.994457	56.4557	-47.6177
25	4.2	-0.970094	57.3968	-51.6921
26	4.2	-0.942375	58.2848	-55.6501
27	4.3	-0.919183	59.1297	-59.6026
28	4.4	-0.892733	59.9267	-63.5306
29	4.5	-0.866894	60.6782	-67.4317
30	5	-0.841621	61.3865	-71.6398
31	5	-0.820379	62.0596	-75.7417
32	5.4	-0.796056	62.6933	-80.0404
33	5.9	-0.772193	63.2896	-84.5963
34	6.2	-0.752084	63.8552	-89.2592
35	6.9	-0.729003	64.3866	-94.2893
36	7.9	-0.706302	64.8855	-99.8691
37	8.4	-0.687131	65.3576	-105.641
38	8.4	-0.665079	65.8	-111.228
39	8.6	-0.643345	66.2139	-116.76
40	9	-0.624956	66.6044	-122.385
41	12	-0.603765	66.969	-129.63
42	12	-0.582841	67.3087	-136.624
43	13	-0.565108	67.628	-143.971
44	14	-0.544642	67.9247	-151.596
45	15	-0.524401	68.1996	-159.462
46	15	-0.507221	68.4569	-167.07
47	17	-0.487364	68.6944	-175.355

48	18	-0.467699	68.9132	-183.774
49	20	-0.450985	69.1166	-192.794
50	20	-0.431644	69.3029	-201.426
51	20	-0.412463	69.473	-209.676
52	21	-0.396142	69.6299	-217.995
53	22	-0.377233	69.7723	-226.294
54	23	-0.358459	69.9007	-234.538
55	25	-0.342466	70.018	-243.1
56	27	-0.323919	70.1229	-251.846
57	29	-0.305481	70.2163	-260.705
58	31	-0.28976	70.3002	-269.687
59	31	-0.271509	70.3739	-278.104
60	33	-0.253347	70.4381	-286.465
61	34	-0.237847	70.4947	-294.551
62	35	-0.219834	70.543	-302.245
63	36	-0.204452	70.5848	-309.606
64	37	-0.186567	70.6196	-316.509
65	38	-0.168741	70.6481	-322.921
66	38	-0.150969	70.6709	-328.658
67	38	-0.135774	70.6893	-333.817
68	38	-0.118085	70.7033	-338.304
69	39	-0.100433	70.7134	-342.221
70	40	-0.0853288	70.7206	-345.634
71	40	-0.0677301	70.7252	-348.344
72	40	-0.0501541	70.7278	-350.35
73	42	-0.0350997	70.729	-351.824
74	42	-0.0175476	70.7293	-352.561
75	43	0	70.7293	-352.561
76	43	0.0175476	70.7296	-351.806
77	44	0.0350997	70.7308	-350.262
78	46	0.0501541	70.7333	-347.955
79	46	0.0677301	70.7379	-344.839
80	47	0.0853288	70.7452	-340.829
81	48	0.100433	70.7553	-336.008
82	50	0.118085	70.7692	-330.104
83	50	0.135774	70.7877	-323.315
84	50	0.150969	70.8105	-315.767
85	52	0.168741	70.8389	-306.992
86	53	0.186567	70.8738	-297.104
87	54	0.201894	70.9145	-286.202
88	54	0.219834	70.9628	-274.331
89	56	0.237847	71.0194	-261.011
90	57	0.253347	71.0836	-246.571
91	58	0.271509	71.1573	-230.823
92	58	0.28976	71.2413	-214.017
93	58	0.305481	71.3346	-196.299
94	60	0.323919	71.4395	-176.864
95	60	0.342466	71.5568	-156.316
96	60	0.358459	71.6853	-134.808
97	60	0.377233	71.8276	-112.174
98	70	0.396142	71.9845	-84.4445
99	71	0.412463	72.1547	-55.1597
100	73	0.431644	72.341	-23.6497
101	73	0.450985	72.5444	9.27224
102	74	0.467699	72.7631	43.8819
103	75	0.487364	73.0006	80.4342
104	75	0.507221	73.2579	118.476

105	78	0.524401	73.5329	159.379
106	78	0.544642	73.8295	201.861
107	79	0.565108	74.1489	246.505
108	80	0.582841	74.4886	293.132
109	82	0.603765	74.8531	342.641
110	83	0.624956	75.2437	394.512
111	83	0.643345	75.6576	447.91
112	85	0.665079	76.0999	504.441
113	87	0.687131	76.572	564.222
114	95	0.706302	77.0709	631.32
115	110	0.729003	77.6024	711.511
116	110	0.752084	78.168	794.24
117	110	0.772193	78.7643	879.181
118	130	0.796056	79.398	982.668
119	200	0.820379	80.071	1146.74
120	230	0.841621	80.7793	1340.32
121	240	0.866894	81.5308	1548.37
122	250	0.892733	82.3278	1771.55
123	250	0.915365	83.1657	2000.4
124	250	0.942375	84.0538	2235.99
125	250	0.970094	84.9948	2478.51
126	260	0.994457	85.9838	2737.07
127	270	1.02365	87.0317	3013.46
128	280	1.05375	88.142	3308.51
129	280	1.08032	89.3091	3611
130	290	1.11232	90.5464	3933.57
131	330	1.1455	91.8586	4311.59
132	330	1.17499	93.2392	4699.33
133	350	1.21073	94.705	5123.09
134	380	1.24809	96.2627	5597.36
135	380	1.28155	97.9051	6084.35
136	390	1.32251	99.6541	6600.13
137	390	1.36581	101.52	7132.79
138	410	1.40507	103.494	7708.87
139	410	1.4538	105.607	8304.93
140	410	1.50626	107.876	8922.5
141	420	1.55477	110.293	9575.5
142	420	1.61644	112.906	10254.4
143	430	1.68494	115.745	10978.9
144	430	1.75069	118.81	11731.7
145	450	1.83843	122.19	12559
146	460	1.94314	125.966	13452.9
147	470	2.05375	130.184	14418.1
148	570	2.22621	135.14	15687.1
149	640	2.51213	141.451	17294.8

Data Set Standard Deviation = 142.64  
 Numerator = 2.99111e+008  
 Denominator = 4.25942e+008  
 W Statistic = 0.702233 = 2.99111e+008 / 4.25942e+008

**5% Critical value of 0.976 exceeds 0.702233**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.702233**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Cobalt, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 330

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	ND<0
	3/20/2014	330
	9/9/2014	79
	3/16/2015	95
	9/9/2015	83
	3/18/2016	53
	9/20/2016	75
	3/23/2017	34
	9/18/2017	70
	3/15/2018	39
	9/17/2018	40
	3/5/2019	54
	9/24/2019	60
	3/16/2020	250
	9/22/2020	31
	3/16/2021	20
	9/14/2021	36
	3/22/2022	29
	9/13/2022	22

---

Date	Count	Mean	Significant
3/14/2023	1	50	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Cobalt, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 87

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	20
	12/5/2013	ND<0
	3/19/2014	14
	9/4/2014	27
	3/17/2015	8.6
	9/11/2015	12
	3/15/2016	15
	9/21/2016	15
	3/28/2017	12
	9/19/2017	23
	3/26/2018	18
	9/18/2018	58
	3/4/2019	80
	9/23/2019	87
	3/19/2020	57
	9/23/2020	54
	3/19/2021	33
	9/15/2021	47
	3/16/2022	75
	9/14/2022	46

---

Date	Count	Mean	Significant
3/16/2023	1	73	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Cobalt, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 450

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	420
	3/21/2014	450
	9/8/2014	410
	3/19/2015	390
	9/14/2015	410
	3/21/2016	390
	9/23/2016	380
	3/27/2017	330
	9/20/2017	350
	3/16/2018	290
	9/20/2018	280
	3/5/2019	280
	9/25/2019	240
	3/25/2020	250
	9/28/2020	270
	3/18/2021	2.4 JR
	9/15/2021	250
	3/22/2022	260
	9/14/2022	250

---

Date	Count	Mean	Significant
3/16/2023	1	230	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Cobalt, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 110

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	60
	3/21/2014	60
	9/17/2014	58
	3/19/2015	83
	9/15/2015	85
	3/21/2016	74
	9/26/2016	73
	3/31/2017	78
	9/21/2017	110
	3/30/2018	110
	9/26/2018	82
	3/13/2019	78
	10/3/2019	48
	4/3/2020	42
	9/30/2020	38
	3/22/2021	35
	9/16/2021	31
	3/24/2022	25
	9/16/2022	20

---

Date	Count	Mean	Significant
3/17/2023	1	17	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Cobalt, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 13

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	ND<0
	3/18/2014	5 J
	9/16/2014	4.2 J
	3/18/2015	5.9
	9/15/2015	4.5 J
	3/16/2016	6.2
	9/22/2016	13
	3/29/2017	8.4
	9/21/2017	9
	3/28/2018	6.9
	9/20/2018	4.2 J
	3/12/2019	5 J
	10/1/2019	4.4 J
	3/18/2020	7.9
	9/24/2020	4 J
	3/17/2021	5.4 J
	9/9/2021	3.6 J
	3/15/2022	8.4
	9/16/2022	2.9 J

---

Date	Count	Mean	Significant
3/15/2023	1	3.7	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Cobalt, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 570

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	460
	3/26/2020	570
	9/29/2020	420
	3/16/2021	430
	9/14/2021	410
	3/18/2022	430
	9/13/2022	470

---

Date	Count	Mean	Significant
3/14/2023	1	640	TRUE

## Shapiro-Francia Test of Normality

Parameter: Copper, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	0	-1.55477	33.5744	0
10	0	-1.50626	35.8432	0
11	0	-1.4538	37.9567	0
12	0	-1.40507	39.931	0
13	0	-1.36581	41.7964	0
14	0	-1.32251	43.5454	0
15	0	-1.28155	45.1878	0
16	0	-1.24809	46.7455	0
17	0	-1.21073	48.2114	0
18	0	-1.17499	49.592	0
19	0	-1.1455	50.9042	0
20	0	-1.11232	52.1414	0
21	0	-1.08032	53.3085	0
22	0	-1.05375	54.4189	0
23	0	-1.02365	55.4667	0
24	0	-0.994457	56.4557	0
25	0	-0.970094	57.3968	0
26	0	-0.942375	58.2848	0
27	0	-0.919183	59.1297	0
28	0	-0.892733	59.9267	0
29	0	-0.866894	60.6782	0
30	0	-0.841621	61.3865	0
31	0	-0.820379	62.0596	0
32	0	-0.796056	62.6933	0
33	0	-0.772193	63.2896	0
34	0	-0.752084	63.8552	0
35	0	-0.729003	64.3866	0
36	0	-0.706302	64.8855	0
37	0	-0.687131	65.3576	0
38	0	-0.665079	65.8	0
39	0	-0.643345	66.2139	0
40	0	-0.624956	66.6044	0
41	0	-0.603765	66.969	0
42	2	-0.582841	67.3087	-1.16568
43	2	-0.565108	67.628	-2.2959
44	2.2	-0.544642	67.9247	-3.49411
45	2.2	-0.524401	68.1996	-4.64779
46	2.3	-0.507221	68.4569	-5.8144
47	2.4	-0.487364	68.6944	-6.98407

48	2.4	-0.467699	68.9132	-8.10655
49	2.5	-0.450985	69.1166	-9.23401
50	2.5	-0.431644	69.3029	-10.3131
51	2.5	-0.412463	69.473	-11.3443
52	2.7	-0.396142	69.6299	-12.4139
53	2.7	-0.377233	69.7723	-13.4324
54	2.9	-0.358459	69.9007	-14.4719
55	3.1	-0.342466	70.018	-15.5336
56	3.3	-0.323919	70.1229	-16.6025
57	3.4	-0.305481	70.2163	-17.6411
58	3.4	-0.28976	70.3002	-18.6263
59	3.5	-0.271509	70.3739	-19.5766
60	3.6	-0.253347	70.4381	-20.4886
61	3.6	-0.237847	70.4947	-21.3449
62	3.8	-0.219834	70.543	-22.1803
63	3.8	-0.204452	70.5848	-22.9572
64	3.9	-0.186567	70.6196	-23.6848
65	4.1	-0.168741	70.6481	-24.3766
66	4.2	-0.150969	70.6709	-25.0107
67	4.2	-0.135774	70.6893	-25.581
68	4.3	-0.118085	70.7033	-26.0887
69	4.4	-0.100433	70.7134	-26.5306
70	4.6	-0.0853288	70.7206	-26.9231
71	4.6	-0.0677301	70.7252	-27.2347
72	4.6	-0.0501541	70.7278	-27.4654
73	4.7	-0.0350997	70.729	-27.6304
74	4.7	-0.0175476	70.7293	-27.7128
75	4.8	0	70.7293	-27.7128
76	5.1	0.0175476	70.7296	-27.6234
77	5.1	0.0350997	70.7308	-27.4443
78	5.5	0.0501541	70.7333	-27.1685
79	5.7	0.0677301	70.7379	-26.7824
80	5.7	0.0853288	70.7452	-26.2961
81	5.8	0.100433	70.7553	-25.7136
82	5.8	0.118085	70.7692	-25.0287
83	6	0.135774	70.7877	-24.214
84	6.1	0.150969	70.8105	-23.2931
85	6.2	0.168741	70.8389	-22.2469
86	6.3	0.186567	70.8738	-21.0715
87	6.4	0.201894	70.9145	-19.7794
88	6.6	0.219834	70.9628	-18.3285
89	6.6	0.237847	71.0194	-16.7587
90	6.6	0.253347	71.0836	-15.0866
91	6.7	0.271509	71.1573	-13.2675
92	6.9	0.28976	71.2413	-11.2682
93	7.2	0.305481	71.3346	-9.06871
94	7.4	0.323919	71.4395	-6.67171
95	7.5	0.342466	71.5568	-4.10322
96	7.5	0.358459	71.6853	-1.41478
97	7.6	0.377233	71.8276	1.4522
98	7.7	0.396142	71.9845	4.50249
99	7.8	0.412463	72.1547	7.7197
100	7.9	0.431644	72.341	11.1297
101	8.8	0.450985	72.5444	15.0984
102	8.9	0.467699	72.7631	19.2609
103	9	0.487364	73.0006	23.6471
104	9	0.507221	73.2579	28.2121

105	9.3	0.524401	73.5329	33.0891
106	9.4	0.544642	73.8295	38.2087
107	10	0.565108	74.1489	43.8598
108	10	0.582841	74.4886	49.6882
109	10	0.603765	74.8531	55.7258
110	11	0.624956	75.2437	62.6003
111	11	0.643345	75.6576	69.6771
112	11	0.665079	76.0999	76.993
113	11	0.687131	76.572	84.5515
114	12	0.706302	77.0709	93.0271
115	13	0.729003	77.6024	102.504
116	14	0.752084	78.168	113.033
117	14	0.772193	78.7643	123.844
118	14	0.796056	79.398	134.989
119	15	0.820379	80.071	147.294
120	15	0.841621	80.7793	159.919
121	15	0.866894	81.5308	172.922
122	15	0.892733	82.3278	186.313
123	16	0.915365	83.1657	200.959
124	16	0.942375	84.0538	216.037
125	16	0.970094	84.9948	231.559
126	16	0.994457	85.9838	247.47
127	17	1.02365	87.0317	264.872
128	17	1.05375	88.142	282.786
129	17	1.08032	89.3091	301.151
130	18	1.11232	90.5464	321.173
131	18	1.1455	91.8586	341.792
132	18	1.17499	93.2392	362.942
133	19	1.21073	94.705	385.946
134	19	1.24809	96.2627	409.659
135	19	1.28155	97.9051	434.009
136	20	1.32251	99.6541	460.459
137	21	1.36581	101.52	489.141
138	25	1.40507	103.494	524.268
139	25	1.4538	105.607	560.613
140	26	1.50626	107.876	599.775
141	29	1.55477	110.293	644.864
142	29	1.61644	112.906	691.74
143	33	1.68494	115.745	747.343
144	43	1.75069	118.81	822.623
145	44	1.83843	122.19	903.514
146	45	1.94314	125.966	990.955
147	63	2.05375	130.184	1120.34
148	150	2.22621	135.14	1454.27
149	180	2.51213	141.451	1906.46

Data Set Standard Deviation = 20.7582  
 Numerator = 3.63457e+006  
 Denominator = 9.0208e+006  
 W Statistic = 0.40291 = 3.63457e+006 / 9.0208e+006

**5% Critical value of 0.976 exceeds 0.40291**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.40291**  
**Evidence of non-normality at 99% level of significance**



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Copper, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 45

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	ND<0
	3/20/2014	3.3 J
	9/9/2014	8.8
	3/16/2015	3.6 J
	9/9/2015	9
	3/18/2016	6.6
	9/20/2016	43
	3/23/2017	14
	9/18/2017	15
	3/15/2018	3.8 J
	9/17/2018	20
	3/5/2019	11
	9/24/2019	45
	3/16/2020	33
	9/22/2020	2 J
	3/16/2021	17
	9/14/2021	16
	3/22/2022	12
	9/13/2022	4.2 J

---

Date	Count	Mean	Significant
3/14/2023	1	7.9	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Copper, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 30%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 15

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	6.2
	9/4/2014	7.7
	3/17/2015	7.5
	9/11/2015	10
	3/15/2016	15
	9/21/2016	8.9
	3/28/2017	6.3
	9/19/2017	11
	3/26/2018	5.5 J
	9/18/2018	7.2
	3/4/2019	9
	9/23/2019	9.3
	3/19/2020	7.8
	9/23/2020	4.4 J
	3/19/2021	ND<0 U
	9/15/2021	ND<0 U
	3/16/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Copper, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 57.8947%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 7.4

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/19/2015	7.4
	9/14/2015	2.2 J
	3/21/2016	3.5 J
	9/23/2016	ND<0 U
	3/27/2017	2.4 J
	9/20/2017	3.1 J
	3/16/2018	2.5 J
	9/20/2018	2.2 J
	3/5/2019	ND<0 U
	9/25/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/18/2021	6.6 R
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Copper, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 42.1053%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 6.4

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	2.5 J
	9/17/2014	ND<0 U
	3/19/2015	ND<0 U
	9/15/2015	ND<0 U
	3/21/2016	ND<0 U
	9/26/2016	2.9 J
	3/31/2017	2.4 J
	9/21/2017	6.1
	3/30/2018	4.1
	9/26/2018	3.9 J
	3/13/2019	2.5 J
	10/3/2019	6.4
	4/3/2020	2.7 J
	9/30/2020	ND<0 U
	3/22/2021	ND<0 U
	9/16/2021	3.6 J
	3/24/2022	2 J
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Copper, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 18

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	ND<0
	3/18/2014	11
	9/16/2014	13
	3/18/2015	3.4 J
	9/15/2015	4.6 J
	3/16/2016	3.8 J
	9/22/2016	10
	3/29/2017	5.1 J
	9/21/2017	16
	3/28/2018	5.7
	9/20/2018	6.9
	3/12/2019	6.6
	10/1/2019	5.1 J
	3/18/2020	5.8
	9/24/2020	5.8
	3/17/2021	18 R
	9/9/2021	4.8 J
	3/15/2022	4.7 J
	9/16/2022	17

---

Date	Count	Mean	Significant
3/15/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Copper, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	ND<0 U
	9/29/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Shapiro-Francia Test of Normality

Parameter: Iron, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	0	-1.55477	33.5744	0
10	0	-1.50626	35.8432	0
11	10	-1.4538	37.9567	-14.538
12	19	-1.40507	39.931	-41.2344
13	20	-1.36581	41.7964	-68.5506
14	20	-1.32251	43.5454	-95.0007
15	20	-1.28155	45.1878	-120.632
16	20	-1.24809	46.7455	-145.593
17	21	-1.21073	48.2114	-171.019
18	22	-1.17499	49.592	-196.868
19	23	-1.1455	50.9042	-223.215
20	24	-1.11232	52.1414	-249.911
21	25	-1.08032	53.3085	-276.919
22	27	-1.05375	54.4189	-305.37
23	28	-1.02365	55.4667	-334.032
24	30	-0.994457	56.4557	-363.866
25	31	-0.970094	57.3968	-393.939
26	33	-0.942375	58.2848	-425.037
27	34	-0.919183	59.1297	-456.289
28	37	-0.892733	59.9267	-489.32
29	37	-0.866894	60.6782	-521.396
30	39	-0.841621	61.3865	-554.219
31	40	-0.820379	62.0596	-587.034
32	41	-0.796056	62.6933	-619.672
33	42	-0.772193	63.2896	-652.104
34	43	-0.752084	63.8552	-684.444
35	44	-0.729003	64.3866	-716.52
36	45	-0.706302	64.8855	-748.304
37	64	-0.687131	65.3576	-792.28
38	72	-0.665079	65.8	-840.166
39	74	-0.643345	66.2139	-887.773
40	81	-0.624956	66.6044	-938.395
41	83	-0.603765	66.969	-988.507
42	85	-0.582841	67.3087	-1038.05
43	86	-0.565108	67.628	-1086.65
44	91	-0.544642	67.9247	-1136.21
45	96	-0.524401	68.1996	-1186.55
46	97	-0.507221	68.4569	-1235.75
47	110	-0.487364	68.6944	-1289.36

48	110	-0.467699	68.9132	-1340.81
49	110	-0.450985	69.1166	-1390.42
50	239	-0.431644	69.3029	-1493.58
51	240	-0.412463	69.473	-1592.57
52	250	-0.396142	69.6299	-1691.61
53	280	-0.377233	69.7723	-1797.23
54	320	-0.358459	69.9007	-1911.94
55	320	-0.342466	70.018	-2021.53
56	360	-0.323919	70.1229	-2138.14
57	420	-0.305481	70.2163	-2266.44
58	439	-0.28976	70.3002	-2393.65
59	500	-0.271509	70.3739	-2529.4
60	510	-0.253347	70.4381	-2658.61
61	510	-0.237847	70.4947	-2779.91
62	530	-0.219834	70.543	-2896.42
63	650	-0.204452	70.5848	-3029.32
64	660	-0.186567	70.6196	-3152.45
65	680	-0.168741	70.6481	-3267.19
66	690	-0.150969	70.6709	-3371.36
67	870	-0.135774	70.6893	-3489.49
68	1000	-0.118085	70.7033	-3607.57
69	1100	-0.100433	70.7134	-3718.05
70	1100	-0.0853288	70.7206	-3811.91
71	1137	-0.0677301	70.7252	-3888.92
72	1200	-0.0501541	70.7278	-3949.1
73	1300	-0.0350997	70.729	-3994.73
74	1300	-0.0175476	70.7293	-4017.54
75	1400	0	70.7293	-4017.54
76	1500	0.0175476	70.7296	-3991.22
77	1800	0.0350997	70.7308	-3928.04
78	1800	0.0501541	70.7333	-3837.77
79	1900	0.0677301	70.7379	-3709.08
80	2000	0.0853288	70.7452	-3538.42
81	2000	0.100433	70.7553	-3337.56
82	2000	0.118085	70.7692	-3101.38
83	2300	0.135774	70.7877	-2789.1
84	2400	0.150969	70.8105	-2426.78
85	2700	0.168741	70.8389	-1971.18
86	2700	0.186567	70.8738	-1467.45
87	3100	0.201894	70.9145	-841.576
88	3100	0.219834	70.9628	-160.09
89	3300	0.237847	71.0194	624.803
90	3800	0.253347	71.0836	1587.52
91	4100	0.271509	71.1573	2700.71
92	4576	0.28976	71.2413	4026.65
93	4700	0.305481	71.3346	5462.41
94	4800	0.323919	71.4395	7017.22
95	4800	0.342466	71.5568	8661.06
96	4900	0.358459	71.6853	10417.5
97	5500	0.377233	71.8276	12492.3
98	6200	0.396142	71.9845	14948.4
99	6600	0.412463	72.1547	17670.6
100	6700	0.431644	72.341	20562.6
101	7600	0.450985	72.5444	23990.1
102	7700	0.467699	72.7631	27591.4
103	9312	0.487364	73.0006	32129.7
104	12300	0.507221	73.2579	38368.6



105	13700	0.524401	73.5329	45552.8
106	16300	0.544642	73.8295	54430.5
107	16400	0.565108	74.1489	63698.3
108	16400	0.582841	74.4886	73256.9
109	23300	0.603765	74.8531	87324.6
110	35600	0.624956	75.2437	109573
111	43900	0.643345	75.6576	137816
112	49300	0.665079	76.0999	170604
113	51400	0.687131	76.572	205923
114	54700	0.706302	77.0709	244558
115	54800	0.729003	77.6024	284507
116	55600	0.752084	78.168	326323
117	61200	0.772193	78.7643	373581
118	62000	0.796056	79.398	422936
119	62300	0.820379	80.071	474046
120	62900	0.841621	80.7793	526984
121	63000	0.866894	81.5308	581598
122	63300	0.892733	82.3278	638108
123	63600	0.915365	83.1657	696326
124	66400	0.942375	84.0538	758899
125	67000	0.970094	84.9948	823896
126	67100	0.994457	85.9838	890624
127	67400	1.02365	87.0317	959618
128	68700	1.05375	88.142	1.03201e+006
129	69300	1.08032	89.3091	1.10688e+006
130	69400	1.11232	90.5464	1.18407e+006
131	69600	1.1455	91.8586	1.2638e+006
132	71800	1.17499	93.2392	1.34816e+006
133	72700	1.21073	94.705	1.43618e+006
134	77200	1.24809	96.2627	1.53253e+006
135	79200	1.28155	97.9051	1.63403e+006
136	82100	1.32251	99.6541	1.74261e+006
137	82100	1.36581	101.52	1.85474e+006
138	83200	1.40507	103.494	1.97165e+006
139	84100	1.4538	105.607	2.09391e+006
140	84200	1.50626	107.876	2.22074e+006
141	85100	1.55477	110.293	2.35305e+006
142	85200	1.61644	112.906	2.49077e+006
143	86200	1.68494	115.745	2.63601e+006
144	89000	1.75069	118.81	2.79182e+006
145	91070	1.83843	122.19	2.95925e+006
146	100000	1.94314	125.966	3.15356e+006
147	101000	2.05375	130.184	3.36099e+006
148	102000	2.22621	135.14	3.58806e+006
149	107000	2.51213	141.451	3.85686e+006

Data Set Standard Deviation = 32482.7

Numerator = 1.48754e+013

Denominator = 2.20887e+013

W Statistic = 0.673439 = 1.48754e+013 / 2.20887e+013

**5% Critical value of 0.976 exceeds 0.673439**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.673439**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Iron, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 89000

Confidence Level = 95%

False Positive Rate = 5%

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Baseline Measurements	Date	Value
	9/18/2013	439
	3/20/2014	63600
	9/9/2014	4100
	3/16/2015	4800
	9/9/2015	6200
	3/18/2016	5500
	9/20/2016	7700
	3/23/2017	3800
	9/18/2017	7600
	3/15/2018	4800
	9/17/2018	2700
	3/5/2019	3100
	9/24/2019	4700
	3/16/2020	89000
	9/22/2020	28 J
	3/16/2021	2300
	9/14/2021	2000
	3/22/2022	1400
	9/13/2022	510

---

Date	Count	Mean	Significant
3/14/2023	1	1800	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Iron, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 4576

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	4576
	12/5/2013	239
	3/19/2014	660
	9/4/2014	1900
	3/17/2015	870
	9/11/2015	1100
	3/15/2016	1100
	9/21/2016	1300
	3/28/2017	510
	9/19/2017	2000
	3/26/2018	690
	9/18/2018	3100
	3/4/2019	2700
	9/23/2019	3300
	3/19/2020	1200
	9/23/2020	2400
	3/19/2021	650
	9/15/2021	1300
	3/16/2022	1800
	9/14/2022	1500

---

Date	Count	Mean	Significant
3/16/2023	1	2000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Iron, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 91070

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	91070
	3/21/2014	82100
	9/8/2014	77200
	3/19/2015	68700
	9/14/2015	71800
	3/21/2016	69600
	9/23/2016	66400
	3/27/2017	72700
	9/20/2017	67000
	3/16/2018	67100
	9/20/2018	54800
	3/5/2019	67400
	9/25/2019	62300
	3/25/2020	69400
	9/28/2020	69300
	3/18/2021	110 R
	9/15/2021	62000
	3/22/2022	62900
	9/14/2022	54700

---

Date	Count	Mean	Significant
3/16/2023	1	55600	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Iron, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 86200

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	9312
	3/21/2014	6600
	9/17/2014	6700
	3/19/2015	12300
	9/15/2015	16400
	3/21/2016	16400
	9/26/2016	13700
	3/31/2017	16300
	9/21/2017	23300
	3/30/2018	35600
	9/26/2018	51400
	3/13/2019	63300
	10/3/2019	49300
	4/3/2020	43900
	9/30/2020	61200
	3/22/2021	84200
	9/16/2021	63000
	3/24/2022	79200
	9/16/2022	86200

---

Date	Count	Mean	Significant
3/17/2023	1	82100	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Iron, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 42.1053%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 4900

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	10
	3/18/2014	20 J
	9/16/2014	ND<0 U
	3/18/2015	ND<0 U
	9/15/2015	19 J
	3/16/2016	33 J
	9/22/2016	83
	3/29/2017	39 J
	9/21/2017	37 J
	3/28/2018	20 J
	9/20/2018	ND<0 U
	3/12/2019	ND<0 U
	10/1/2019	ND<0 U
	3/18/2020	ND<0 U
	9/24/2020	ND<0 U
	3/17/2021	4900 R
	9/9/2021	ND<0 U
	3/15/2022	85
	9/16/2022	41 J

---

Date	Count	Mean	Significant
3/15/2023	1	43	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Iron, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 107000

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	84100
	3/26/2020	85200
	9/29/2020	101000
	3/16/2021	107000
	9/14/2021	100000
	3/18/2022	85100
	9/13/2022	83200

---

Date	Count	Mean	Significant
3/14/2023	1	102000	FALSE

## Shapiro-Francia Test of Normality

Parameter: Lead, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	0	-1.55477	33.5744	0
10	0	-1.50626	35.8432	0
11	0	-1.4538	37.9567	0
12	0	-1.40507	39.931	0
13	0	-1.36581	41.7964	0
14	0	-1.32251	43.5454	0
15	0	-1.28155	45.1878	0
16	0	-1.24809	46.7455	0
17	0	-1.21073	48.2114	0
18	0	-1.17499	49.592	0
19	0	-1.1455	50.9042	0
20	0	-1.11232	52.1414	0
21	0	-1.08032	53.3085	0
22	0	-1.05375	54.4189	0
23	0	-1.02365	55.4667	0
24	0	-0.994457	56.4557	0
25	0	-0.970094	57.3968	0
26	0	-0.942375	58.2848	0
27	0	-0.919183	59.1297	0
28	0	-0.892733	59.9267	0
29	0	-0.866894	60.6782	0
30	0	-0.841621	61.3865	0
31	0	-0.820379	62.0596	0
32	0	-0.796056	62.6933	0
33	0	-0.772193	63.2896	0
34	0	-0.752084	63.8552	0
35	0	-0.729003	64.3866	0
36	0	-0.706302	64.8855	0
37	0	-0.687131	65.3576	0
38	0	-0.665079	65.8	0
39	0	-0.643345	66.2139	0
40	0	-0.624956	66.6044	0
41	0	-0.603765	66.969	0
42	0	-0.582841	67.3087	0
43	0	-0.565108	67.628	0
44	0	-0.544642	67.9247	0
45	0	-0.524401	68.1996	0
46	0	-0.507221	68.4569	0
47	0	-0.487364	68.6944	0



48	0	-0.467699	68.9132	0
49	0	-0.450985	69.1166	0
50	0	-0.431644	69.3029	0
51	0	-0.412463	69.473	0
52	0	-0.396142	69.6299	0
53	0	-0.377233	69.7723	0
54	0	-0.358459	69.9007	0
55	0	-0.342466	70.018	0
56	0	-0.323919	70.1229	0
57	0	-0.305481	70.2163	0
58	0	-0.28976	70.3002	0
59	0	-0.271509	70.3739	0
60	0	-0.253347	70.4381	0
61	0	-0.237847	70.4947	0
62	0	-0.219834	70.543	0
63	0	-0.204452	70.5848	0
64	0	-0.186567	70.6196	0
65	0	-0.168741	70.6481	0
66	0	-0.150969	70.6709	0
67	0	-0.135774	70.6893	0
68	0	-0.118085	70.7033	0
69	0	-0.100433	70.7134	0
70	0	-0.0853288	70.7206	0
71	0	-0.0677301	70.7252	0
72	0	-0.0501541	70.7278	0
73	0	-0.0350997	70.729	0
74	0	-0.0175476	70.7293	0
75	0	0	70.7293	0
76	0	0.0175476	70.7296	0
77	0	0.0350997	70.7308	0
78	0	0.0501541	70.7333	0
79	0	0.0677301	70.7379	0
80	0	0.0853288	70.7452	0
81	0	0.100433	70.7553	0
82	0	0.118085	70.7692	0
83	0	0.135774	70.7877	0
84	0	0.150969	70.8105	0
85	0	0.168741	70.8389	0
86	0	0.186567	70.8738	0
87	0	0.201894	70.9145	0
88	0	0.219834	70.9628	0
89	0	0.237847	71.0194	0
90	0	0.253347	71.0836	0
91	0	0.271509	71.1573	0
92	0	0.28976	71.2413	0
93	0	0.305481	71.3346	0
94	0	0.323919	71.4395	0
95	0	0.342466	71.5568	0
96	0	0.358459	71.6853	0
97	0	0.377233	71.8276	0
98	0	0.396142	71.9845	0
99	0	0.412463	72.1547	0
100	0	0.431644	72.341	0
101	0	0.450985	72.5444	0
102	0	0.467699	72.7631	0
103	0	0.487364	73.0006	0
104	0	0.507221	73.2579	0

105	0	0.524401	73.5329	0
106	0	0.544642	73.8295	0
107	0	0.565108	74.1489	0
108	0	0.582841	74.4886	0
109	0	0.603765	74.8531	0
110	0	0.624956	75.2437	0
111	0	0.643345	75.6576	0
112	0	0.665079	76.0999	0
113	0	0.687131	76.572	0
114	0	0.706302	77.0709	0
115	0	0.729003	77.6024	0
116	0	0.752084	78.168	0
117	0	0.772193	78.7643	0
118	0	0.796056	79.398	0
119	0	0.820379	80.071	0
120	0	0.841621	80.7793	0
121	0	0.866894	81.5308	0
122	0	0.892733	82.3278	0
123	0	0.915365	83.1657	0
124	0	0.942375	84.0538	0
125	0	0.970094	84.9948	0
126	0	0.994457	85.9838	0
127	0	1.02365	87.0317	0
128	0	1.05375	88.142	0
129	0	1.08032	89.3091	0
130	0.76	1.11232	90.5464	0.845364
131	0.78	1.1455	91.8586	1.73886
132	0.79	1.17499	93.2392	2.6671
133	0.81	1.21073	94.705	3.64779
134	1.1	1.24809	96.2627	5.02068
135	1.2	1.28155	97.9051	6.55854
136	1.2	1.32251	99.6541	8.14555
137	1.2	1.36581	101.52	9.78452
138	1.4	1.40507	103.494	11.7516
139	1.6	1.4538	105.607	14.0777
140	1.7	1.50626	107.876	16.6383
141	1.9	1.55477	110.293	19.5924
142	1.9	1.61644	112.906	22.6636
143	2.2	1.68494	115.745	26.3705
144	2.3	1.75069	118.81	30.3971
145	2.4	1.83843	122.19	34.8093
146	6.2	1.94314	125.966	46.8567
147	13	2.05375	130.184	73.5555
148	16	2.22621	135.14	109.175
149	18	2.51213	141.451	154.393

Data Set Standard Deviation = 2.30561  
 Numerator = 23837.3  
 Denominator = 111285  
 W Statistic = 0.2142 = 23837.3 / 111285

**5% Critical value of 0.976 exceeds 0.2142**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.2142**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Lead, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 89.4737%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 2.3

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	ND<0
	3/20/2014	ND<0 U
	9/9/2014	ND<0 U
	3/16/2015	ND<0 U
	9/9/2015	ND<0 U
	3/18/2016	ND<0 U
	9/20/2016	ND<0 U
	3/23/2017	ND<0 U
	9/18/2017	ND<0 U
	3/15/2018	ND<0 U
	9/17/2018	ND<0 U
	3/5/2019	ND<0 U
	9/24/2019	ND<0 U
	3/16/2020	2.3
	9/22/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/22/2022	ND<0
	9/13/2022	1.6 J

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Lead, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 95%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 1.2

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	1.2 J
	9/4/2014	ND<0 U
	3/17/2015	ND<0 U
	9/11/2015	ND<0 U
	3/15/2016	ND<0 U
	9/21/2016	ND<0 U
	3/28/2017	ND<0 U
	9/19/2017	ND<0 U
	3/26/2018	ND<0 U
	9/18/2018	ND<0 U
	3/4/2019	ND<0 U
	9/23/2019	ND<0 U
	3/19/2020	ND<0 U
	9/23/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	ND<0 U
	3/16/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Lead, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 94.7368%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 1.1

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/19/2015	ND<0 U
	9/14/2015	ND<0 U
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/27/2017	ND<0 U
	9/20/2017	ND<0 U
	3/16/2018	ND<0 U
	9/20/2018	ND<0 U
	3/5/2019	ND<0 U
	9/25/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/18/2021	1.1 JR
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Lead, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 94.7368%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 2.2

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/17/2014	ND<0 U
	3/19/2015	ND<0 U
	9/15/2015	ND<0 U
	3/21/2016	ND<0 U
	9/26/2016	ND<0 U
	3/31/2017	ND<0 U
	9/21/2017	ND<0 U
	3/30/2018	2.2
	9/26/2018	ND<0 U
	3/13/2019	ND<0 U
	10/3/2019	ND<0 U
	4/3/2020	ND<0 U
	9/30/2020	ND<0 U
	3/22/2021	ND<0 U
	9/16/2021	ND<0 U
	3/24/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Lead, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 84.2105%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 1.9

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	ND<0
	3/18/2014	1.9 J
	9/16/2014	ND<0 U
	3/18/2015	ND<0 U
	9/15/2015	ND<0 U
	3/16/2016	ND<0 U
	9/22/2016	ND<0 U
	3/29/2017	ND<0 U
	9/21/2017	ND<0 U
	3/28/2018	ND<0 U
	9/20/2018	ND<0 U
	3/12/2019	ND<0 U
	10/1/2019	ND<0 U
	3/18/2020	0.76 J
	9/24/2020	ND<0 U
	3/17/2021	1.2 J
	9/9/2021	ND<0 U
	3/15/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/15/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Lead, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	ND<0 U
	9/29/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE



## Shapiro-Francia Test of Normality

Parameter: Magnesium, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	486	-2.51213	6.31081	-1220.9
2	1495	-2.22621	11.2668	-4549.08
3	2700	-2.05375	15.4847	-10094.2
4	2900	-1.94314	19.2605	-15729.3
5	2900	-1.83843	22.6403	-21060.7
6	3000	-1.75069	25.7052	-26312.8
7	3100	-1.68494	28.5442	-31536.1
8	3200	-1.61644	31.1571	-36708.7
9	4000	-1.55477	33.5744	-42927.8
10	4000	-1.50626	35.8432	-48952.8
11	4100	-1.4538	37.9567	-54913.4
12	4800	-1.40507	39.931	-61657.8
13	5400	-1.36581	41.7964	-69033.1
14	5500	-1.32251	43.5454	-76306.9
15	5700	-1.28155	45.1878	-83611.7
16	6000	-1.24809	46.7455	-91100.3
17	6078	-1.21073	48.2114	-98459.1
18	6100	-1.17499	49.592	-105626
19	6100	-1.1455	50.9042	-112614
20	6100	-1.11232	52.1414	-119399
21	6200	-1.08032	53.3085	-126097
22	6300	-1.05375	54.4189	-132736
23	6400	-1.02365	55.4667	-139287
24	6400	-0.994457	56.4557	-145652
25	6500	-0.970094	57.3968	-151957
26	6600	-0.942375	58.2848	-158177
27	6600	-0.919183	59.1297	-164244
28	6700	-0.892733	59.9267	-170225
29	6700	-0.866894	60.6782	-176033
30	6700	-0.841621	61.3865	-181672
31	6900	-0.820379	62.0596	-187333
32	6900	-0.796056	62.6933	-192825
33	7000	-0.772193	63.2896	-198231
34	7000	-0.752084	63.8552	-203495
35	7000	-0.729003	64.3866	-208598
36	7000	-0.706302	64.8855	-213542
37	7100	-0.687131	65.3576	-218421
38	7200	-0.665079	65.8	-223210
39	7200	-0.643345	66.2139	-227842
40	7300	-0.624956	66.6044	-232404
41	7400	-0.603765	66.969	-236872
42	7429	-0.582841	67.3087	-241202
43	7500	-0.565108	67.628	-245440
44	7600	-0.544642	67.9247	-249579
45	7600	-0.524401	68.1996	-253565
46	7600	-0.507221	68.4569	-257420
47	7600	-0.487364	68.6944	-261124

48	7700	-0.467699	68.9132	-264725
49	7800	-0.450985	69.1166	-268243
50	7900	-0.431644	69.3029	-271653
51	7900	-0.412463	69.473	-274911
52	7900	-0.396142	69.6299	-278040
53	7900	-0.377233	69.7723	-281021
54	7900	-0.358459	69.9007	-283852
55	8100	-0.342466	70.018	-286626
56	8100	-0.323919	70.1229	-289250
57	8200	-0.305481	70.2163	-291755
58	8200	-0.28976	70.3002	-294131
59	8260	-0.271509	70.3739	-296374
60	8300	-0.253347	70.4381	-298477
61	8500	-0.237847	70.4947	-300498
62	8500	-0.219834	70.543	-302367
63	8500	-0.204452	70.5848	-304105
64	8500	-0.186567	70.6196	-305691
65	8600	-0.168741	70.6481	-307142
66	8700	-0.150969	70.6709	-308455
67	8700	-0.135774	70.6893	-309636
68	8800	-0.118085	70.7033	-310676
69	8800	-0.100433	70.7134	-311559
70	8800	-0.0853288	70.7206	-312310
71	8900	-0.0677301	70.7252	-312913
72	9000	-0.0501541	70.7278	-313364
73	9000	-0.0350997	70.729	-313680
74	9172	-0.0175476	70.7293	-313841
75	9200	0	70.7293	-313841
76	9200	0.0175476	70.7296	-313680
77	9400	0.0350997	70.7308	-313350
78	9700	0.0501541	70.7333	-312863
79	9800	0.0677301	70.7379	-312200
80	10000	0.0853288	70.7452	-311346
81	10000	0.100433	70.7553	-310342
82	10100	0.118085	70.7692	-309149
83	10200	0.135774	70.7877	-307764
84	10200	0.150969	70.8105	-306225
85	10600	0.168741	70.8389	-304436
86	10700	0.186567	70.8738	-302440
87	10900	0.201894	70.9145	-300239
88	11000	0.219834	70.9628	-297821
89	11200	0.237847	71.0194	-295157
90	11400	0.253347	71.0836	-292269
91	11400	0.271509	71.1573	-289174
92	11500	0.28976	71.2413	-285841
93	11600	0.305481	71.3346	-282298
94	12100	0.323919	71.4395	-278378
95	12200	0.342466	71.5568	-274200
96	12400	0.358459	71.6853	-269755
97	12500	0.377233	71.8276	-265040
98	12500	0.396142	71.9845	-260088
99	12700	0.412463	72.1547	-254850
100	12800	0.431644	72.341	-249325
101	13000	0.450985	72.5444	-243462
102	13300	0.467699	72.7631	-237242
103	13300	0.487364	73.0006	-230760
104	13600	0.507221	73.2579	-223862

105	14100	0.524401	73.5329	-216467
106	14200	0.544642	73.8295	-208734
107	14300	0.565108	74.1489	-200653
108	14600	0.582841	74.4886	-192143
109	14700	0.603765	74.8531	-183268
110	14700	0.624956	75.2437	-174081
111	14700	0.643345	75.6576	-164624
112	14800	0.665079	76.0999	-154781
113	14800	0.687131	76.572	-144611
114	14900	0.706302	77.0709	-134087
115	14900	0.729003	77.6024	-123225
116	15000	0.752084	78.168	-111944
117	15000	0.772193	78.7643	-100361
118	15000	0.796056	79.398	-88419.9
119	15000	0.820379	80.071	-76114.3
120	15100	0.841621	80.7793	-63405.8
121	15200	0.866894	81.5308	-50229
122	15200	0.892733	82.3278	-36659.4
123	15300	0.915365	83.1657	-22654.4
124	15400	0.942375	84.0538	-8141.77
125	15400	0.970094	84.9948	6797.68
126	15500	0.994457	85.9838	22211.8
127	15800	1.02365	87.0317	38385.5
128	16000	1.05375	88.142	55245.4
129	16200	1.08032	89.3091	72746.6
130	16200	1.11232	90.5464	90766.2
131	16400	1.1455	91.8586	109552
132	16450	1.17499	93.2392	128881
133	16800	1.21073	94.705	149221
134	16900	1.24809	96.2627	170314
135	17000	1.28155	97.9051	192100
136	17100	1.32251	99.6541	214715
137	18500	1.36581	101.52	239983
138	18700	1.40507	103.494	266257
139	20020	1.4538	105.607	295363
140	20400	1.50626	107.876	326090
141	21000	1.55477	110.293	358740
142	21600	1.61644	112.906	393655
143	21600	1.68494	115.745	430050
144	21700	1.75069	118.81	468040
145	22000	1.83843	122.19	508485
146	22400	1.94314	125.966	552012
147	24000	2.05375	130.184	601302
148	26300	2.22621	135.14	659851
149	86400	2.51213	141.451	876899

Data Set Standard Deviation = 7953.58

Numerator = 7.68952e+011

Denominator = 1.32432e+012

W Statistic = 0.580641 = 7.68952e+011 / 1.32432e+012

**5% Critical value of 0.976 exceeds 0.580641**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.580641**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Magnesium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 26300

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	486
	3/20/2014	18700
	9/9/2014	11400
	3/16/2015	12700
	9/9/2015	10700
	3/18/2016	13300
	9/20/2016	14600
	3/23/2017	14900
	9/18/2017	14900
	3/15/2018	14800
	9/17/2018	12500
	3/5/2019	15300
	9/24/2019	12800
	3/16/2020	26300
	9/22/2020	14700
	3/16/2021	16200
	9/14/2021	15000
	3/22/2022	14100
	9/13/2022	13300

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Date	Count	Mean	Significant
3/14/2023	1	13000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Magnesium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 20020

Confidence Level = 95.2%

False Positive Rate = 4.8%

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Baseline Measurements	Date	Value
	9/19/2013	20020
	12/5/2013	8260
	3/19/2014	9800
	9/4/2014	10900
	3/17/2015	8700
	9/11/2015	10000
	3/15/2016	9000
	9/21/2016	8800
	3/28/2017	7600
	9/19/2017	8300
	3/26/2018	8700
	9/18/2018	12100
	3/4/2019	13600
	9/23/2019	12500
	3/19/2020	9700
	9/23/2020	10600
	3/19/2021	10100
	9/15/2021	11000
	3/16/2022	9000
	9/14/2022	9200

---

Date	Count	Mean	Significant
3/16/2023	1	8500	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Magnesium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 18500

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	16450
	3/21/2014	16200
	9/8/2014	17000
	3/19/2015	16900
	9/14/2015	16800
	3/21/2016	18500
	9/23/2016	16400
	3/27/2017	15800
	9/20/2017	15500
	3/16/2018	15000
	9/20/2018	14800
	3/5/2019	17100
	9/25/2019	14700
	3/25/2020	15400
	9/28/2020	15200
	3/18/2021	2900 R
	9/15/2021	16000
	3/22/2022	15100
	9/14/2022	15200

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Date	Count	Mean	Significant
3/16/2023	1	15400	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Magnesium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 15000

Confidence Level = 95%

False Positive Rate = 5%

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Baseline Measurements	Date	Value
	9/24/2013	9172
	3/21/2014	7200
	9/17/2014	7600
	3/19/2015	7400
	9/15/2015	8500
	3/21/2016	8500
	9/26/2016	7900
	3/31/2017	9400
	9/21/2017	12400
	3/30/2018	15000
	9/26/2018	15000
	3/13/2019	14300
	10/3/2019	14700
	4/3/2020	12200
	9/30/2020	11500
	3/22/2021	14200
	9/16/2021	10000
	3/24/2022	11600
	9/16/2022	11200

---

Date	Count	Mean	Significant
3/17/2023	1	10200	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Magnesium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 86400

Confidence Level = 95%

False Positive Rate = 5%

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Baseline Measurements	Date	Value
	9/25/2013	7429
	3/18/2014	7600
	9/16/2014	7100
	3/18/2015	6100
	9/15/2015	8100
	3/16/2016	8800
	9/22/2016	8600
	3/29/2017	8800
	9/21/2017	7500
	3/28/2018	8200
	9/20/2018	8200
	3/12/2019	7900
	10/1/2019	10200
	3/18/2020	9200
	9/24/2020	7300
	3/17/2021	86400 R
	9/9/2021	8100
	3/15/2022	7900
	9/16/2022	6700

---

Date	Count	Mean	Significant
3/15/2023	1	6700	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Magnesium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 22400

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	22400
	3/26/2020	21600
	9/29/2020	22000
	3/16/2021	21700
	9/14/2021	21000
	3/18/2022	20400
	9/13/2022	21600

---

Date	Count	Mean	Significant
3/14/2023	1	24000	TRUE

## Shapiro-Francia Test of Normality

Parameter: Manganese, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	12	-2.51213	6.31081	-30.1456
2	12	-2.22621	11.2668	-56.8601
3	15	-2.05375	15.4847	-87.6663
4	15	-1.94314	19.2605	-116.813
5	16	-1.83843	22.6403	-146.228
6	18	-1.75069	25.7052	-177.74
7	18	-1.68494	28.5442	-208.069
8	18	-1.61644	31.1571	-237.165
9	20	-1.55477	33.5744	-268.261
10	20	-1.50626	35.8432	-298.386
11	20	-1.4538	37.9567	-327.462
12	21	-1.40507	39.931	-356.969
13	22	-1.36581	41.7964	-387.016
14	22	-1.32251	43.5454	-416.111
15	24	-1.28155	45.1878	-446.869
16	25	-1.24809	46.7455	-478.071
17	25	-1.21073	48.2114	-508.339
18	30	-1.17499	49.592	-543.589
19	30	-1.1455	50.9042	-577.954
20	32	-1.11232	52.1414	-613.548
21	32	-1.08032	53.3085	-648.118
22	32	-1.05375	54.4189	-681.838
23	33	-1.02365	55.4667	-715.619
24	33	-0.994457	56.4557	-748.436
25	36	-0.970094	57.3968	-783.359
26	37	-0.942375	58.2848	-818.227
27	39	-0.919183	59.1297	-854.075
28	42	-0.892733	59.9267	-891.57
29	43	-0.866894	60.6782	-928.846
30	44	-0.841621	61.3865	-965.878
31	45	-0.820379	62.0596	-1002.79
32	65	-0.796056	62.6933	-1054.54
33	68	-0.772193	63.2896	-1107.05
34	77	-0.752084	63.8552	-1164.96
35	82	-0.729003	64.3866	-1224.74
36	86	-0.706302	64.8855	-1285.48
37	95	-0.687131	65.3576	-1350.76
38	100	-0.665079	65.8	-1417.26
39	100	-0.643345	66.2139	-1481.6
40	110	-0.624956	66.6044	-1550.34
41	110	-0.603765	66.969	-1616.76
42	110	-0.582841	67.3087	-1680.87
43	120	-0.565108	67.628	-1748.68
44	120	-0.544642	67.9247	-1814.04
45	120	-0.524401	68.1996	-1876.97
46	120	-0.507221	68.4569	-1937.83
47	120	-0.487364	68.6944	-1996.32

48	120	-0.467699	68.9132	-2052.44
49	130	-0.450985	69.1166	-2111.07
50	130	-0.431644	69.3029	-2167.18
51	140	-0.412463	69.473	-2224.93
52	140	-0.396142	69.6299	-2280.39
53	140	-0.377233	69.7723	-2333.2
54	140	-0.358459	69.9007	-2383.39
55	140	-0.342466	70.018	-2431.33
56	150	-0.323919	70.1229	-2479.92
57	150	-0.305481	70.2163	-2525.74
58	160	-0.28976	70.3002	-2572.1
59	160	-0.271509	70.3739	-2615.54
60	170	-0.253347	70.4381	-2658.61
61	230	-0.237847	70.4947	-2713.32
62	300	-0.219834	70.543	-2779.27
63	300	-0.204452	70.5848	-2840.6
64	400	-0.186567	70.6196	-2915.23
65	410	-0.168741	70.6481	-2984.41
66	420	-0.150969	70.6709	-3047.82
67	460	-0.135774	70.6893	-3110.28
68	480	-0.118085	70.7033	-3166.96
69	490	-0.100433	70.7134	-3216.17
70	510	-0.0853288	70.7206	-3259.69
71	520	-0.0677301	70.7252	-3294.91
72	530	-0.0501541	70.7278	-3321.49
73	530	-0.0350997	70.729	-3340.09
74	540	-0.0175476	70.7293	-3349.57
75	550	0	70.7293	-3349.57
76	550	0.0175476	70.7296	-3339.92
77	560	0.0350997	70.7308	-3320.26
78	570	0.0501541	70.7333	-3291.67
79	600	0.0677301	70.7379	-3251.03
80	620	0.0853288	70.7452	-3198.13
81	620	0.100433	70.7553	-3135.86
82	620	0.118085	70.7692	-3062.65
83	620	0.135774	70.7877	-2978.47
84	640	0.150969	70.8105	-2881.85
85	640	0.168741	70.8389	-2773.85
86	650	0.186567	70.8738	-2652.59
87	670	0.201894	70.9145	-2517.32
88	670	0.219834	70.9628	-2370.03
89	670	0.237847	71.0194	-2210.67
90	670	0.253347	71.0836	-2040.93
91	680	0.271509	71.1573	-1856.3
92	710	0.28976	71.2413	-1650.57
93	710	0.305481	71.3346	-1433.68
94	720	0.323919	71.4395	-1200.46
95	730	0.342466	71.5568	-950.46
96	740	0.358459	71.6853	-685.2
97	760	0.377233	71.8276	-398.503
98	760	0.396142	71.9845	-97.435
99	780	0.412463	72.1547	224.286
100	780	0.431644	72.341	560.968
101	790	0.450985	72.5444	917.247
102	820	0.467699	72.7631	1300.76
103	820	0.487364	73.0006	1700.4
104	840	0.507221	73.2579	2126.46

105	910	0.524401	73.5329	2603.67
106	920	0.544642	73.8295	3104.74
107	1000	0.565108	74.1489	3669.85
108	1000	0.582841	74.4886	4252.69
109	1000	0.603765	74.8531	4856.45
110	1100	0.624956	75.2437	5543.9
111	1100	0.643345	75.6576	6251.58
112	1100	0.665079	76.0999	6983.17
113	1100	0.687131	76.572	7739.01
114	1200	0.706302	77.0709	8586.58
115	1200	0.729003	77.6024	9461.38
116	1800	0.752084	78.168	10815.1
117	1900	0.772193	78.7643	12282.3
118	2000	0.796056	79.398	13874.4
119	2300	0.820379	80.071	15761.3
120	2900	0.841621	80.7793	18202
121	3000	0.866894	81.5308	20802.7
122	3000	0.892733	82.3278	23480.9
123	3000	0.915365	83.1657	26227
124	3100	0.942375	84.0538	29148.3
125	3200	0.970094	84.9948	32252.6
126	3200	0.994457	85.9838	35434.9
127	3200	1.02365	87.0317	38710.6
128	3300	1.05375	88.142	42187.9
129	3300	1.08032	89.3091	45753
130	3300	1.11232	90.5464	49423.7
131	3300	1.1455	91.8586	53203.8
132	3600	1.17499	93.2392	57433.8
133	3700	1.21073	94.705	61913.5
134	3800	1.24809	96.2627	66656.2
135	3900	1.28155	97.9051	71654.2
136	4000	1.32251	99.6541	76944.3
137	4000	1.36581	101.52	82407.5
138	4000	1.40507	103.494	88027.8
139	4100	1.4538	105.607	93988.4
140	4100	1.50626	107.876	100164
141	4100	1.55477	110.293	106539
142	4300	1.61644	112.906	113489
143	4300	1.68494	115.745	120735
144	4400	1.75069	118.81	128438
145	4600	1.83843	122.19	136894
146	4770	1.94314	125.966	146163
147	4890	2.05375	130.184	156206
148	6800	2.22621	135.14	171344
149	7600	2.51213	141.451	190436

Data Set Standard Deviation = 1550.41  
 Numerator = 3.6266e+010  
 Denominator = 5.03219e+010  
 W Statistic = 0.72068 = 3.6266e+010 / 5.03219e+010

**5% Critical value of 0.976 exceeds 0.72068**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.72068**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Manganese, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 3200

Confidence Level = 95%

False Positive Rate = 5%

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Baseline Measurements	Date	Value
	9/18/2013	20
	3/20/2014	3000
	9/9/2014	920
	3/16/2015	910
	9/9/2015	840
	3/18/2016	670
	9/20/2016	780
	3/23/2017	420
	9/18/2017	790
	3/15/2018	490
	9/17/2018	620
	3/5/2019	820
	9/24/2019	720
	3/16/2020	3200
	9/22/2020	620
	3/16/2021	460
	9/14/2021	620
	3/22/2022	640
	9/13/2022	530

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Date	Count	Mean	Significant
3/14/2023	1	760	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Manganese, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 4890

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	4890
	12/5/2013	230
	3/19/2014	300
	9/4/2014	710
	3/17/2015	300
	9/11/2015	670
	3/15/2016	570
	9/21/2016	560
	3/28/2017	400
	9/19/2017	710
	3/26/2018	550
	9/18/2018	2000
	3/4/2019	1900
	9/23/2019	1800
	3/19/2020	1100
	9/23/2020	1200
	3/19/2021	760
	9/15/2021	1000
	3/16/2022	1100
	9/14/2022	820

---

Date	Count	Mean	Significant
3/16/2023	1	1000	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Manganese, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 4770

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	4770
	3/21/2014	4300
	9/8/2014	4000
	3/19/2015	4100
	9/14/2015	4400
	3/21/2016	4100
	9/23/2016	4000
	3/27/2017	3800
	9/20/2017	3700
	3/16/2018	3300
	9/20/2018	3200
	3/5/2019	3300
	9/25/2019	3000
	3/25/2020	3300
	9/28/2020	3300
	3/18/2021	33 R
	9/15/2021	3200
	3/22/2022	3100
	9/14/2022	3000

---

Date	Count	Mean	Significant
3/16/2023	1	2900	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Manganese, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 1200

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	620
	3/21/2014	520
	9/17/2014	550
	3/19/2015	670
	9/15/2015	730
	3/21/2016	680
	9/26/2016	670
	3/31/2017	740
	9/21/2017	1100
	3/30/2018	1200
	9/26/2018	1000
	3/13/2019	1100
	10/3/2019	780
	4/3/2020	640
	9/30/2020	600
	3/22/2021	650
	9/16/2021	510
	3/24/2022	540
	9/16/2022	530

---

Date	Count	Mean	Significant
3/17/2023	1	480	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Manganese, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 2300

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	20
	3/18/2014	25
	9/16/2014	22
	3/18/2015	30
	9/15/2015	24
	3/16/2016	33
	9/22/2016	42
	3/29/2017	44
	9/21/2017	37
	3/28/2018	30
	9/20/2018	15
	3/12/2019	21
	10/1/2019	22
	3/18/2020	18
	9/24/2020	15
	3/17/2021	2300 R
	9/9/2021	25
	3/15/2022	18
	9/16/2022	12

---

Date	Count	Mean	Significant
3/15/2023	1	12	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Manganese, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 6800

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	4100
	3/26/2020	6800
	9/29/2020	3600
	3/16/2021	3900
	9/14/2021	4000
	3/18/2022	4600
	9/13/2022	4300

---

Date	Count	Mean	Significant
3/14/2023	1	7600	TRUE

## Shapiro-Francia Test of Normality

Parameter: Mercury, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	0	-1.55477	33.5744	0
10	0	-1.50626	35.8432	0
11	0	-1.4538	37.9567	0
12	0	-1.40507	39.931	0
13	0	-1.36581	41.7964	0
14	0	-1.32251	43.5454	0
15	0	-1.28155	45.1878	0
16	0	-1.24809	46.7455	0
17	0	-1.21073	48.2114	0
18	0	-1.17499	49.592	0
19	0	-1.1455	50.9042	0
20	0	-1.11232	52.1414	0
21	0	-1.08032	53.3085	0
22	0	-1.05375	54.4189	0
23	0	-1.02365	55.4667	0
24	0	-0.994457	56.4557	0
25	0	-0.970094	57.3968	0
26	0	-0.942375	58.2848	0
27	0	-0.919183	59.1297	0
28	0	-0.892733	59.9267	0
29	0	-0.866894	60.6782	0
30	0	-0.841621	61.3865	0
31	0	-0.820379	62.0596	0
32	0	-0.796056	62.6933	0
33	0	-0.772193	63.2896	0
34	0	-0.752084	63.8552	0
35	0	-0.729003	64.3866	0
36	0	-0.706302	64.8855	0
37	0	-0.687131	65.3576	0
38	0	-0.665079	65.8	0
39	0	-0.643345	66.2139	0
40	0	-0.624956	66.6044	0
41	0	-0.603765	66.969	0
42	0	-0.582841	67.3087	0
43	0	-0.565108	67.628	0
44	0	-0.544642	67.9247	0
45	0	-0.524401	68.1996	0
46	0	-0.507221	68.4569	0
47	0	-0.487364	68.6944	0

48	0	-0.467699	68.9132	0
49	0	-0.450985	69.1166	0
50	0	-0.431644	69.3029	0
51	0	-0.412463	69.473	0
52	0	-0.396142	69.6299	0
53	0	-0.377233	69.7723	0
54	0	-0.358459	69.9007	0
55	0	-0.342466	70.018	0
56	0	-0.323919	70.1229	0
57	0	-0.305481	70.2163	0
58	0	-0.28976	70.3002	0
59	0	-0.271509	70.3739	0
60	0	-0.253347	70.4381	0
61	0	-0.237847	70.4947	0
62	0	-0.219834	70.543	0
63	0	-0.204452	70.5848	0
64	0	-0.186567	70.6196	0
65	0	-0.168741	70.6481	0
66	0	-0.150969	70.6709	0
67	0	-0.135774	70.6893	0
68	0	-0.118085	70.7033	0
69	0	-0.100433	70.7134	0
70	0	-0.0853288	70.7206	0
71	0	-0.0677301	70.7252	0
72	0	-0.0501541	70.7278	0
73	0	-0.0350997	70.729	0
74	0	-0.0175476	70.7293	0
75	0	0	70.7293	0
76	0	0.0175476	70.7296	0
77	0	0.0350997	70.7308	0
78	0	0.0501541	70.7333	0
79	0	0.0677301	70.7379	0
80	0	0.0853288	70.7452	0
81	0	0.100433	70.7553	0
82	0	0.118085	70.7692	0
83	0	0.135774	70.7877	0
84	0	0.150969	70.8105	0
85	0	0.168741	70.8389	0
86	0	0.186567	70.8738	0
87	0	0.201894	70.9145	0
88	0	0.219834	70.9628	0
89	0	0.237847	71.0194	0
90	0	0.253347	71.0836	0
91	0	0.271509	71.1573	0
92	0	0.28976	71.2413	0
93	0	0.305481	71.3346	0
94	0	0.323919	71.4395	0
95	0	0.342466	71.5568	0
96	0	0.358459	71.6853	0
97	0	0.377233	71.8276	0
98	0	0.396142	71.9845	0
99	0	0.412463	72.1547	0
100	0	0.431644	72.341	0
101	0	0.450985	72.5444	0
102	0.17	0.467699	72.7631	0.0795088
103	0.19	0.487364	73.0006	0.172108
104	0.24	0.507221	73.2579	0.293841

105	0.24	0.524401	73.5329	0.419697
106	0.24	0.544642	73.8295	0.550411
107	0.24	0.565108	74.1489	0.686037
108	0.25	0.582841	74.4886	0.831747
109	0.25	0.603765	74.8531	0.982688
110	0.25	0.624956	75.2437	1.13893
111	0.26	0.643345	75.6576	1.3062
112	0.27	0.665079	76.0999	1.48577
113	0.27	0.687131	76.572	1.67129
114	0.27	0.706302	77.0709	1.862
115	0.28	0.729003	77.6024	2.06612
116	0.29	0.752084	78.168	2.28422
117	0.31	0.772193	78.7643	2.5236
118	0.31	0.796056	79.398	2.77038
119	0.33	0.820379	80.071	3.0411
120	0.33	0.841621	80.7793	3.31884
121	0.33	0.866894	81.5308	3.60491
122	0.34	0.892733	82.3278	3.90844
123	0.34	0.915365	83.1657	4.21967
124	0.35	0.942375	84.0538	4.5495
125	0.39	0.970094	84.9948	4.92783
126	0.4	0.994457	85.9838	5.32562
127	0.45	1.02365	87.0317	5.78626
128	0.48	1.05375	88.142	6.29206
129	0.5	1.08032	89.3091	6.83222
130	0.61	1.11232	90.5464	7.51073
131	0.64	1.1455	91.8586	8.24386
132	0.66	1.17499	93.2392	9.01935
133	0.76	1.21073	94.705	9.9395
134	0.77	1.24809	96.2627	10.9005
135	0.8	1.28155	97.9051	11.9258
136	0.82	1.32251	99.6541	13.0102
137	0.83	1.36581	101.52	14.1438
138	0.87	1.40507	103.494	15.3663
139	0.88	1.4538	105.607	16.6456
140	0.88	1.50626	107.876	17.9711
141	0.91	1.55477	110.293	19.386
142	0.94	1.61644	112.906	20.9054
143	0.95	1.68494	115.745	22.5061
144	0.99	1.75069	118.81	24.2393
145	1.2	1.83843	122.19	26.4454
146	1.2	1.94314	125.966	28.7772
147	1.6	2.05375	130.184	32.0631
148	1.7	2.22621	135.14	35.8477
149	1.8	2.51213	141.451	40.3695

Data Set Standard Deviation = 0.360676  
 Numerator = 1629.7  
 Denominator = 2723.33  
 W Statistic = 0.598422 = 1629.7 / 2723.33

**5% Critical value of 0.976 exceeds 0.598422**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.598422**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Mercury, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	ND<0
	3/20/2014	ND<0 U
	9/9/2014	ND<0 U
	3/16/2015	ND<0 U
	9/9/2015	ND<0 U
	3/18/2016	ND<0 U
	9/20/2016	ND<0 U
	3/23/2017	ND<0 U
	9/18/2017	ND<0 U
	3/15/2018	ND<0 U
	9/17/2018	ND<0 U
	3/5/2019	ND<0 U
	9/24/2019	ND<0 U
	3/16/2020	ND<0 U
	9/22/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/22/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Mercury, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 15%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 1.2

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	0.8
	9/4/2014	0.61
	3/17/2015	0.64
	9/11/2015	0.66
	3/15/2016	0.83
	9/21/2016	0.88
	3/28/2017	0.91
	9/19/2017	1.2
	3/26/2018	0.95
	9/18/2018	0.87
	3/4/2019	ND<0 U
	9/23/2019	0.76
	3/19/2020	0.33 J
	9/23/2020	0.82
	3/19/2021	0.77
	9/15/2021	0.94
	3/16/2022	0.88
	9/14/2022	0.48 J

---

Date	Count	Mean	Significant
3/16/2023	1	0.45	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Mercury, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/19/2015	ND<0 U
	9/14/2015	ND<0 U
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/27/2017	ND<0 U
	9/20/2017	ND<0 U
	3/16/2018	ND<0 U
	9/20/2018	ND<0 U
	3/5/2019	ND<0 U
	9/25/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/18/2021	ND<0 U
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Mercury, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 89.4737%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0.5

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/17/2014	ND<0 U
	3/19/2015	ND<0 U
	9/15/2015	ND<0 U
	3/21/2016	ND<0 U
	9/26/2016	ND<0 U
	3/31/2017	ND<0 U
	9/21/2017	ND<0 U
	3/30/2018	0.5
	9/26/2018	ND<0 U
	3/13/2019	ND<0 U
	10/3/2019	ND<0 U
	4/3/2020	0.29 J
	9/30/2020	ND<0 U
	3/22/2021	ND<0 U
	9/16/2021	ND<0 U
	3/24/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Mercury, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 15.7895%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 1.8

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	ND<0
	3/18/2014	0.34 J
	9/16/2014	0.28 J
	3/18/2015	0.33 J
	9/15/2015	0.27 J
	3/16/2016	0.33 J
	9/22/2016	1.7
	3/29/2017	0.4 J
	9/21/2017	0.24 J
	3/28/2018	0.27 J
	9/20/2018	0.17 J
	3/12/2019	0.19 J
	10/1/2019	0.31 J
	3/18/2020	ND<0 U
	9/24/2020	0.25 J
	3/17/2021	1.8
	9/9/2021	ND<0 U
	3/15/2022	0.25 J
	9/16/2022	1.2

---

Date	Count	Mean	Significant
3/15/2023	1	0.34	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Mercury, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	ND<0 U
	9/29/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Shapiro-Francia Test of Normality

Parameter: Nickel, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	2.9	-1.55477	33.5744	-4.50884
10	2.9	-1.50626	35.8432	-8.87699
11	2.9	-1.4538	37.9567	-13.093
12	3	-1.40507	39.931	-17.3082
13	3.2	-1.36581	41.7964	-21.6788
14	3.3	-1.32251	43.5454	-26.0431
15	3.4	-1.28155	45.1878	-30.4004
16	3.5	-1.24809	46.7455	-34.7687
17	3.5	-1.21073	48.2114	-39.0062
18	3.5	-1.17499	49.592	-43.1187
19	3.8	-1.1455	50.9042	-47.4716
20	3.8	-1.11232	52.1414	-51.6984
21	4	-1.08032	53.3085	-56.0197
22	4	-1.05375	54.4189	-60.2347
23	4.2	-1.02365	55.4667	-64.534
24	4.3	-0.994457	56.4557	-68.8102
25	4.5	-0.970094	57.3968	-73.1756
26	4.6	-0.942375	58.2848	-77.5105
27	4.7	-0.919183	59.1297	-81.8307
28	5	-0.892733	59.9267	-86.2944
29	5.9	-0.866894	60.6782	-91.409
30	6.4	-0.841621	61.3865	-96.7954
31	6.6	-0.820379	62.0596	-102.21
32	6.6	-0.796056	62.6933	-107.464
33	6.7	-0.772193	63.2896	-112.638
34	6.7	-0.752084	63.8552	-117.677
35	6.8	-0.729003	64.3866	-122.634
36	7	-0.706302	64.8855	-127.578
37	7.5	-0.687131	65.3576	-132.731
38	7.6	-0.665079	65.8	-137.786
39	7.7	-0.643345	66.2139	-142.74
40	7.7	-0.624956	66.6044	-147.552
41	7.7	-0.603765	66.969	-152.201
42	7.7	-0.582841	67.3087	-156.689
43	7.7	-0.565108	67.628	-161.04
44	7.7	-0.544642	67.9247	-165.234
45	7.7	-0.524401	68.1996	-169.272
46	7.8	-0.507221	68.4569	-173.228
47	7.8	-0.487364	68.6944	-177.029

48	7.9	-0.467699	68.9132	-180.724
49	8	-0.450985	69.1166	-184.332
50	8.1	-0.431644	69.3029	-187.828
51	8.1	-0.412463	69.473	-191.169
52	8.2	-0.396142	69.6299	-194.418
53	8.3	-0.377233	69.7723	-197.549
54	8.4	-0.358459	69.9007	-200.56
55	8.6	-0.342466	70.018	-203.505
56	8.8	-0.323919	70.1229	-206.356
57	8.8	-0.305481	70.2163	-209.044
58	8.9	-0.28976	70.3002	-211.623
59	8.9	-0.271509	70.3739	-214.039
60	8.9	-0.253347	70.4381	-216.294
61	9	-0.237847	70.4947	-218.434
62	9	-0.219834	70.543	-220.413
63	9	-0.204452	70.5848	-222.253
64	9	-0.186567	70.6196	-223.932
65	9.1	-0.168741	70.6481	-225.468
66	9.2	-0.150969	70.6709	-226.857
67	9.2	-0.135774	70.6893	-228.106
68	9.2	-0.118085	70.7033	-229.192
69	9.2	-0.100433	70.7134	-230.116
70	9.2	-0.0853288	70.7206	-230.901
71	9.3	-0.0677301	70.7252	-231.531
72	9.4	-0.0501541	70.7278	-232.002
73	9.4	-0.0350997	70.729	-232.332
74	9.6	-0.0175476	70.7293	-232.501
75	9.8	0	70.7293	-232.501
76	9.9	0.0175476	70.7296	-232.327
77	10	0.0350997	70.7308	-231.976
78	10	0.0501541	70.7333	-231.475
79	10	0.0677301	70.7379	-230.797
80	10	0.0853288	70.7452	-229.944
81	10	0.100433	70.7553	-228.94
82	10	0.118085	70.7692	-227.759
83	11	0.135774	70.7877	-226.265
84	11	0.150969	70.8105	-224.605
85	11	0.168741	70.8389	-222.749
86	11	0.186567	70.8738	-220.696
87	11	0.201894	70.9145	-218.475
88	11	0.219834	70.9628	-216.057
89	11	0.237847	71.0194	-213.441
90	11	0.253347	71.0836	-210.654
91	11	0.271509	71.1573	-207.668
92	12	0.28976	71.2413	-204.19
93	12	0.305481	71.3346	-200.525
94	12	0.323919	71.4395	-196.638
95	12	0.342466	71.5568	-192.528
96	12	0.358459	71.6853	-188.227
97	12	0.377233	71.8276	-183.7
98	12	0.396142	71.9845	-178.946
99	13	0.412463	72.1547	-173.584
100	13	0.431644	72.341	-167.973
101	13	0.450985	72.5444	-162.11
102	13	0.467699	72.7631	-156.03
103	13	0.487364	73.0006	-149.694
104	13	0.507221	73.2579	-143.1

105	13	0.524401	73.5329	-136.283
106	13	0.544642	73.8295	-129.203
107	14	0.565108	74.1489	-121.291
108	14	0.582841	74.4886	-113.131
109	14	0.603765	74.8531	-104.679
110	14	0.624956	75.2437	-95.9292
111	14	0.643345	75.6576	-86.9224
112	15	0.665079	76.0999	-76.9462
113	15	0.687131	76.572	-66.6392
114	15	0.706302	77.0709	-56.0447
115	16	0.729003	77.6024	-44.3807
116	17	0.752084	78.168	-31.5952
117	17	0.772193	78.7643	-18.468
118	18	0.796056	79.398	-4.13895
119	18	0.820379	80.071	10.6279
120	22	0.841621	80.7793	29.1435
121	24	0.866894	81.5308	49.949
122	25	0.892733	82.3278	72.2673
123	26	0.915365	83.1657	96.0668
124	26	0.942375	84.0538	120.569
125	26	0.970094	84.9948	145.791
126	27	0.994457	85.9838	172.641
127	27	1.02365	87.0317	200.28
128	28	1.05375	88.142	229.785
129	31	1.08032	89.3091	263.275
130	31	1.11232	90.5464	297.757
131	77	1.1455	91.8586	385.961
132	78	1.17499	93.2392	477.61
133	78	1.21073	94.705	572.046
134	79	1.24809	96.2627	670.645
135	79	1.28155	97.9051	771.888
136	80	1.32251	99.6541	877.688
137	82	1.36581	101.52	989.684
138	83	1.40507	103.494	1106.31
139	84	1.4538	105.607	1228.42
140	85	1.50626	107.876	1356.46
141	87	1.55477	110.293	1491.72
142	87	1.61644	112.906	1632.35
143	88	1.68494	115.745	1780.63
144	88	1.75069	118.81	1934.69
145	90	1.83843	122.19	2100.15
146	91	1.94314	125.966	2276.97
147	100	2.05375	130.184	2482.35
148	100	2.22621	135.14	2704.97
149	110	2.51213	141.451	2981.3

Data Set Standard Deviation = 26.4996  
 Numerator = 8.88816e+006  
 Denominator = 1.47009e+007  
 W Statistic = 0.604599 = 8.88816e+006 / 1.47009e+007

**5% Critical value of 0.976 exceeds 0.604599**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.604599**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Nickel, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 27

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	ND<0
	3/20/2014	22
	9/9/2014	10
	3/16/2015	14
	9/9/2015	11
	3/18/2016	13
	9/20/2016	12
	3/23/2017	10
	9/18/2017	15
	3/15/2018	12
	9/17/2018	9.8
	3/5/2019	11
	9/24/2019	11
	3/16/2020	17
	9/22/2020	8.1
	3/16/2021	9.3
	9/14/2021	27
	3/22/2022	9.6
	9/13/2022	9.2

---

Date	Count	Mean	Significant
3/14/2023	1	9	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Nickel, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 31

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	ND<0
	12/5/2013	11
	3/19/2014	31
	9/4/2014	14
	3/17/2015	8
	9/11/2015	12
	3/15/2016	8.9
	9/21/2016	8.1
	3/28/2017	7.7
	9/19/2017	10
	3/26/2018	8.9
	9/18/2018	15
	3/4/2019	13
	9/23/2019	12
	3/19/2020	11
	9/23/2020	14
	3/19/2021	13
	9/15/2021	14
	3/16/2022	12
	9/14/2022	13

---

Date	Count	Mean	Significant
3/16/2023	1	13	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Nickel, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 10

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	6.6
	9/8/2014	6.6
	3/19/2015	9.1
	9/14/2015	8.9
	3/21/2016	8.2
	9/23/2016	7.6
	3/27/2017	7.7
	9/20/2017	7.5
	3/16/2018	7.8
	9/20/2018	7.7
	3/5/2019	7.8
	9/25/2019	6.7
	3/25/2020	8.8
	9/28/2020	6.8
	3/18/2021	4.7 JR
	9/15/2021	8.8
	3/22/2022	10
	9/14/2022	8.6

---

Date	Count	Mean	Significant
3/16/2023	1	9.2	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Nickel, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 18

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	9.4
	9/17/2014	10
	3/19/2015	11
	9/15/2015	12
	3/21/2016	13
	9/26/2016	14
	3/31/2017	15
	9/21/2017	18
	3/30/2018	17
	9/26/2018	13
	3/13/2019	11
	10/3/2019	9
	4/3/2020	8.4
	9/30/2020	7.7
	3/22/2021	9
	9/16/2021	8.3
	3/24/2022	7.7
	9/16/2022	7

---

Date	Count	Mean	Significant
3/17/2023	1	5.9	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Nickel, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 11

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	ND<0
	3/18/2014	4.3 J
	9/16/2014	2.9 J
	3/18/2015	3.5 J
	9/15/2015	3.4 J
	3/16/2016	7.9
	9/22/2016	11
	3/29/2017	6.7
	9/21/2017	4.2 J
	3/28/2018	3.5 J
	9/20/2018	3 J
	3/12/2019	3.8 J
	10/1/2019	3.5 J
	3/18/2020	3.2 J
	9/24/2020	2.9 J
	3/17/2021	4.6 J
	9/9/2021	4.5 J
	3/15/2022	3.8 J
	9/16/2022	4 J

---

Date	Count	Mean	Significant
3/15/2023	1	4	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Nickel, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 31

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	28
	3/26/2020	26
	9/29/2020	26
	3/16/2021	26
	9/14/2021	25
	3/18/2022	27
	9/13/2022	31

---

Date	Count	Mean	Significant
3/14/2023	1	24	FALSE

## Shapiro-Francia Test of Normality

Parameter: Potassium, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	480	-2.51213	6.31081	-1205.82
2	490	-2.22621	11.2668	-2296.67
3	500	-2.05375	15.4847	-3323.54
4	500	-1.94314	19.2605	-4295.11
5	520	-1.83843	22.6403	-5251.09
6	520	-1.75069	25.7052	-6161.45
7	520	-1.68494	28.5442	-7037.61
8	530	-1.61644	31.1571	-7894.32
9	550	-1.55477	33.5744	-8749.45
10	550	-1.50626	35.8432	-9577.89
11	550	-1.4538	37.9567	-10377.5
12	560	-1.40507	39.931	-11164.3
13	570	-1.36581	41.7964	-11942.8
14	580	-1.32251	43.5454	-12709.9
15	590	-1.28155	45.1878	-13466
16	620	-1.24809	46.7455	-14239.8
17	620	-1.21073	48.2114	-14990.5
18	640	-1.17499	49.592	-15742.5
19	850	-1.1455	50.9042	-16716.1
20	1200	-1.11232	52.1414	-18050.9
21	1200	-1.08032	53.3085	-19347.3
22	1300	-1.05375	54.4189	-20717.2
23	1390	-1.02365	55.4667	-22140.1
24	1400	-0.994457	56.4557	-23532.3
25	1500	-0.970094	57.3968	-24987.4
26	1500	-0.942375	58.2848	-26401
27	1600	-0.919183	59.1297	-27871.7
28	1600	-0.892733	59.9267	-29300.1
29	1600	-0.866894	60.6782	-30687.1
30	1700	-0.841621	61.3865	-32117.9
31	1700	-0.820379	62.0596	-33512.5
32	1790	-0.796056	62.6933	-34937.4
33	1800	-0.772193	63.2896	-36327.4
34	1800	-0.752084	63.8552	-37681.1
35	1800	-0.729003	64.3866	-38993.3
36	1800	-0.706302	64.8855	-40264.7
37	1800	-0.687131	65.3576	-41501.5
38	1900	-0.665079	65.8	-42765.2
39	1900	-0.643345	66.2139	-43987.5
40	1900	-0.624956	66.6044	-45174.9
41	1900	-0.603765	66.969	-46322.1
42	1900	-0.582841	67.3087	-47429.5
43	1900	-0.565108	67.628	-48503.2
44	1900	-0.544642	67.9247	-49538
45	1900	-0.524401	68.1996	-50534.4
46	1900	-0.507221	68.4569	-51498.1
47	2000	-0.487364	68.6944	-52472.8

48	2000	-0.467699	68.9132	-53408.2
49	2000	-0.450985	69.1166	-54310.2
50	2000	-0.431644	69.3029	-55173.5
51	2000	-0.412463	69.473	-55998.4
52	2000	-0.396142	69.6299	-56790.7
53	2000	-0.377233	69.7723	-57545.2
54	2000	-0.358459	69.9007	-58262.1
55	2100	-0.342466	70.018	-58981.3
56	2100	-0.323919	70.1229	-59661.5
57	2100	-0.305481	70.2163	-60303
58	2100	-0.28976	70.3002	-60911.5
59	2100	-0.271509	70.3739	-61481.7
60	2100	-0.253347	70.4381	-62013.7
61	2200	-0.237847	70.4947	-62536.9
62	2200	-0.219834	70.543	-63020.6
63	2300	-0.204452	70.5848	-63490.8
64	2300	-0.186567	70.6196	-63919.9
65	2400	-0.168741	70.6481	-64324.9
66	2400	-0.150969	70.6709	-64687.2
67	2500	-0.135774	70.6893	-65026.7
68	2500	-0.118085	70.7033	-65321.9
69	2500	-0.100433	70.7134	-65573
70	2500	-0.0853288	70.7206	-65786.3
71	2700	-0.0677301	70.7252	-65969.2
72	2700	-0.0501541	70.7278	-66104.6
73	2700	-0.0350997	70.729	-66199.3
74	2700	-0.0175476	70.7293	-66246.7
75	2700	0	70.7293	-66246.7
76	2700	0.0175476	70.7296	-66199.3
77	2750	0.0350997	70.7308	-66102.8
78	2800	0.0501541	70.7333	-65962.4
79	2800	0.0677301	70.7379	-65772.7
80	2800	0.0853288	70.7452	-65533.8
81	2800	0.100433	70.7553	-65252.6
82	2800	0.118085	70.7692	-64922
83	2900	0.135774	70.7877	-64528.2
84	2900	0.150969	70.8105	-64090.4
85	2900	0.168741	70.8389	-63601.1
86	2900	0.186567	70.8738	-63060
87	2900	0.201894	70.9145	-62474.5
88	2900	0.219834	70.9628	-61837
89	3000	0.237847	71.0194	-61123.5
90	3100	0.253347	71.0836	-60338.1
91	3100	0.271509	71.1573	-59496.4
92	3100	0.28976	71.2413	-58598.2
93	3200	0.305481	71.3346	-57620.6
94	3200	0.323919	71.4395	-56584.1
95	3200	0.342466	71.5568	-55488.2
96	3200	0.358459	71.6853	-54341.1
97	3300	0.377233	71.8276	-53096.2
98	3300	0.396142	71.9845	-51789
99	3300	0.412463	72.1547	-50427.9
100	3400	0.431644	72.341	-48960.3
101	3400	0.450985	72.5444	-47426.9
102	3400	0.467699	72.7631	-45836.7
103	3430	0.487364	73.0006	-44165.1
104	3500	0.507221	73.2579	-42389.8

105	3500	0.524401	73.5329	-40554.4
106	3500	0.544642	73.8295	-38648.2
107	3500	0.565108	74.1489	-36670.3
108	3600	0.582841	74.4886	-34572.1
109	3600	0.603765	74.8531	-32398.5
110	3700	0.624956	75.2437	-30086.2
111	3700	0.643345	75.6576	-27705.8
112	3700	0.665079	76.0999	-25245
113	3700	0.687131	76.572	-22702.6
114	3700	0.706302	77.0709	-20089.3
115	3900	0.729003	77.6024	-17246.2
116	3900	0.752084	78.168	-14313.1
117	3900	0.772193	78.7643	-11301.5
118	4000	0.796056	79.398	-8117.28
119	4100	0.820379	80.071	-4753.73
120	4200	0.841621	80.7793	-1218.92
121	4200	0.866894	81.5308	2422.04
122	4400	0.892733	82.3278	6350.06
123	4400	0.915365	83.1657	10377.7
124	4400	0.942375	84.0538	14524.1
125	4800	0.970094	84.9948	19180.6
126	4900	0.994457	85.9838	24053.4
127	5200	1.02365	87.0317	29376.4
128	5300	1.05375	88.142	34961.3
129	5400	1.08032	89.3091	40795
130	6100	1.11232	90.5464	47580.1
131	6500	1.1455	91.8586	55025.9
132	6700	1.17499	93.2392	62898.3
133	6900	1.21073	94.705	71252.4
134	7100	1.24809	96.2627	80113.8
135	7100	1.28155	97.9051	89212.8
136	7200	1.32251	99.6541	98734.8
137	8110	1.36581	101.52	109812
138	8400	1.40507	103.494	121614
139	8600	1.4538	105.607	134117
140	8600	1.50626	107.876	147071
141	8900	1.55477	110.293	160908
142	9100	1.61644	112.906	175618
143	9700	1.68494	115.745	191962
144	10500	1.75069	118.81	210344
145	11900	1.83843	122.19	232221
146	13000	1.94314	125.966	257482
147	13200	2.05375	130.184	284591
148	13500	2.22621	135.14	314645
149	13700	2.51213	141.451	349061

Data Set Standard Deviation = 2729.46  
 Numerator = 1.21844e+011  
 Denominator = 1.55963e+011  
 W Statistic = 0.781237 = 1.21844e+011 / 1.55963e+011

**5% Critical value of 0.976 exceeds 0.781237**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.781237**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Potassium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 13700

Confidence Level = 95%

False Positive Rate = 5%

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Baseline Measurements	Date	Value
	9/18/2013	8110
	3/20/2014	6100
	9/9/2014	7100
	3/16/2015	6500
	9/9/2015	8400
	3/18/2016	11900
	9/20/2016	13200
	3/23/2017	8600
	9/18/2017	6900
	3/15/2018	7100
	9/17/2018	6700
	3/5/2019	8900
	9/24/2019	9100
	3/16/2020	7200
	9/22/2020	13500
	3/16/2021	13700
	9/14/2021	13000
	3/22/2022	10500
	9/13/2022	9700

---

Date	Count	Mean	Significant
3/14/2023	1	8600	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Potassium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 5300

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	4800
	12/5/2013	3430
	3/19/2014	4000
	9/4/2014	4200
	3/17/2015	4200
	9/11/2015	4400
	3/15/2016	3900
	9/21/2016	3700
	3/28/2017	3500
	9/19/2017	3100
	3/26/2018	3500
	9/18/2018	3700
	3/4/2019	5300
	9/23/2019	4900
	3/19/2020	4100
	9/23/2020	3600
	3/19/2021	3700
	9/15/2021	3900
	3/16/2022	3600
	9/14/2022	3700

---

Date	Count	Mean	Significant
3/16/2023	1	3300	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Potassium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 2000

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	520
	3/21/2014	500
	9/8/2014	550
	3/19/2015	520
	9/14/2015	530
	3/21/2016	550
	9/23/2016	550
	3/27/2017	560
	9/20/2017	570
	3/16/2018	480
	9/20/2018	580
	3/5/2019	520
	9/25/2019	500
	3/25/2020	490
	9/28/2020	640
	3/18/2021	2000 R
	9/15/2021	620
	3/22/2022	620
	9/14/2022	850

---

Date	Count	Mean	Significant
3/16/2023	1	590	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Potassium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 2100

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	1200
	3/21/2014	1200
	9/17/2014	1300
	3/19/2015	1400
	9/15/2015	1500
	3/21/2016	1600
	9/26/2016	1600
	3/31/2017	1700
	9/21/2017	1900
	3/30/2018	2100
	9/26/2018	1800
	3/13/2019	1900
	10/3/2019	1900
	4/3/2020	1500
	9/30/2020	1700
	3/22/2021	1800
	9/16/2021	1800
	3/24/2022	1800
	9/16/2022	1900

---

Date	Count	Mean	Significant
3/17/2023	1	1900	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Potassium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 3900

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	1790
	3/18/2014	2000
	9/16/2014	1800
	3/18/2015	1600
	9/15/2015	2000
	3/16/2016	2000
	9/22/2016	2100
	3/29/2017	2000
	9/21/2017	1900
	3/28/2018	2100
	9/20/2018	2000
	3/12/2019	2200
	10/1/2019	2200
	3/18/2020	2400
	9/24/2020	2000
	3/17/2021	3900 R
	9/9/2021	2100
	3/15/2022	2100
	9/16/2022	1900

---

Date	Count	Mean	Significant
3/15/2023	1	1900	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Potassium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 3500

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	3400
	3/26/2020	3100
	9/29/2020	3200
	3/16/2021	3400
	9/14/2021	3500
	3/18/2022	3200
	9/13/2022	3300

---

Date	Count	Mean	Significant
3/14/2023	1	3500	FALSE

## Shapiro-Francia Test of Normality

Parameter: Selenium, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	0	-1.55477	33.5744	0
10	0	-1.50626	35.8432	0
11	0	-1.4538	37.9567	0
12	0	-1.40507	39.931	0
13	0	-1.36581	41.7964	0
14	0	-1.32251	43.5454	0
15	0	-1.28155	45.1878	0
16	0	-1.24809	46.7455	0
17	0	-1.21073	48.2114	0
18	0	-1.17499	49.592	0
19	0	-1.1455	50.9042	0
20	0	-1.11232	52.1414	0
21	0	-1.08032	53.3085	0
22	0	-1.05375	54.4189	0
23	0	-1.02365	55.4667	0
24	0	-0.994457	56.4557	0
25	0	-0.970094	57.3968	0
26	0	-0.942375	58.2848	0
27	0	-0.919183	59.1297	0
28	0	-0.892733	59.9267	0
29	0	-0.866894	60.6782	0
30	0	-0.841621	61.3865	0
31	0	-0.820379	62.0596	0
32	0	-0.796056	62.6933	0
33	0	-0.772193	63.2896	0
34	0	-0.752084	63.8552	0
35	0	-0.729003	64.3866	0
36	0	-0.706302	64.8855	0
37	0	-0.687131	65.3576	0
38	0	-0.665079	65.8	0
39	0	-0.643345	66.2139	0
40	0	-0.624956	66.6044	0
41	0	-0.603765	66.969	0
42	0	-0.582841	67.3087	0
43	0	-0.565108	67.628	0
44	0	-0.544642	67.9247	0
45	0	-0.524401	68.1996	0
46	0	-0.507221	68.4569	0
47	0	-0.487364	68.6944	0

48	0	-0.467699	68.9132	0
49	0	-0.450985	69.1166	0
50	0	-0.431644	69.3029	0
51	0	-0.412463	69.473	0
52	0	-0.396142	69.6299	0
53	0	-0.377233	69.7723	0
54	0	-0.358459	69.9007	0
55	0	-0.342466	70.018	0
56	0	-0.323919	70.1229	0
57	0	-0.305481	70.2163	0
58	0	-0.28976	70.3002	0
59	0	-0.271509	70.3739	0
60	0	-0.253347	70.4381	0
61	0	-0.237847	70.4947	0
62	0	-0.219834	70.543	0
63	0	-0.204452	70.5848	0
64	0	-0.186567	70.6196	0
65	0	-0.168741	70.6481	0
66	0	-0.150969	70.6709	0
67	0	-0.135774	70.6893	0
68	0	-0.118085	70.7033	0
69	0	-0.100433	70.7134	0
70	0	-0.0853288	70.7206	0
71	0	-0.0677301	70.7252	0
72	0	-0.0501541	70.7278	0
73	0	-0.0350997	70.729	0
74	0	-0.0175476	70.7293	0
75	0	0	70.7293	0
76	0	0.0175476	70.7296	0
77	0	0.0350997	70.7308	0
78	0	0.0501541	70.7333	0
79	0	0.0677301	70.7379	0
80	0	0.0853288	70.7452	0
81	0	0.100433	70.7553	0
82	0	0.118085	70.7692	0
83	0	0.135774	70.7877	0
84	0	0.150969	70.8105	0
85	0	0.168741	70.8389	0
86	0	0.186567	70.8738	0
87	0	0.201894	70.9145	0
88	0	0.219834	70.9628	0
89	0	0.237847	71.0194	0
90	0	0.253347	71.0836	0
91	0	0.271509	71.1573	0
92	0	0.28976	71.2413	0
93	0	0.305481	71.3346	0
94	0	0.323919	71.4395	0
95	0	0.342466	71.5568	0
96	0	0.358459	71.6853	0
97	0	0.377233	71.8276	0
98	0	0.396142	71.9845	0
99	0	0.412463	72.1547	0
100	0	0.431644	72.341	0
101	0	0.450985	72.5444	0
102	0	0.467699	72.7631	0
103	0	0.487364	73.0006	0
104	0	0.507221	73.2579	0

105	0	0.524401	73.5329	0
106	0	0.544642	73.8295	0
107	0	0.565108	74.1489	0
108	0	0.582841	74.4886	0
109	0	0.603765	74.8531	0
110	0	0.624956	75.2437	0
111	0	0.643345	75.6576	0
112	0	0.665079	76.0999	0
113	0	0.687131	76.572	0
114	0	0.706302	77.0709	0
115	0	0.729003	77.6024	0
116	0	0.752084	78.168	0
117	0	0.772193	78.7643	0
118	0	0.796056	79.398	0
119	0	0.820379	80.071	0
120	0	0.841621	80.7793	0
121	0	0.866894	81.5308	0
122	0	0.892733	82.3278	0
123	0	0.915365	83.1657	0
124	0	0.942375	84.0538	0
125	0	0.970094	84.9948	0
126	0	0.994457	85.9838	0
127	0	1.02365	87.0317	0
128	0	1.05375	88.142	0
129	0	1.08032	89.3091	0
130	0	1.11232	90.5464	0
131	0	1.1455	91.8586	0
132	0	1.17499	93.2392	0
133	0	1.21073	94.705	0
134	0	1.24809	96.2627	0
135	0	1.28155	97.9051	0
136	0	1.32251	99.6541	0
137	0	1.36581	101.52	0
138	0	1.40507	103.494	0
139	0	1.4538	105.607	0
140	0	1.50626	107.876	0
141	0	1.55477	110.293	0
142	0.64	1.61644	112.906	1.03452
143	1.2	1.68494	115.745	3.05645
144	1.2	1.75069	118.81	5.15727
145	1.4	1.83843	122.19	7.73106
146	1.9	1.94314	125.966	11.423
147	2	2.05375	130.184	15.5305
148	2.1	2.22621	135.14	20.2056
149	5.6	2.51213	141.451	34.2735

---

Data Set Standard Deviation = 0.562949  
 Numerator = 1174.67  
 Denominator = 6634.44  
 W Statistic = 0.177057 = 1174.67 / 6634.44

**5% Critical value of 0.976 exceeds 0.177057**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.177057**  
**Evidence of non-normality at 99% level of significance**



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Selenium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	ND<0
	3/20/2014	ND<0 U
	9/9/2014	ND<0 U
	3/16/2015	ND<0 U
	9/9/2015	ND<0 U
	3/18/2016	ND<0 U
	9/20/2016	ND<0 U
	3/23/2017	ND<0 U
	9/18/2017	ND<0 U
	3/15/2018	ND<0 U
	9/17/2018	ND<0 U
	3/5/2019	ND<0 U
	9/24/2019	ND<0 U
	3/16/2020	ND<0 U
	9/22/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/22/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Selenium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 0

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	ND<0 U
	9/4/2014	ND<0 U
	3/17/2015	ND<0 U
	9/11/2015	ND<0 U
	3/15/2016	ND<0 U
	9/21/2016	ND<0 U
	3/28/2017	ND<0 U
	9/19/2017	ND<0 U
	3/26/2018	ND<0 U
	9/18/2018	ND<0 U
	3/4/2019	ND<0 U
	9/23/2019	ND<0 U
	3/19/2020	ND<0 U
	9/23/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	ND<0 U
	3/16/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Selenium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/19/2015	ND<0 U
	9/14/2015	ND<0 U
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/27/2017	ND<0 U
	9/20/2017	ND<0 U
	3/16/2018	ND<0 U
	9/20/2018	ND<0 U
	3/5/2019	ND<0 U
	9/25/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/18/2021	ND<0 U
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Selenium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 84.2105%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 5.6

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/17/2014	ND<0 U
	3/19/2015	ND<0 U
	9/15/2015	ND<0 U
	3/21/2016	ND<0 U
	9/26/2016	ND<0 U
	3/31/2017	ND<0 U
	9/21/2017	ND<0 U
	3/30/2018	5.6
	9/26/2018	ND<0 U
	3/13/2019	ND<0 U
	10/3/2019	ND<0 U
	4/3/2020	2 J
	9/30/2020	ND<0 U
	3/22/2021	ND<0 U
	9/16/2021	1.4 J
	3/24/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Selenium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 84.2105%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 2.1

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	ND<0
	3/18/2014	ND<0 U
	9/16/2014	ND<0 U
	3/18/2015	ND<0 U
	9/15/2015	ND<0 U
	3/16/2016	ND<0 U
	9/22/2016	ND<0 U
	3/29/2017	ND<0 U
	9/21/2017	ND<0 U
	3/28/2018	ND<0 U
	9/20/2018	ND<0 U
	3/12/2019	ND<0 U
	10/1/2019	ND<0 U
	3/18/2020	2.1 J
	9/24/2020	1.9 J
	3/17/2021	ND<0 U
	9/9/2021	1.2 J
	3/15/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/15/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Selenium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 85.7143%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0.64

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	ND<0 U
	9/29/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	0.64 J
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Shapiro-Francia Test of Normality

Parameter: Silver, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 148

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	0	-1.55477	33.5744	0
10	0	-1.49852	35.8199	0
11	0	-1.4538	37.9335	0
12	0	-1.40507	39.9077	0
13	0	-1.35946	41.7558	0
14	0	-1.32251	43.5049	0
15	0	-1.28155	45.1472	0
16	0	-1.24264	46.6914	0
17	0	-1.20553	48.1447	0
18	0	-1.17499	49.5253	0
19	0	-1.14069	50.8265	0
20	0	-1.10768	52.0534	0
21	0	-1.08032	53.2205	0
22	0	-1.04939	54.3217	0
23	0	-1.01943	55.3609	0
24	0	-0.990356	56.3418	0
25	0	-0.966088	57.2751	0
26	0	-0.938476	58.1558	0
27	0	-0.911562	58.9868	0
28	0	-0.889006	59.7771	0
29	0	-0.863249	60.5223	0
30	0	-0.838054	61.2246	0
31	0	-0.813379	61.8862	0
32	0	-0.792618	62.5145	0
33	0	-0.768821	63.1055	0
34	0	-0.745449	63.6612	0
35	0	-0.725736	64.1879	0
36	0	-0.703089	64.6823	0
37	0	-0.680797	65.1457	0
38	0	-0.658838	65.5798	0
39	0	-0.640266	65.9898	0
40	0	-0.618872	66.3728	0
41	0	-0.597761	66.7301	0
42	0	-0.579873	67.0663	0
43	0	-0.559237	67.3791	0
44	0	-0.538836	67.6694	0
45	0	-0.518658	67.9384	0
46	0	-0.501527	68.19	0
47	0	-0.481728	68.422	0

48	0	-0.462114	68.6356	0
49	0	-0.445443	68.834	0
50	0	-0.426148	69.0156	0
51	0	-0.40701	69.1812	0
52	0	-0.390726	69.3339	0
53	0	-0.371856	69.4722	0
54	0	-0.353118	69.5969	0
55	0	-0.334503	69.7088	0
56	0	-0.318639	69.8103	0
57	0	-0.300232	69.9004	0
58	0	-0.281926	69.9799	0
59	0	-0.266311	70.0508	0
60	0	-0.248174	70.1124	0
61	0	-0.230118	70.1654	0
62	0	-0.212137	70.2104	0
63	0	-0.196779	70.2491	0
64	0	-0.17892	70.2811	0
65	0	-0.161119	70.3071	0
66	0	-0.1459	70.3284	0
67	0	-0.128189	70.3448	0
68	0	-0.110516	70.357	0
69	0	-0.0928787	70.3656	0
70	0	-0.0777834	70.3717	0
71	0	-0.0601949	70.3753	0
72	0	-0.0426257	70.3771	0
73	0	-0.0275759	70.3779	0
74	0	-0.0100272	70.378	0
75	0	0.0100272	70.3781	0
76	0	0.0275759	70.3789	0
77	0	0.0426257	70.3807	0
78	0	0.0601949	70.3843	0
79	0	0.0777834	70.3904	0
80	0	0.0928787	70.399	0
81	0	0.110516	70.4112	0
82	0	0.128189	70.4276	0
83	0	0.1459	70.4489	0
84	0	0.161119	70.4749	0
85	0	0.17892	70.5069	0
86	0	0.196779	70.5456	0
87	0	0.212137	70.5906	0
88	0	0.230118	70.6436	0
89	0	0.248174	70.7052	0
90	0	0.266311	70.7761	0
91	0	0.281926	70.8556	0
92	0	0.300232	70.9457	0
93	0	0.318639	71.0472	0
94	0	0.334503	71.1591	0
95	0	0.353118	71.2838	0
96	0	0.371856	71.4221	0
97	0	0.390726	71.5748	0
98	0	0.40701	71.7404	0
99	0	0.426148	71.922	0
100	0	0.445443	72.1204	0
101	0	0.462114	72.334	0
102	0	0.481728	72.566	0
103	0	0.501527	72.8176	0
104	0	0.518658	73.0866	0



105	0	0.538836	73.3769	0
106	0	0.559237	73.6897	0
107	0	0.579873	74.0259	0
108	0	0.597761	74.3832	0
109	0	0.618872	74.7662	0
110	0	0.640266	75.1762	0
111	0	0.658838	75.6103	0
112	0	0.680797	76.0737	0
113	0	0.703089	76.5681	0
114	0	0.725736	77.0948	0
115	0	0.745449	77.6505	0
116	0	0.768821	78.2415	0
117	0	0.792618	78.8698	0
118	0	0.813379	79.5314	0
119	0	0.838054	80.2337	0
120	0	0.863249	80.9789	0
121	0	0.889006	81.7692	0
122	0	0.911562	82.6002	0
123	0	0.938476	83.4809	0
124	0	0.966088	84.4142	0
125	0	0.990356	85.395	0
126	0	1.01943	86.4343	0
127	0	1.04939	87.5355	0
128	0	1.08032	88.7026	0
129	0	1.10768	89.9295	0
130	0	1.14069	91.2307	0
131	0	1.17499	92.6113	0
132	0	1.20553	94.0646	0
133	0	1.24264	95.6088	0
134	0	1.28155	97.2511	0
135	0	1.32251	99.0002	0
136	0	1.35946	100.848	0
137	0	1.40507	102.823	0
138	0	1.4538	104.936	0
139	0	1.49852	107.182	0
140	0	1.55477	109.599	0
141	0	1.61644	112.212	0
142	0	1.68494	115.051	0
143	0	1.75069	118.116	0
144	0	1.83843	121.496	0
145	0	1.94314	125.271	0
146	0.94	2.05375	129.489	1.93052
147	2.2	2.22621	134.445	6.82818
148	6.9	2.51213	140.756	24.1619

Data Set Standard Deviation = 0.598482  
 Numerator = 583.797  
 Denominator = 7411.16  
 W Statistic = 0.0787728 = 583.797 / 7411.16

**5% Critical value of 0.976 exceeds 0.0787728**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.0787728**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Silver, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	ND<0
	3/20/2014	ND<0 U
	9/9/2014	ND<0 U
	3/16/2015	ND<0 U
	9/9/2015	ND<0 U
	3/18/2016	ND<0 U
	9/20/2016	ND<0 U
	3/23/2017	ND<0 U
	9/18/2017	ND<0 U
	3/15/2018	ND<0 U
	9/17/2018	ND<0 U
	3/5/2019	ND<0 U
	9/24/2019	ND<0 U
	3/16/2020	ND<0 U
	9/22/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/22/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Silver, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 94.7368%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 6.9

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/19/2013	ND<0
	3/19/2014	ND<0 U
	9/4/2014	ND<0 U
	3/17/2015	ND<0 U
	9/11/2015	ND<0 U
	3/15/2016	6.9
	9/21/2016	ND<0 U
	3/28/2017	ND<0 U
	9/19/2017	ND<0 U
	3/26/2018	ND<0 U
	9/18/2018	ND<0 U
	3/4/2019	ND<0 U
	9/23/2019	ND<0 U
	3/19/2020	ND<0 U
	9/23/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	ND<0 U
	3/16/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Silver, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/19/2015	ND<0 U
	9/14/2015	ND<0 U
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/27/2017	ND<0 U
	9/20/2017	ND<0 U
	3/16/2018	ND<0 U
	9/20/2018	ND<0 U
	3/5/2019	ND<0 U
	9/25/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/18/2021	ND<0 U
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Silver, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 94.7368%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 2.2

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/17/2014	ND<0 U
	3/19/2015	ND<0 U
	9/15/2015	ND<0 U
	3/21/2016	ND<0 U
	9/26/2016	ND<0 U
	3/31/2017	ND<0 U
	9/21/2017	ND<0 U
	3/30/2018	2.2
	9/26/2018	ND<0 U
	3/13/2019	ND<0 U
	10/3/2019	ND<0 U
	4/3/2020	ND<0 U
	9/30/2020	ND<0 U
	3/22/2021	ND<0 U
	9/16/2021	ND<0 U
	3/24/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Silver, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	ND<0
	3/18/2014	ND<0 U
	9/16/2014	ND<0 U
	3/18/2015	ND<0 U
	9/15/2015	ND<0 U
	3/16/2016	ND<0 U
	9/22/2016	ND<0 U
	3/29/2017	ND<0 U
	9/21/2017	ND<0 U
	3/28/2018	ND<0 U
	9/20/2018	ND<0 U
	3/12/2019	ND<0 U
	10/1/2019	ND<0 U
	3/18/2020	ND<0 U
	9/24/2020	ND<0 U
	3/17/2021	ND<0 U
	9/9/2021	ND<0 U
	3/15/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/15/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Silver, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 85.7143%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0.94

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	ND<0 U
	9/29/2020	ND<0 U
	3/16/2021	0.94 J
	9/14/2021	ND<0 U
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

# Shapiro-Francia Test of Normality

Parameter: Sodium, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	14300	-2.51213	6.31081	-35923.5
2	15500	-2.22621	11.2668	-70429.7
3	15710	-2.05375	15.4847	-102694
4	16100	-1.94314	19.2605	-133979
5	16600	-1.83843	22.6403	-164496
6	16700	-1.75069	25.7052	-193733
7	16700	-1.68494	28.5442	-221871
8	16800	-1.61644	31.1571	-249028
9	16800	-1.55477	33.5744	-275148
10	17200	-1.50626	35.8432	-301055
11	17200	-1.4538	37.9567	-326061
12	17300	-1.40507	39.931	-350369
13	17300	-1.36581	41.7964	-373997
14	17500	-1.32251	43.5454	-397141
15	17740	-1.28155	45.1878	-419876
16	18300	-1.24809	46.7455	-442716
17	18300	-1.21073	48.2114	-464872
18	18900	-1.17499	49.592	-487079
19	19100	-1.1455	50.9042	-508958
20	19100	-1.11232	52.1414	-530204
21	19200	-1.08032	53.3085	-550946
22	20200	-1.05375	54.4189	-572231
23	20440	-1.02365	55.4667	-593155
24	20800	-0.994457	56.4557	-613840
25	20800	-0.970094	57.3968	-634018
26	21200	-0.942375	58.2848	-653996
27	22200	-0.919183	59.1297	-674402
28	22500	-0.892733	59.9267	-694488
29	22520	-0.866894	60.6782	-714011
30	22600	-0.841621	61.3865	-733031
31	23410	-0.820379	62.0596	-752236
32	24000	-0.796056	62.6933	-771342
33	24110	-0.772193	63.2896	-789959
34	24200	-0.752084	63.8552	-808160
35	25000	-0.729003	64.3866	-826385
36	25200	-0.706302	64.8855	-844184
37	25200	-0.687131	65.3576	-861499
38	25300	-0.665079	65.8	-878326
39	25300	-0.643345	66.2139	-894602
40	26000	-0.624956	66.6044	-910851
41	27100	-0.603765	66.969	-927213
42	27100	-0.582841	67.3087	-943008
43	27300	-0.565108	67.628	-958436
44	27500	-0.544642	67.9247	-973413
45	28100	-0.524401	68.1996	-988149
46	28100	-0.507221	68.4569	-1.0024e+006
47	28200	-0.487364	68.6944	-1.01615e+006



48	28300	-0.467699	68.9132	-1.02938e+006
49	28400	-0.450985	69.1166	-1.04219e+006
50	28700	-0.431644	69.3029	-1.05458e+006
51	28900	-0.412463	69.473	-1.0665e+006
52	29000	-0.396142	69.6299	-1.07799e+006
53	29000	-0.377233	69.7723	-1.08893e+006
54	29100	-0.358459	69.9007	-1.09936e+006
55	29100	-0.342466	70.018	-1.10932e+006
56	29700	-0.323919	70.1229	-1.11894e+006
57	29900	-0.305481	70.2163	-1.12808e+006
58	30100	-0.28976	70.3002	-1.1368e+006
59	30700	-0.271509	70.3739	-1.14513e+006
60	30800	-0.253347	70.4381	-1.15294e+006
61	31100	-0.237847	70.4947	-1.16033e+006
62	31100	-0.219834	70.543	-1.16717e+006
63	31100	-0.204452	70.5848	-1.17353e+006
64	32000	-0.186567	70.6196	-1.1795e+006
65	32800	-0.168741	70.6481	-1.18503e+006
66	33000	-0.150969	70.6709	-1.19002e+006
67	33400	-0.135774	70.6893	-1.19455e+006
68	33400	-0.118085	70.7033	-1.1985e+006
69	33500	-0.100433	70.7134	-1.20186e+006
70	33800	-0.0853288	70.7206	-1.20474e+006
71	34000	-0.0677301	70.7252	-1.20705e+006
72	34100	-0.0501541	70.7278	-1.20876e+006
73	34300	-0.0350997	70.729	-1.20996e+006
74	34300	-0.0175476	70.7293	-1.21056e+006
75	34600	0	70.7293	-1.21056e+006
76	34900	0.0175476	70.7296	-1.20995e+006
77	34900	0.0350997	70.7308	-1.20873e+006
78	35000	0.0501541	70.7333	-1.20697e+006
79	35000	0.0677301	70.7379	-1.2046e+006
80	35400	0.0853288	70.7452	-1.20158e+006
81	35700	0.100433	70.7553	-1.19799e+006
82	36000	0.118085	70.7692	-1.19374e+006
83	36500	0.135774	70.7877	-1.18879e+006
84	36700	0.150969	70.8105	-1.18325e+006
85	36800	0.168741	70.8389	-1.17704e+006
86	37000	0.186567	70.8738	-1.17013e+006
87	37200	0.201894	70.9145	-1.16262e+006
88	37300	0.219834	70.9628	-1.15442e+006
89	37300	0.237847	71.0194	-1.14555e+006
90	37900	0.253347	71.0836	-1.13595e+006
91	38300	0.271509	71.1573	-1.12555e+006
92	38600	0.28976	71.2413	-1.11437e+006
93	38600	0.305481	71.3346	-1.10257e+006
94	39000	0.323919	71.4395	-1.08994e+006
95	39500	0.342466	71.5568	-1.07641e+006
96	39700	0.358459	71.6853	-1.06218e+006
97	40000	0.377233	71.8276	-1.04709e+006
98	40200	0.396142	71.9845	-1.03117e+006
99	40400	0.412463	72.1547	-1.01451e+006
100	40500	0.431644	72.341	-997024
101	40600	0.450985	72.5444	-978714
102	40900	0.467699	72.7631	-959585
103	41700	0.487364	73.0006	-939262
104	41900	0.507221	73.2579	-918009

105	44000	0.524401	73.5329	-894936
106	45000	0.544642	73.8295	-870427
107	45100	0.565108	74.1489	-844941
108	45400	0.582841	74.4886	-818480
109	45700	0.603765	74.8531	-790888
110	45900	0.624956	75.2437	-762202
111	47000	0.643345	75.6576	-731965
112	47100	0.665079	76.0999	-700640
113	47500	0.687131	76.572	-668001
114	49100	0.706302	77.0709	-633321
115	49600	0.729003	77.6024	-597163
116	51800	0.752084	78.168	-558205
117	52700	0.772193	78.7643	-517510
118	53300	0.796056	79.398	-475081
119	54800	0.820379	80.071	-430124
120	56200	0.841621	80.7793	-382825
121	56900	0.866894	81.5308	-333498
122	58000	0.892733	82.3278	-281720
123	58100	0.915365	83.1657	-228537
124	58800	0.942375	84.0538	-173126
125	59400	0.970094	84.9948	-115502
126	59600	0.994457	85.9838	-56232.3
127	60300	1.02365	87.0317	5493.94
128	60500	1.05375	88.142	69245.5
129	60800	1.08032	89.3091	134929
130	60800	1.11232	90.5464	202558
131	62800	1.1455	91.8586	274496
132	62900	1.17499	93.2392	348403
133	63500	1.21073	94.705	425284
134	64000	1.24809	96.2627	505161
135	65600	1.28155	97.9051	589231
136	66600	1.32251	99.6541	677310
137	69000	1.36581	101.52	771550
138	71400	1.40507	103.494	871873
139	76500	1.4538	105.607	983089
140	80100	1.50626	107.876	1.10374e+006
141	83000	1.55477	110.293	1.23279e+006
142	88400	1.61644	112.906	1.37568e+006
143	99000	1.68494	115.745	1.54249e+006
144	120000	1.75069	118.81	1.75257e+006
145	139000	1.83843	122.19	2.00811e+006
146	154000	1.94314	125.966	2.30735e+006
147	171000	2.05375	130.184	2.65855e+006
148	244200	2.22621	135.14	3.20219e+006
149	706000	2.51213	141.451	4.97575e+006

Data Set Standard Deviation = 61920.5

Numerator = 2.47581e+013

Denominator = 8.02667e+013

W Statistic = 0.308448 = 2.47581e+013 / 8.02667e+013

**5% Critical value of 0.976 exceeds 0.308448**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.308448**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Sodium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 83000

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	20440
	3/20/2014	47100
	9/9/2014	52700
	3/16/2015	56200
	9/9/2015	49600
	3/18/2016	54800
	9/20/2016	58100
	3/23/2017	60300
	9/18/2017	63500
	3/15/2018	65600
	9/17/2018	58000
	3/5/2019	69000
	9/24/2019	60500
	3/16/2020	83000
	9/22/2020	62900
	3/16/2021	71400
	9/14/2021	64000
	3/22/2022	66600
	9/13/2022	60800

---

Date	Count	Mean	Significant
3/14/2023	1	56900	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Sodium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 244200

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	244200
	12/5/2013	24110
	3/19/2014	25300
	9/4/2014	27300
	3/17/2015	28100
	9/11/2015	34300
	3/15/2016	30100
	9/21/2016	28300
	3/28/2017	26000
	9/19/2017	25200
	3/26/2018	28900
	9/18/2018	37000
	3/4/2019	41700
	9/23/2019	39700
	3/19/2020	32000
	9/23/2020	34100
	3/19/2021	33500
	9/15/2021	29000
	3/16/2022	25300
	9/14/2022	29100

---

Date	Count	Mean	Significant
3/16/2023	1	27100	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Sodium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 28700

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	16100
	3/21/2014	14300
	9/8/2014	17300
	3/19/2015	16700
	9/14/2015	18900
	3/21/2016	15500
	9/23/2016	17300
	3/27/2017	17200
	9/20/2017	22200
	3/16/2018	22500
	9/20/2018	20800
	3/5/2019	20200
	9/25/2019	16600
	3/25/2020	19200
	9/28/2020	22600
	3/18/2021	17200 R
	9/15/2021	25000
	3/22/2022	28200
	9/14/2022	28700

---

Date	Count	Mean	Significant
3/16/2023	1	29900	TRUE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Sodium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 41900

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	17740
	3/21/2014	16800
	9/17/2014	16700
	3/19/2015	17500
	9/15/2015	18300
	3/21/2016	19100
	9/26/2016	16800
	3/31/2017	18300
	9/21/2017	24000
	3/30/2018	30700
	9/26/2018	34000
	3/13/2019	34300
	10/3/2019	33400
	4/3/2020	28100
	9/30/2020	29000
	3/22/2021	37900
	9/16/2021	35000
	3/24/2022	41900
	9/16/2022	40000

---

Date	Count	Mean	Significant
3/17/2023	1	40600	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Sodium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 706000

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	22520
	3/18/2014	25200
	9/16/2014	24200
	3/18/2015	21200
	9/15/2015	27100
	3/16/2016	31100
	9/22/2016	33400
	3/29/2017	31100
	9/21/2017	27500
	3/28/2018	30800
	9/20/2018	29100
	3/12/2019	29700
	10/1/2019	34600
	3/18/2020	35000
	9/24/2020	28400
	3/17/2021	706000 R
	9/9/2021	33000
	3/15/2022	31100
	9/16/2022	20800

---

Date	Count	Mean	Significant
3/15/2023	1	19100	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Sodium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 47000

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	40500
	3/26/2020	39500
	9/29/2020	44000
	3/16/2021	45400
	9/14/2021	47000
	3/18/2022	45100
	9/13/2022	45900

---

Date	Count	Mean	Significant
3/14/2023	1	49100	TRUE



## Shapiro-Francia Test of Normality

Parameter: Thallium, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	0	-1.55477	33.5744	0
10	0	-1.50626	35.8432	0
11	0	-1.4538	37.9567	0
12	0	-1.40507	39.931	0
13	0	-1.36581	41.7964	0
14	0	-1.32251	43.5454	0
15	0	-1.28155	45.1878	0
16	0	-1.24809	46.7455	0
17	0	-1.21073	48.2114	0
18	0	-1.17499	49.592	0
19	0	-1.1455	50.9042	0
20	0	-1.11232	52.1414	0
21	0	-1.08032	53.3085	0
22	0	-1.05375	54.4189	0
23	0	-1.02365	55.4667	0
24	0	-0.994457	56.4557	0
25	0	-0.970094	57.3968	0
26	0	-0.942375	58.2848	0
27	0	-0.919183	59.1297	0
28	0	-0.892733	59.9267	0
29	0	-0.866894	60.6782	0
30	0	-0.841621	61.3865	0
31	0	-0.820379	62.0596	0
32	0	-0.796056	62.6933	0
33	0	-0.772193	63.2896	0
34	0	-0.752084	63.8552	0
35	0	-0.729003	64.3866	0
36	0	-0.706302	64.8855	0
37	0	-0.687131	65.3576	0
38	0	-0.665079	65.8	0
39	0	-0.643345	66.2139	0
40	0	-0.624956	66.6044	0
41	0	-0.603765	66.969	0
42	0	-0.582841	67.3087	0
43	0	-0.565108	67.628	0
44	0	-0.544642	67.9247	0
45	0	-0.524401	68.1996	0
46	0	-0.507221	68.4569	0
47	0	-0.487364	68.6944	0

48	0	-0.467699	68.9132	0
49	0	-0.450985	69.1166	0
50	0	-0.431644	69.3029	0
51	0	-0.412463	69.473	0
52	0	-0.396142	69.6299	0
53	0	-0.377233	69.7723	0
54	0	-0.358459	69.9007	0
55	0	-0.342466	70.018	0
56	0	-0.323919	70.1229	0
57	0	-0.305481	70.2163	0
58	0	-0.28976	70.3002	0
59	0	-0.271509	70.3739	0
60	0	-0.253347	70.4381	0
61	0	-0.237847	70.4947	0
62	0	-0.219834	70.543	0
63	0	-0.204452	70.5848	0
64	0	-0.186567	70.6196	0
65	0	-0.168741	70.6481	0
66	0	-0.150969	70.6709	0
67	0	-0.135774	70.6893	0
68	0	-0.118085	70.7033	0
69	0	-0.100433	70.7134	0
70	0	-0.0853288	70.7206	0
71	0	-0.0677301	70.7252	0
72	0	-0.0501541	70.7278	0
73	0	-0.0350997	70.729	0
74	0	-0.0175476	70.7293	0
75	0	0	70.7293	0
76	0	0.0175476	70.7296	0
77	0	0.0350997	70.7308	0
78	0	0.0501541	70.7333	0
79	0	0.0677301	70.7379	0
80	0	0.0853288	70.7452	0
81	0	0.100433	70.7553	0
82	0	0.118085	70.7692	0
83	0	0.135774	70.7877	0
84	0	0.150969	70.8105	0
85	0	0.168741	70.8389	0
86	0	0.186567	70.8738	0
87	0	0.201894	70.9145	0
88	0	0.219834	70.9628	0
89	0	0.237847	71.0194	0
90	0	0.253347	71.0836	0
91	0	0.271509	71.1573	0
92	0	0.28976	71.2413	0
93	0	0.305481	71.3346	0
94	0	0.323919	71.4395	0
95	0	0.342466	71.5568	0
96	0	0.358459	71.6853	0
97	0	0.377233	71.8276	0
98	0	0.396142	71.9845	0
99	0	0.412463	72.1547	0
100	0	0.431644	72.341	0
101	0	0.450985	72.5444	0
102	0	0.467699	72.7631	0
103	0	0.487364	73.0006	0
104	0	0.507221	73.2579	0

105	0	0.524401	73.5329	0
106	0	0.544642	73.8295	0
107	0	0.565108	74.1489	0
108	0	0.582841	74.4886	0
109	0	0.603765	74.8531	0
110	0	0.624956	75.2437	0
111	0	0.643345	75.6576	0
112	0	0.665079	76.0999	0
113	0	0.687131	76.572	0
114	0	0.706302	77.0709	0
115	0	0.729003	77.6024	0
116	0	0.752084	78.168	0
117	0	0.772193	78.7643	0
118	0	0.796056	79.398	0
119	0	0.820379	80.071	0
120	0	0.841621	80.7793	0
121	0	0.866894	81.5308	0
122	0	0.892733	82.3278	0
123	0	0.915365	83.1657	0
124	0	0.942375	84.0538	0
125	0	0.970094	84.9948	0
126	0	0.994457	85.9838	0
127	0	1.02365	87.0317	0
128	0	1.05375	88.142	0
129	0	1.08032	89.3091	0
130	0	1.11232	90.5464	0
131	0	1.1455	91.8586	0
132	0	1.17499	93.2392	0
133	0	1.21073	94.705	0
134	0	1.24809	96.2627	0
135	0	1.28155	97.9051	0
136	0	1.32251	99.6541	0
137	0	1.36581	101.52	0
138	0	1.40507	103.494	0
139	0	1.4538	105.607	0
140	0	1.50626	107.876	0
141	0	1.55477	110.293	0
142	0	1.61644	112.906	0
143	0	1.68494	115.745	0
144	0	1.75069	118.81	0
145	0	1.83843	122.19	0
146	0.2	1.94314	125.966	0.388627
147	0.24	2.05375	130.184	0.881527
148	0.46	2.22621	135.14	1.90558
149	1.1	2.51213	141.451	4.66893

Data Set Standard Deviation = 0.100417  
 Numerator = 21.7989  
 Denominator = 211.094  
 W Statistic = 0.103266 = 21.7989 / 211.094

**5% Critical value of 0.976 exceeds 0.103266**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.103266**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Thallium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	ND<0
	3/20/2014	ND<0 U
	9/9/2014	ND<0 U
	3/16/2015	ND<0 U
	9/9/2015	ND<0 U
	3/18/2016	ND<0 U
	9/20/2016	ND<0 U
	3/23/2017	ND<0 U
	9/18/2017	ND<0 U
	3/15/2018	ND<0 U
	9/17/2018	ND<0 U
	3/5/2019	ND<0 U
	9/24/2019	ND<0 U
	3/16/2020	ND<0 U
	9/22/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/22/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Thallium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 0

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	ND<0 U
	9/4/2014	ND<0 U
	3/17/2015	ND<0 U
	9/11/2015	ND<0 U
	3/15/2016	ND<0 U
	9/21/2016	ND<0 U
	3/28/2017	ND<0 U
	9/19/2017	ND<0 U
	3/26/2018	ND<0 U
	9/18/2018	ND<0 U
	3/4/2019	ND<0 U
	9/23/2019	ND<0 U
	3/19/2020	ND<0 U
	9/23/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	ND<0 U
	3/16/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Thallium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/19/2015	ND<0 U
	9/14/2015	ND<0 U
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/27/2017	ND<0 U
	9/20/2017	ND<0 U
	3/16/2018	ND<0 U
	9/20/2018	ND<0 U
	3/5/2019	ND<0 U
	9/25/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/18/2021	ND<0 U
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Thallium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 94.7368%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 1.1

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/17/2014	ND<0 U
	3/19/2015	ND<0 U
	9/15/2015	ND<0 U
	3/21/2016	ND<0 U
	9/26/2016	ND<0 U
	3/31/2017	ND<0 U
	9/21/2017	ND<0 U
	3/30/2018	1.1
	9/26/2018	ND<0 U
	3/13/2019	ND<0 U
	10/3/2019	ND<0 U
	4/3/2020	ND<0 U
	9/30/2020	ND<0 U
	3/22/2021	ND<0 U
	9/16/2021	ND<0 U
	3/24/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Thallium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	ND<0
	3/18/2014	ND<0 U
	9/16/2014	ND<0 U
	3/18/2015	ND<0 U
	9/15/2015	ND<0 U
	3/16/2016	ND<0 U
	9/22/2016	ND<0 U
	3/29/2017	ND<0 U
	9/21/2017	ND<0 U
	3/28/2018	ND<0 U
	9/20/2018	ND<0 U
	3/12/2019	ND<0 U
	10/1/2019	ND<0 U
	3/18/2020	ND<0 U
	9/24/2020	ND<0 U
	3/17/2021	ND<0 U
	9/9/2021	ND<0 U
	3/15/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/15/2023	1	0	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Thallium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 85.7143%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0.24

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	ND<0 U
	9/29/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	0.24 J
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0.46	TRUE

## Shapiro-Francia Test of Normality

Parameter: Vanadium, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	0	-1.55477	33.5744	0
10	0	-1.50626	35.8432	0
11	0	-1.4538	37.9567	0
12	0	-1.40507	39.931	0
13	0	-1.36581	41.7964	0
14	0	-1.32251	43.5454	0
15	0	-1.28155	45.1878	0
16	0	-1.24809	46.7455	0
17	0	-1.21073	48.2114	0
18	0	-1.17499	49.592	0
19	0	-1.1455	50.9042	0
20	0	-1.11232	52.1414	0
21	0	-1.08032	53.3085	0
22	0	-1.05375	54.4189	0
23	0	-1.02365	55.4667	0
24	0	-0.994457	56.4557	0
25	0	-0.970094	57.3968	0
26	0	-0.942375	58.2848	0
27	0	-0.919183	59.1297	0
28	0	-0.892733	59.9267	0
29	0	-0.866894	60.6782	0
30	0	-0.841621	61.3865	0
31	0	-0.820379	62.0596	0
32	0	-0.796056	62.6933	0
33	0	-0.772193	63.2896	0
34	0	-0.752084	63.8552	0
35	0	-0.729003	64.3866	0
36	0	-0.706302	64.8855	0
37	0	-0.687131	65.3576	0
38	0	-0.665079	65.8	0
39	0	-0.643345	66.2139	0
40	0	-0.624956	66.6044	0
41	0	-0.603765	66.969	0
42	0	-0.582841	67.3087	0
43	0	-0.565108	67.628	0
44	0	-0.544642	67.9247	0
45	0	-0.524401	68.1996	0
46	0	-0.507221	68.4569	0
47	0	-0.487364	68.6944	0

48	0	-0.467699	68.9132	0
49	0	-0.450985	69.1166	0
50	0	-0.431644	69.3029	0
51	0	-0.412463	69.473	0
52	0	-0.396142	69.6299	0
53	0	-0.377233	69.7723	0
54	0	-0.358459	69.9007	0
55	0	-0.342466	70.018	0
56	0	-0.323919	70.1229	0
57	0	-0.305481	70.2163	0
58	0	-0.28976	70.3002	0
59	0	-0.271509	70.3739	0
60	0	-0.253347	70.4381	0
61	0	-0.237847	70.4947	0
62	0	-0.219834	70.543	0
63	0	-0.204452	70.5848	0
64	0	-0.186567	70.6196	0
65	0	-0.168741	70.6481	0
66	0	-0.150969	70.6709	0
67	0	-0.135774	70.6893	0
68	0	-0.118085	70.7033	0
69	0	-0.100433	70.7134	0
70	0	-0.0853288	70.7206	0
71	0	-0.0677301	70.7252	0
72	0	-0.0501541	70.7278	0
73	0	-0.0350997	70.729	0
74	0	-0.0175476	70.7293	0
75	0	0	70.7293	0
76	0	0.0175476	70.7296	0
77	0	0.0350997	70.7308	0
78	0	0.0501541	70.7333	0
79	0	0.0677301	70.7379	0
80	0	0.0853288	70.7452	0
81	0	0.100433	70.7553	0
82	0	0.118085	70.7692	0
83	0	0.135774	70.7877	0
84	0	0.150969	70.8105	0
85	0	0.168741	70.8389	0
86	0	0.186567	70.8738	0
87	0	0.201894	70.9145	0
88	0	0.219834	70.9628	0
89	0	0.237847	71.0194	0
90	0	0.253347	71.0836	0
91	0	0.271509	71.1573	0
92	0	0.28976	71.2413	0
93	0	0.305481	71.3346	0
94	0	0.323919	71.4395	0
95	0	0.342466	71.5568	0
96	0	0.358459	71.6853	0
97	0	0.377233	71.8276	0
98	0	0.396142	71.9845	0
99	0	0.412463	72.1547	0
100	0	0.431644	72.341	0
101	0	0.450985	72.5444	0
102	0	0.467699	72.7631	0
103	0	0.487364	73.0006	0
104	0	0.507221	73.2579	0

105	0	0.524401	73.5329	0
106	0	0.544642	73.8295	0
107	0	0.565108	74.1489	0
108	0	0.582841	74.4886	0
109	0	0.603765	74.8531	0
110	0	0.624956	75.2437	0
111	0	0.643345	75.6576	0
112	0	0.665079	76.0999	0
113	0	0.687131	76.572	0
114	0	0.706302	77.0709	0
115	0	0.729003	77.6024	0
116	0	0.752084	78.168	0
117	0	0.772193	78.7643	0
118	0	0.796056	79.398	0
119	0	0.820379	80.071	0
120	0	0.841621	80.7793	0
121	0	0.866894	81.5308	0
122	0	0.892733	82.3278	0
123	0	0.915365	83.1657	0
124	0	0.942375	84.0538	0
125	0	0.970094	84.9948	0
126	0	0.994457	85.9838	0
127	0	1.02365	87.0317	0
128	0	1.05375	88.142	0
129	0	1.08032	89.3091	0
130	0	1.11232	90.5464	0
131	0	1.1455	91.8586	0
132	0	1.17499	93.2392	0
133	0	1.21073	94.705	0
134	0	1.24809	96.2627	0
135	0	1.28155	97.9051	0
136	0	1.32251	99.6541	0
137	0	1.36581	101.52	0
138	0	1.40507	103.494	0
139	0	1.4538	105.607	0
140	0	1.50626	107.876	0
141	0	1.55477	110.293	0
142	0	1.61644	112.906	0
143	0	1.68494	115.745	0
144	0	1.75069	118.81	0
145	0.78	1.83843	122.19	1.43397
146	0.86	1.94314	125.966	3.10507
147	2.2	2.05375	130.184	7.62331
148	2.2	2.22621	135.14	12.521
149	3.9	2.51213	141.451	22.3183

Data Set Standard Deviation = 0.415696  
Numerator = 498.106  
Denominator = 3617.58  
W Statistic = 0.13769 = 498.106 / 3617.58

**5% Critical value of 0.976 exceeds 0.13769**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.13769**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Vanadium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 94.7368%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 2.2

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	ND<0
	3/20/2014	ND<0 U
	9/9/2014	ND<0 U
	3/16/2015	ND<0 U
	9/9/2015	ND<0 U
	3/18/2016	ND<0 U
	9/20/2016	ND<0 U
	3/23/2017	ND<0 U
	9/18/2017	ND<0 U
	3/15/2018	2.2
	9/17/2018	ND<0 U
	3/5/2019	ND<0 U
	9/24/2019	ND<0 U
	3/16/2020	ND<0 U
	9/22/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/22/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Vanadium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 0

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	ND<0 U
	9/4/2014	ND<0 U
	3/17/2015	ND<0 U
	9/11/2015	ND<0 U
	3/15/2016	ND<0 U
	9/21/2016	ND<0 U
	3/28/2017	ND<0 U
	9/19/2017	ND<0 U
	3/26/2018	ND<0 U
	9/18/2018	ND<0 U
	3/4/2019	ND<0 U
	9/23/2019	ND<0 U
	3/19/2020	ND<0 U
	9/23/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	ND<0 U
	3/16/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Vanadium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 94.7368%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 3.9

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/19/2015	ND<0 U
	9/14/2015	ND<0 U
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/27/2017	ND<0 U
	9/20/2017	ND<0 U
	3/16/2018	ND<0 U
	9/20/2018	ND<0 U
	3/5/2019	ND<0 U
	9/25/2019	3.9
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/18/2021	ND<0 U
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Vanadium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 94.7368%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 2.2

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	ND<0 U
	9/17/2014	ND<0 U
	3/19/2015	ND<0 U
	9/15/2015	ND<0 U
	3/21/2016	ND<0 U
	9/26/2016	ND<0 U
	3/31/2017	ND<0 U
	9/21/2017	ND<0 U
	3/30/2018	2.2
	9/26/2018	ND<0 U
	3/13/2019	ND<0 U
	10/3/2019	ND<0 U
	4/3/2020	ND<0 U
	9/30/2020	ND<0 U
	3/22/2021	ND<0 U
	9/16/2021	ND<0 U
	3/24/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Vanadium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	ND<0
	3/18/2014	ND<0 U
	9/16/2014	ND<0 U
	3/18/2015	ND<0 U
	9/15/2015	ND<0 U
	3/16/2016	ND<0 U
	9/22/2016	ND<0 U
	3/29/2017	ND<0 U
	9/21/2017	ND<0 U
	3/28/2018	ND<0 U
	9/20/2018	ND<0 U
	3/12/2019	ND<0 U
	10/1/2019	ND<0 U
	3/18/2020	ND<0 U
	9/24/2020	ND<0 U
	3/17/2021	ND<0 U
	9/9/2021	ND<0 U
	3/15/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/15/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Vanadium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 85.7143%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0.86

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	0.86 J
	3/26/2020	ND<0 U
	9/29/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0.78	FALSE

## Shapiro-Francia Test of Normality

Parameter: Zinc, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 149

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.51213	6.31081	0
2	0	-2.22621	11.2668	0
3	0	-2.05375	15.4847	0
4	0	-1.94314	19.2605	0
5	0	-1.83843	22.6403	0
6	0	-1.75069	25.7052	0
7	0	-1.68494	28.5442	0
8	0	-1.61644	31.1571	0
9	0	-1.55477	33.5744	0
10	2	-1.50626	35.8432	-3.01252
11	2.1	-1.4538	37.9567	-6.06551
12	2.2	-1.40507	39.931	-9.15667
13	2.6	-1.36581	41.7964	-12.7078
14	3.2	-1.32251	43.5454	-16.9398
15	3.3	-1.28155	45.1878	-21.1689
16	3.4	-1.24809	46.7455	-25.4124
17	3.5	-1.21073	48.2114	-29.6499
18	3.5	-1.17499	49.592	-33.7624
19	3.7	-1.1455	50.9042	-38.0008
20	4	-1.11232	52.1414	-42.4501
21	4.1	-1.08032	53.3085	-46.8794
22	4.2	-1.05375	54.4189	-51.3051
23	4.2	-1.02365	55.4667	-55.6044
24	4.2	-0.994457	56.4557	-59.7812
25	4.4	-0.970094	57.3968	-64.0496
26	4.6	-0.942375	58.2848	-68.3845
27	4.6	-0.919183	59.1297	-72.6127
28	4.7	-0.892733	59.9267	-76.8086
29	4.9	-0.866894	60.6782	-81.0564
30	5.1	-0.841621	61.3865	-85.3486
31	5.1	-0.820379	62.0596	-89.5326
32	5.4	-0.796056	62.6933	-93.8313
33	5.5	-0.772193	63.2896	-98.0783
34	5.5	-0.752084	63.8552	-102.215
35	5.5	-0.729003	64.3866	-106.224
36	5.6	-0.706302	64.8855	-110.18
37	5.7	-0.687131	65.3576	-114.096
38	5.7	-0.665079	65.8	-117.887
39	5.8	-0.643345	66.2139	-121.619
40	6	-0.624956	66.6044	-125.368
41	6	-0.603765	66.969	-128.991
42	6	-0.582841	67.3087	-132.488
43	6	-0.565108	67.628	-135.879
44	6.3	-0.544642	67.9247	-139.31
45	6.8	-0.524401	68.1996	-142.876
46	6.9	-0.507221	68.4569	-146.376
47	6.9	-0.487364	68.6944	-149.738

48	6.9	-0.467699	68.9132	-152.966
49	7	-0.450985	69.1166	-156.122
50	7.1	-0.431644	69.3029	-159.187
51	7.2	-0.412463	69.473	-162.157
52	7.2	-0.396142	69.6299	-165.009
53	7.3	-0.377233	69.7723	-167.763
54	7.5	-0.358459	69.9007	-170.451
55	7.6	-0.342466	70.018	-173.054
56	7.6	-0.323919	70.1229	-175.516
57	7.7	-0.305481	70.2163	-177.868
58	7.8	-0.28976	70.3002	-180.128
59	8	-0.271509	70.3739	-182.3
60	8	-0.253347	70.4381	-184.327
61	8.1	-0.237847	70.4947	-186.254
62	8.3	-0.219834	70.543	-188.078
63	8.4	-0.204452	70.5848	-189.796
64	8.4	-0.186567	70.6196	-191.363
65	8.5	-0.168741	70.6481	-192.797
66	8.5	-0.150969	70.6709	-194.08
67	8.5	-0.135774	70.6893	-195.234
68	8.6	-0.118085	70.7033	-196.25
69	9	-0.100433	70.7134	-197.154
70	9	-0.0853288	70.7206	-197.922
71	9.3	-0.0677301	70.7252	-198.552
72	9.6	-0.0501541	70.7278	-199.033
73	9.6	-0.0350997	70.729	-199.37
74	9.7	-0.0175476	70.7293	-199.54
75	9.7	0	70.7293	-199.54
76	9.9	0.0175476	70.7296	-199.367
77	10	0.0350997	70.7308	-199.016
78	10	0.0501541	70.7333	-198.514
79	10	0.0677301	70.7379	-197.837
80	10	0.0853288	70.7452	-196.983
81	10	0.100433	70.7553	-195.979
82	10	0.118085	70.7692	-194.798
83	10	0.135774	70.7877	-193.441
84	10	0.150969	70.8105	-191.931
85	11	0.168741	70.8389	-190.075
86	11	0.186567	70.8738	-188.022
87	11	0.201894	70.9145	-185.802
88	11	0.219834	70.9628	-183.383
89	11	0.237847	71.0194	-180.767
90	11	0.253347	71.0836	-177.98
91	12	0.271509	71.1573	-174.722
92	12	0.28976	71.2413	-171.245
93	12	0.305481	71.3346	-167.579
94	12	0.323919	71.4395	-163.692
95	12	0.342466	71.5568	-159.583
96	12	0.358459	71.6853	-155.281
97	12	0.377233	71.8276	-150.754
98	12	0.396142	71.9845	-146.001
99	12	0.412463	72.1547	-141.051
100	13	0.431644	72.341	-135.44
101	13	0.450985	72.5444	-129.577
102	13	0.467699	72.7631	-123.497
103	13	0.487364	73.0006	-117.161
104	14	0.507221	73.2579	-110.06

105	14	0.524401	73.5329	-102.718
106	14	0.544642	73.8295	-95.0934
107	15	0.565108	74.1489	-86.6168
108	15	0.582841	74.4886	-77.8742
109	15	0.603765	74.8531	-68.8177
110	15	0.624956	75.2437	-59.4434
111	15	0.643345	75.6576	-49.7932
112	16	0.665079	76.0999	-39.152
113	16	0.687131	76.572	-28.1579
114	16	0.706302	77.0709	-16.857
115	16	0.729003	77.6024	-5.19298
116	16	0.752084	78.168	6.84037
117	17	0.772193	78.7643	19.9676
118	18	0.796056	79.398	34.2966
119	19	0.820379	80.071	49.8838
120	19	0.841621	80.7793	65.8747
121	20	0.866894	81.5308	83.2125
122	21	0.892733	82.3278	101.96
123	23	0.915365	83.1657	123.013
124	23	0.942375	84.0538	144.688
125	24	0.970094	84.9948	167.97
126	25	0.994457	85.9838	192.832
127	28	1.02365	87.0317	221.494
128	39	1.05375	88.142	262.59
129	40	1.08032	89.3091	305.803
130	44	1.11232	90.5464	354.745
131	60	1.1455	91.8586	423.475
132	62	1.17499	93.2392	496.324
133	63	1.21073	94.705	572.6
134	63	1.24809	96.2627	651.23
135	63	1.28155	97.9051	731.967
136	65	1.32251	99.6541	817.93
137	67	1.36581	101.52	909.439
138	67	1.40507	103.494	1003.58
139	68	1.4538	105.607	1102.44
140	68	1.50626	107.876	1204.86
141	68	1.55477	110.293	1310.59
142	69	1.61644	112.906	1422.12
143	69	1.68494	115.745	1538.38
144	72	1.75069	118.81	1664.43
145	72	1.83843	122.19	1796.8
146	72	1.94314	125.966	1936.7
147	76	2.05375	130.184	2092.79
148	78	2.22621	135.14	2266.43
149	80	2.51213	141.451	2467.4

---

Data Set Standard Deviation = 20.8968  
 Numerator = 6.08808e+006  
 Denominator = 9.14171e+006  
 W Statistic = 0.665968 = 6.08808e+006 / 9.14171e+006

**5% Critical value of 0.976 exceeds 0.665968  
 Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.665968  
 Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-4

Parameter: Zinc, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 24

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/18/2013	ND<0
	3/20/2014	7.2
	9/9/2014	15
	3/16/2015	8.6
	9/9/2015	15
	3/18/2016	7.6
	9/20/2016	16
	3/23/2017	16
	9/18/2017	24
	3/15/2018	4.6 J
	9/17/2018	14
	3/5/2019	11
	9/24/2019	16
	3/16/2020	7
	9/22/2020	6.9
	3/16/2021	5.5 J
	9/14/2021	8.1 J
	3/22/2022	5.4 J
	9/13/2022	3.5 J

---

Date	Count	Mean	Significant
3/14/2023	1	8.4	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-5A

Parameter: Zinc, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 40

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/19/2013	40
	12/5/2013	10
	3/19/2014	7.3
	9/4/2014	12
	3/17/2015	6.3
	9/11/2015	7.5
	3/15/2016	9.3
	9/21/2016	5.5 J
	3/28/2017	4.2 J
	9/19/2017	7.1
	3/26/2018	4.9 J
	9/18/2018	8
	3/4/2019	7.6
	9/23/2019	10
	3/19/2020	8.5
	9/23/2020	8.4
	3/19/2021	5.7
	9/15/2021	10
	3/16/2022	9.9
	9/14/2022	6

---

Date	Count	Mean	Significant
3/16/2023	1	8.5	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-14

Parameter: Zinc, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 20

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	10
	3/21/2014	11
	9/8/2014	10
	3/19/2015	20
	9/14/2015	11
	3/21/2016	12
	9/23/2016	10
	3/27/2017	9.7
	9/20/2017	11
	3/16/2018	12
	9/20/2018	13
	3/5/2019	12
	9/25/2019	14
	3/25/2020	13
	9/28/2020	12
	3/18/2021	13 R
	9/15/2021	15
	3/22/2022	14
	9/14/2022	13

---

Date	Count	Mean	Significant
3/16/2023	1	12	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-6

Parameter: Zinc, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 21.0526%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 12

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/24/2013	ND<0
	3/21/2014	5.8
	9/17/2014	8.5
	3/19/2015	4.2 J
	9/15/2015	3.3 J
	3/21/2016	3.7 J
	9/26/2016	12
	3/31/2017	3.5 J
	9/21/2017	7.7
	3/30/2018	5.6
	9/26/2018	ND<0 U
	3/13/2019	2.6 J
	10/3/2019	4.6 J
	4/3/2020	5.5 J
	9/30/2020	2 J
	3/22/2021	2.1 J
	9/16/2021	ND<0 U
	3/24/2022	ND<0
	9/16/2022	2.2 J

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-3

Parameter: Zinc, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 11

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/25/2013	ND<0
	3/18/2014	9.6
	9/16/2014	4.1 J
	3/18/2015	3.4 J
	9/15/2015	3.2 J
	3/16/2016	7.2
	9/22/2016	5.1 J
	3/29/2017	5.7
	9/21/2017	4.7 J
	3/28/2018	4 J
	9/20/2018	4.4 J
	3/12/2019	5.1 J
	10/1/2019	6.9
	3/18/2020	6
	9/24/2020	6.9
	3/17/2021	9.6 R
	9/9/2021	9.7 J
	3/15/2022	6
	9/16/2022	11

---

Date	Count	Mean	Significant
3/15/2023	1	4.2	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17S

Parameter: Zinc, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 15

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	11
	3/26/2020	8
	9/29/2020	8.3
	3/16/2021	10
	9/14/2021	15
	3/18/2022	10
	9/13/2022	9

---

Date	Count	Mean	Significant
3/14/2023	1	9	FALSE

# 11) Patuxent Aquifer Metals Inter-well Statistics

APPENDIX F

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Antimony, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 27

Non detect rank is 14

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	14
	4/2/2020	ND<5 U	14
	9/30/2020	ND<5 U	14
	3/22/2021	ND<5 U	14
	9/8/2021	ND<5 U	14
	3/14/2022	ND<2.2	14
	9/12/2022	ND<2.2	14
	3/13/2023	ND<2.2	14
SMW-13	9/23/2013	ND<5	14
	3/21/2014	ND<5 U	14
	9/8/2014	ND<5 U	14
	3/18/2015	ND<5 U	14
	9/8/2015	1.3 J	28
	3/14/2016	ND<5 U	14
	9/26/2016	ND<5 U	14
	3/30/2017	ND<5 U	14
	9/20/2017	ND<5 U	14
	3/30/2018	ND<5 U	14
	9/21/2018	ND<5 U	14
	3/11/2019	ND<5 U	14
	10/3/2019	ND<5 U	14
	3/23/2020	ND<5 U	14
	9/25/2020	ND<5 U	14
	3/23/2021	ND<5 U	14
	9/16/2021	ND<5 U	14
	3/23/2022	ND<2.2	14
	9/16/2022	ND<2.2	14
	3/17/2023	ND<2.2	14

---

The Wilcoxon Statistic is 84

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is 0.177992

The Standard Deviation adjusted for ties is 6.32456

The Z Score adjusted for ties is 0.553399

0.177992 < 2.326 indicating no statistical significance at 1% level

0.553399 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Antimony, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 28

Non detect rank is 14.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	14.5
	4/2/2020	ND<5 U	14.5
	9/30/2020	ND<5 U	14.5
	3/22/2021	ND<5 U	14.5
	9/8/2021	ND<5 U	14.5
	3/14/2022	ND<2.2	14.5
	9/12/2022	ND<2.2	14.5
	3/13/2023	ND<2.2	14.5
SMW-32	9/23/2013	ND<5	14.5
	12/5/2013	ND<5	14.5
	3/19/2014	ND<5 U	14.5
	9/8/2014	ND<5 U	14.5
	3/18/2015	ND<5 U	14.5
	9/8/2015	ND<5 U	14.5
	3/14/2016	1.2 J	29
	9/20/2016	ND<5 U	14.5
	3/24/2017	ND<5 U	14.5
	9/20/2017	ND<5 U	14.5
	3/27/2018	ND<5 U	14.5
	9/18/2018	ND<5 U	14.5
	3/11/2019	ND<5 U	14.5
	10/3/2019	ND<5 U	14.5
	3/23/2020	ND<5 U	14.5
	9/24/2020	ND<5 U	14.5
	3/23/2021	ND<5 U	14.5
	9/16/2021	ND<5 U	14.5
	3/24/2022	ND<2.2	14.5
	9/16/2022	ND<2.2	14.5
3/17/2023	ND<2.2	14.5	

---

The Wilcoxon Statistic is 88

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is 0.170783

The Standard Deviation adjusted for ties is 6.48074

The Z Score adjusted for ties is 0.540062

0.170783 < 2.326 indicating no statistical significance at 1% level

0.540062 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Antimony, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 23

Non detect rank is 12

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	12
	4/2/2020	ND<5 U	12
	9/30/2020	ND<5 U	12
	3/22/2021	ND<5 U	12
	9/8/2021	ND<5 U	12
	3/14/2022	ND<2.2	12
	9/12/2022	ND<2.2	12
	3/13/2023	ND<2.2	12
GWM-15D	3/21/2016	ND<5 U	12
	9/23/2016	ND<5 U	12
	3/28/2017	ND<5 U	12
	9/21/2017	ND<5 U	12
	3/16/2018	ND<5 U	12
	9/19/2018	ND<5 U	12
	3/5/2019	ND<5 U	12
	10/3/2019	ND<5 U	12
	3/25/2020	ND<5 U	12
	9/28/2020	ND<5 U	12
	3/19/2021	ND<5 U	12
	9/15/2021	ND<5 U	12
	3/22/2022	ND<2.2	12
	9/14/2022	ND<2.2	12
	3/16/2023	ND<2.2	12

---

The Wilcoxon Statistic is 60

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is -0.0322749

The Standard Deviation adjusted for ties is 0

The Z Score adjusted for ties is -1.#INF

-0.0322749 < 2.326 indicating no statistical significance at 1% level

-1.#INF < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Antimony, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 16

Non detect rank is 8.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	8.5
	4/2/2020	ND<5 U	8.5
	9/30/2020	ND<5 U	8.5
	3/22/2021	ND<5 U	8.5
	9/8/2021	ND<5 U	8.5
	3/14/2022	ND<2.2	8.5
	9/12/2022	ND<2.2	8.5
	3/13/2023	ND<2.2	8.5
GWM-17D	11/14/2019	ND<5 U	8.5
	3/26/2020	ND<5 U	8.5
	9/29/2020	ND<5 U	8.5
	3/16/2021	ND<5 U	8.5
	9/14/2021	ND<5 U	8.5
	3/18/2022	ND<2.2	8.5
	9/13/2022	ND<2.2	8.5
	3/14/2023	ND<2.2	8.5

---

The Wilcoxon Statistic is 32

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -0.0525105

The Standard Deviation adjusted for ties is 0

The Z Score adjusted for ties is -1.#INF

-0.0525105 < 2.326 indicating no statistical significance at 1% level

-1.#INF < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Antimony, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 15

Non detect rank is 8

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	8
	4/2/2020	ND<5 U	8
	9/30/2020	ND<5 U	8
	3/22/2021	ND<5 U	8
	9/8/2021	ND<5 U	8
	3/14/2022	ND<2.2	8
	9/12/2022	ND<2.2	8
	3/13/2023	ND<2.2	8
GWM-19D	11/14/2019	ND<5 U	8
	3/25/2020	ND<5 U	8
	9/29/2020	ND<5 U	8
	3/22/2021	1.2 J	16
	9/15/2021	ND<5 U	8
	3/24/2022	ND<2.2	8
	9/15/2022	ND<2.2	8
	3/16/2023	ND<2.2	8

---

The Wilcoxon Statistic is 36

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 0.367574

The Standard Deviation adjusted for ties is 4

The Z Score adjusted for ties is 0.875

0.367574 < 2.326 indicating no statistical significance at 1% level

0.875 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Barium, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	140	24
	4/2/2020	140	25
	9/30/2020	140	26
	3/22/2021	54 R	1
	9/8/2021	140	27
	3/14/2022	130	22
	9/12/2022	140	28
	3/13/2023	140	29
SMW-32	9/23/2013	100	5
	12/5/2013	120	14
	3/19/2014	91	2
	9/8/2014	97	3
	3/18/2015	100	6
	9/8/2015	110	9
	3/14/2016	100	7
	9/20/2016	110	10
	3/24/2017	110	11
	9/20/2017	99	4
	3/27/2018	100	8
	9/18/2018	120	15
	3/11/2019	110	12
	10/3/2019	120	16
	3/23/2020	120	17
	9/24/2020	110	13
	3/23/2021	120	18
	9/16/2021	120	19
	3/24/2022	130	23
	9/16/2022	120	20
3/17/2023	120	21	

---

The Wilcoxon Statistic is 22

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is -3.04969

The Standard Deviation adjusted for ties is 20.4939

The Z Score adjusted for ties is -3.04969

-3.04969 < 2.326 indicating no statistical significance at 1% level

-3.04969 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Barium, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 1

Non detect rank is 1

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	140	23
	4/2/2020	140	24
	9/30/2020	140	25
	3/22/2021	54 R	3
	9/8/2021	140	26
	3/14/2022	130	21
	9/12/2022	140	27
	3/13/2023	140	28
SMW-13	9/23/2013	90	9
	3/21/2014	76	4
	9/8/2014	80	5
	3/18/2015	80	6
	9/8/2015	86	8
	3/14/2016	84	7
	9/26/2016	99	12
	3/30/2017	96	11
	9/20/2017	91	10
	3/30/2018	110	13
	9/21/2018	110	14
	3/11/2019	110	15
	10/3/2019	110	16
	3/23/2020	14	2
	9/25/2020	110	17
	3/23/2021	ND<5 U	1
	9/16/2021	120	18
	3/23/2022	120	19
9/16/2022	120	20	
3/17/2023	130	22	

---

The Wilcoxon Statistic is 19

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is -3.12757

The Standard Deviation adjusted for ties is 19.6638

The Z Score adjusted for ties is -3.12757

-3.12757 < 2.326 indicating no statistical significance at 1% level

-3.12757 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Barium, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	140	16
	4/2/2020	140	17
	9/30/2020	140	18
	3/22/2021	54 R	1
	9/8/2021	140	19
	3/14/2022	130	14
	9/12/2022	140	20
	3/13/2023	140	21
GWM-15D	3/21/2016	190	23
	9/23/2016	140	22
	3/28/2017	130	15
	9/21/2017	110	11
	3/16/2018	110	12
	9/19/2018	100	10
	3/5/2019	110	13
	10/3/2019	96	9
	3/25/2020	91	8
	9/28/2020	88	6
	3/19/2021	90	7
	9/15/2021	86	4
	3/22/2022	87	5
	9/14/2022	82	3
	3/16/2023	81	2

---

The Wilcoxon Statistic is 30

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is -1.96877

The Standard Deviation adjusted for ties is 15.4919

The Z Score adjusted for ties is -1.96877

-1.96877 < 2.326 indicating no statistical significance at 1% level

-1.96877 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Barium, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	140	3
	4/2/2020	140	4
	9/30/2020	140	5
	3/22/2021	54 R	1
	9/8/2021	140	6
	3/14/2022	130	2
	9/12/2022	140	7
	3/13/2023	140	8
GWM-17D	11/14/2019	270	11
	3/26/2020	250	10
	9/29/2020	240	9
	3/16/2021	290	13
	9/14/2021	290	14
	3/18/2022	280	12
	9/13/2022	290	15
	3/14/2023	290	16

---

The Wilcoxon Statistic is 64

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 3.30816

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is 3.30816

**3.30816 > 2.326 indicating statistical significance at 1% level**

**3.30816 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Barium, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	140	11
	4/2/2020	140	12
	9/30/2020	140	13
	3/22/2021	54 R	2
	9/8/2021	140	14
	3/14/2022	130	10
	9/12/2022	140	15
	3/13/2023	140	16
GWM-19D	11/14/2019	68	9
	3/25/2020	59	5
	9/29/2020	49	1
	3/22/2021	54	3
	9/15/2021	57	4
	3/24/2022	60	6
	9/15/2022	60	7
	3/16/2023	61	8

---

The Wilcoxon Statistic is 7

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -2.67804

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is -2.67804

-2.67804 < 2.326 indicating no statistical significance at 1% level

-2.67804 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Beryllium, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 5

Non detect rank is 3

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<2 U	3
	4/2/2020	0.48 J	8
	9/30/2020	0.73 J	20
	3/22/2021	0.56 J	10
	9/8/2021	0.62 J	15
	3/14/2022	0.47 J	7
	9/12/2022	0.4 J	6
	3/13/2023	ND<1.1	3
SMW-13	9/23/2013	ND<2	3
	3/21/2014	0.54 J	9
	9/8/2014	0.65 J	17
	3/18/2015	0.6 J	13
	9/8/2015	0.59 J	11
	3/14/2016	0.59 J	12
	9/26/2016	0.61 J	14
	3/30/2017	0.73 J	21
	9/20/2017	0.64 J	16
	3/30/2018	0.78 J	24
	9/21/2018	0.68 J	18
	3/11/2019	0.72 J	19
	10/3/2019	0.77 J	23
	3/23/2020	ND<2 U	3
	9/25/2020	0.74 J	22
	3/23/2021	ND<2 U	3
	9/16/2021	0.88 J	26
	3/23/2022	0.84 J	25
	9/16/2022	0.97 J	28
	3/17/2023	0.91 J	27

---

The Wilcoxon Statistic is 124

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is 2.21218

The Standard Deviation adjusted for ties is 19.61

The Z Score adjusted for ties is 2.21826

2.21218 < 2.326 indicating no statistical significance at 1% level

2.21826 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Beryllium, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 4

Non detect rank is 2.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<2 U	2.5
	4/2/2020	0.48 J	7
	9/30/2020	0.73 J	10
	3/22/2021	0.56 J	8
	9/8/2021	0.62 J	9
	3/14/2022	0.47 J	6
	9/12/2022	0.4 J	5
	3/13/2023	ND<1.1	2.5
SMW-32	9/23/2013	ND<2	2.5
	12/5/2013	ND<2	2.5
	3/19/2014	0.79 J	14
	9/8/2014	0.89 J	20
	3/18/2015	0.78 J	13
	9/8/2015	0.81 J	16
	3/14/2016	0.84 J	17
	9/20/2016	0.77 J	12
	3/24/2017	0.75 J	11
	9/20/2017	0.79 J	15
	3/27/2018	0.86 J	18
	9/18/2018	0.86 J	19
	3/11/2019	0.93 J	23
	10/3/2019	0.89 J	21
	3/23/2020	0.92 J	22
	9/24/2020	1 J	24
	3/23/2021	1.1 J	26
	9/16/2021	1 J	25
	3/24/2022	1.1 J	27
	9/16/2022	1.2	29
3/17/2023	1.1	28	

---

The Wilcoxon Statistic is 154

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is 3.39125

The Standard Deviation adjusted for ties is 20.4686

The Z Score adjusted for ties is 3.39544

**3.39125 > 2.326 indicating statistical significance at 1% level**

**3.39544 > 2.326 indicating statistical significance at 1% level when adjusted for ties**



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Beryllium, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 17

Non detect rank is 9

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<2 U	9
	4/2/2020	0.48 J	20
	9/30/2020	0.73 J	23
	3/22/2021	0.56 J	21
	9/8/2021	0.62 J	22
	3/14/2022	0.47 J	19
	9/12/2022	0.4 J	18
	3/13/2023	ND<1.1	9
GWM-15D	3/21/2016	ND<2 U	9
	9/23/2016	ND<2 U	9
	3/28/2017	ND<2 U	9
	9/21/2017	ND<2 U	9
	3/16/2018	ND<2 U	9
	9/19/2018	ND<2 U	9
	3/5/2019	ND<2 U	9
	10/3/2019	ND<2 U	9
	3/25/2020	ND<2 U	9
	9/28/2020	ND<2 U	9
	3/19/2021	ND<2 U	9
	9/15/2021	ND<2 U	9
	3/22/2022	ND<1.1	9
	9/14/2022	ND<1.1	9
	3/16/2023	ND<1.1	9

---

The Wilcoxon Statistic is 15

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is -2.93701

The Standard Deviation adjusted for ties is 11.9683

The Z Score adjusted for ties is -3.8017

-2.93701 < 2.326 indicating no statistical significance at 1% level

-3.8017 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Beryllium, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 10

Non detect rank is 5.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<2 U	5.5
	4/2/2020	0.48 J	13
	9/30/2020	0.73 J	16
	3/22/2021	0.56 J	14
	9/8/2021	0.62 J	15
	3/14/2022	0.47 J	12
	9/12/2022	0.4 J	11
	3/13/2023	ND<1.1	5.5
GWM-17D	11/14/2019	ND<2 U	5.5
	3/26/2020	ND<2 U	5.5
	9/29/2020	ND<2 U	5.5
	3/16/2021	ND<2 U	5.5
	9/14/2021	ND<2 U	5.5
	3/18/2022	ND<1.1	5.5
	9/13/2022	ND<1.1	5.5
	3/14/2023	ND<1.1	5.5

---

The Wilcoxon Statistic is 8

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -2.57301

The Standard Deviation adjusted for ties is 8.28654

The Z Score adjusted for ties is -2.9566

-2.57301 < 2.326 indicating no statistical significance at 1% level

-2.9566 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Beryllium, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 2

Non detect rank is 1.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<2 U	1.5
	4/2/2020	0.48 J	11
	9/30/2020	0.73 J	16
	3/22/2021	0.56 J	12
	9/8/2021	0.62 J	15
	3/14/2022	0.47 J	10
	9/12/2022	0.4 J	5
	3/13/2023	ND<1.1	1.5
GWM-19D	11/14/2019	0.59 J	13
	3/25/2020	0.42 J	7
	9/29/2020	0.39 J	4
	3/22/2021	0.6 J	14
	9/15/2021	0.45 J	8
	3/24/2022	0.45 J	9
	9/15/2022	0.41 J	6
	3/16/2023	0.38 J	3

---

The Wilcoxon Statistic is 28

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -0.472595

The Standard Deviation adjusted for ties is 9.5149

The Z Score adjusted for ties is -0.472942

-0.472595 < 2.326 indicating no statistical significance at 1% level

-0.472942 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cadmium, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 27

Non detect rank is 14

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<2 U	14
	4/2/2020	ND<2 U	14
	9/30/2020	ND<2 U	14
	3/22/2021	ND<2 U	14
	9/8/2021	0.18 J	28
	3/14/2022	ND<1.1	14
	9/12/2022	ND<1.1	14
	3/13/2023	ND<1.1	14
SMW-32	9/23/2013	ND<2	14
	12/5/2013	ND<2	14
	3/19/2014	ND<2 U	14
	9/8/2014	ND<2 U	14
	3/18/2015	ND<2 U	14
	9/8/2015	ND<2 U	14
	3/14/2016	ND<2 U	14
	9/20/2016	ND<2 U	14
	3/24/2017	ND<2 U	14
	9/20/2017	ND<2 U	14
	3/27/2018	ND<2 U	14
	9/18/2018	ND<2 U	14
	3/11/2019	ND<2 U	14
	10/3/2019	ND<2 U	14
	3/23/2020	ND<2 U	14
	9/24/2020	ND<2 U	14
	3/23/2021	ND<2 U	14
	9/16/2021	0.26 J	29
	3/24/2022	ND<1.1	14
	9/16/2022	ND<1.1	14
3/17/2023	ND<1.1	14	

---

The Wilcoxon Statistic is 78

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is -0.317168

The Standard Deviation adjusted for ties is 9.00575

The Z Score adjusted for ties is -0.721761

-0.317168 < 2.326 indicating no statistical significance at 1% level

-0.721761 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cadmium, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 24

Non detect rank is 12.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<2 U	12.5
	4/2/2020	ND<2 U	12.5
	9/30/2020	ND<2 U	12.5
	3/22/2021	ND<2 U	12.5
	9/8/2021	0.18 J	25
	3/14/2022	ND<1.1	12.5
	9/12/2022	ND<1.1	12.5
	3/13/2023	ND<1.1	12.5
SMW-13	9/23/2013	ND<2	12.5
	3/21/2014	ND<2 U	12.5
	9/8/2014	ND<2 U	12.5
	3/18/2015	ND<2 U	12.5
	9/8/2015	2.2	28
	3/14/2016	ND<2 U	12.5
	9/26/2016	ND<2 U	12.5
	3/30/2017	ND<2 U	12.5
	9/20/2017	ND<2 U	12.5
	3/30/2018	ND<2 U	12.5
	9/21/2018	ND<2 U	12.5
	3/11/2019	ND<2 U	12.5
	10/3/2019	1.1	27
	3/23/2020	ND<2 U	12.5
	9/25/2020	ND<2 U	12.5
	3/23/2021	ND<2 U	12.5
	9/16/2021	0.19 J	26
	3/23/2022	ND<1.1	12.5
9/16/2022	ND<1.1	12.5	
3/17/2023	ND<1.1	12.5	

---

The Wilcoxon Statistic is 83.5

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is 0.152564

The Standard Deviation adjusted for ties is 11.97

The Z Score adjusted for ties is 0.250627

0.152564 < 2.326 indicating no statistical significance at 1% level

0.250627 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cadmium, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 21

Non detect rank is 11

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<2 U	11
	4/2/2020	ND<2 U	11
	9/30/2020	ND<2 U	11
	3/22/2021	ND<2 U	11
	9/8/2021	0.18 J	23
	3/14/2022	ND<1.1	11
	9/12/2022	ND<1.1	11
	3/13/2023	ND<1.1	11
GWM-15D	3/21/2016	ND<2 U	11
	9/23/2016	ND<2 U	11
	3/28/2017	ND<2 U	11
	9/21/2017	ND<2 U	11
	3/16/2018	ND<2 U	11
	9/19/2018	ND<2 U	11
	3/5/2019	ND<2 U	11
	10/3/2019	ND<2 U	11
	3/25/2020	ND<2 U	11
	9/28/2020	ND<2 U	11
	3/19/2021	ND<2 U	11
	9/15/2021	0.16 J	22
	3/22/2022	ND<1.1	11
	9/14/2022	ND<1.1	11
	3/16/2023	ND<1.1	11

---

The Wilcoxon Statistic is 56

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is -0.290474

The Standard Deviation adjusted for ties is 7.5757

The Z Score adjusted for ties is -0.594004

-0.290474 < 2.326 indicating no statistical significance at 1% level

-0.594004 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cadmium, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 15

Non detect rank is 8

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<2 U	8
	4/2/2020	ND<2 U	8
	9/30/2020	ND<2 U	8
	3/22/2021	ND<2 U	8
	9/8/2021	0.18 J	16
	3/14/2022	ND<1.1	8
	9/12/2022	ND<1.1	8
	3/13/2023	ND<1.1	8
GWM-17D	11/14/2019	ND<2 U	8
	3/26/2020	ND<2 U	8
	9/29/2020	ND<2 U	8
	3/16/2021	ND<2 U	8
	9/14/2021	ND<2 U	8
	3/18/2022	ND<1.1	8
	9/13/2022	ND<1.1	8
	3/14/2023	ND<1.1	8

---

The Wilcoxon Statistic is 28

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -0.472595

The Standard Deviation adjusted for ties is 4

The Z Score adjusted for ties is -1.125

-0.472595 < 2.326 indicating no statistical significance at 1% level

-1.125 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cadmium, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 15

Non detect rank is 8

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<2 U	8
	4/2/2020	ND<2 U	8
	9/30/2020	ND<2 U	8
	3/22/2021	ND<2 U	8
	9/8/2021	0.18 J	16
	3/14/2022	ND<1.1	8
	9/12/2022	ND<1.1	8
	3/13/2023	ND<1.1	8
GWM-19D	11/14/2019	ND<2 U	8
	3/25/2020	ND<2 U	8
	9/29/2020	ND<2 U	8
	3/22/2021	ND<2 U	8
	9/15/2021	ND<2 U	8
	3/24/2022	ND<1.1	8
	9/15/2022	ND<1.1	8
	3/16/2023	ND<1.1	8

---

The Wilcoxon Statistic is 28

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -0.472595

The Standard Deviation adjusted for ties is 4

The Z Score adjusted for ties is -1.125

-0.472595 < 2.326 indicating no statistical significance at 1% level

-1.125 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Calcium, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	14400	23
	4/2/2020	14900	27
	9/30/2020	14700	25
	3/22/2021	7100 R	2
	9/8/2021	13500	19
	3/14/2022	13400	18
	9/12/2022	13200	15
	3/13/2023	13300	16
SMW-13	9/23/2013	7000	1
	3/21/2014	8900	4
	9/8/2014	10200	7
	3/18/2015	9700	5
	9/8/2015	10100	6
	3/14/2016	10800	8
	9/26/2016	11200	9
	3/30/2017	11900	12
	9/20/2017	11800	11
	3/30/2018	13300	17
	9/21/2018	11600	10
	3/11/2019	12500	13
	10/3/2019	13600	20
	3/23/2020	12500	14
	9/25/2020	13600	21
	3/23/2021	7800	3
	9/16/2021	15000	28
	3/23/2022	14500	24
	9/16/2022	14200	22
	3/17/2023	14700	26

---

The Wilcoxon Statistic is 51

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is -1.50022

The Standard Deviation adjusted for ties is 19.6638

The Z Score adjusted for ties is -1.50022

-1.50022 < 2.326 indicating no statistical significance at 1% level

-1.50022 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Calcium, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	14400	24
	4/2/2020	14900	27
	9/30/2020	14700	26
	3/22/2021	7100 R	1
	9/8/2021	13500	17
	3/14/2022	13400	16
	9/12/2022	13200	13
	3/13/2023	13300	14
SMW-32	9/23/2013	8240	2
	12/5/2013	13870	20
	3/19/2014	10900	3
	9/8/2014	11900	6
	3/18/2015	11800	5
	9/8/2015	11700	4
	3/14/2016	12600	9
	9/20/2016	12900	11
	3/24/2017	12300	7
	9/20/2017	12600	10
	3/27/2018	12400	8
	9/18/2018	13000	12
	3/11/2019	13600	18
	10/3/2019	14500	25
	3/23/2020	14200	23
	9/24/2020	14100	22
	3/23/2021	13800	19
	9/16/2021	15000	29
	3/24/2022	14900	28
	9/16/2022	13300	15
3/17/2023	14000	21	

---

The Wilcoxon Statistic is 66

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is -0.902708

The Standard Deviation adjusted for ties is 20.4939

The Z Score adjusted for ties is -0.902708

-0.902708 < 2.326 indicating no statistical significance at 1% level

-0.902708 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Calcium, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	14400	9
	4/2/2020	14900	13
	9/30/2020	14700	11
	3/22/2021	7100 R	1
	9/8/2021	13500	5
	3/14/2022	13400	4
	9/12/2022	13200	2
	3/13/2023	13300	3
GWM-15D	3/21/2016	18200	19
	9/23/2016	14800	12
	3/28/2017	14100	8
	9/21/2017	13500	6
	3/16/2018	13800	7
	9/19/2018	14500	10
	3/5/2019	16200	16
	10/3/2019	15900	14
	3/25/2020	16000	15
	9/28/2020	17300	17
	3/19/2021	18000	18
	9/15/2021	19000	21
	3/22/2022	20200	22
	9/14/2022	18700	20
	3/16/2023	20300	23

---

The Wilcoxon Statistic is 108

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is 3.06611

The Standard Deviation adjusted for ties is 15.4919

The Z Score adjusted for ties is 3.06611

**3.06611 > 2.326 indicating statistical significance at 1% level**

**3.06611 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Calcium, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	14400	6
	4/2/2020	14900	8
	9/30/2020	14700	7
	3/22/2021	7100 R	1
	9/8/2021	13500	5
	3/14/2022	13400	4
	9/12/2022	13200	2
	3/13/2023	13300	3
GWM-17D	11/14/2019	40300	11
	3/26/2020	38700	10
	9/29/2020	38400	9
	3/16/2021	41300	12
	9/14/2021	45000	16
	3/18/2022	41700	13
	9/13/2022	42500	14
	3/14/2023	43200	15

---

The Wilcoxon Statistic is 64

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 3.30816

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is 3.30816

**3.30816 > 2.326 indicating statistical significance at 1% level**

**3.30816 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Calcium, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	14400	14
	4/2/2020	14900	16
	9/30/2020	14700	15
	3/22/2021	7100 R	1
	9/8/2021	13500	13
	3/14/2022	13400	12
	9/12/2022	13200	10
	3/13/2023	13300	11
GWM-19D	11/14/2019	9900	9
	3/25/2020	8400	5
	9/29/2020	7500	2
	3/22/2021	7700	3
	9/15/2021	8500	7
	3/24/2022	8400	6
	9/15/2022	8100	4
	3/16/2023	8500	8

---

The Wilcoxon Statistic is 8

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -2.57301

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is -2.57301

-2.57301 < 2.326 indicating no statistical significance at 1% level

-2.57301 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chromium, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 8

Non detect rank is 4.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	12	28
	4/2/2020	6.7	27
	9/30/2020	0.99 J	12
	3/22/2021	0.88 J	10
	9/8/2021	ND<5 U	4.5
	3/14/2022	3.1	26
	9/12/2022	1.4 J	19
	3/13/2023	12	29
SMW-32	9/23/2013	ND<5	4.5
	12/5/2013	ND<5	4.5
	3/19/2014	0.92 J	11
	9/8/2014	1.3 J	17
	3/18/2015	1.3 J	18
	9/8/2015	1.4 J	20
	3/14/2016	1.2 J	16
	9/20/2016	2.1 J	25
	3/24/2017	1.1 J	13
	9/20/2017	1.5 J	23
	3/27/2018	1.4 J	21
	9/18/2018	ND<5 U	4.5
	3/11/2019	1.6 J	24
	10/3/2019	0.77 J	9
	3/23/2020	1.1 J	14
	9/24/2020	ND<5 U	4.5
	3/23/2021	ND<5 U	4.5
	9/16/2021	1.4 J	22
	3/24/2022	ND<2.2	4.5
	9/16/2022	ND<2.2	4.5
3/17/2023	1.1 J	15	

---

The Wilcoxon Statistic is 48.5

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is -1.75662

The Standard Deviation adjusted for ties is 20.2808

The Z Score adjusted for ties is -1.77508

-1.75662 < 2.326 indicating no statistical significance at 1% level

-1.77508 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chromium, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 8

Non detect rank is 4.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	12	27
	4/2/2020	6.7	26
	9/30/2020	0.99 J	13
	3/22/2021	0.88 J	11
	9/8/2021	ND<5 U	4.5
	3/14/2022	3.1	25
	9/12/2022	1.4 J	20
	3/13/2023	12	28
SMW-13	9/23/2013	ND<5	4.5
	3/21/2014	0.75 J	9
	9/8/2014	1 J	14
	3/18/2015	1.5 J	22
	9/8/2015	1.2 J	16
	3/14/2016	0.94 J	12
	9/26/2016	2.5	24
	3/30/2017	1.2 J	17
	9/20/2017	1.3 J	19
	3/30/2018	1.5 J	23
	9/21/2018	1.1 J	15
	3/11/2019	1.2 J	18
	10/3/2019	ND<5 U	4.5
	3/23/2020	ND<5 U	4.5
	9/25/2020	ND<5 U	4.5
	3/23/2021	ND<5 U	4.5
	9/16/2021	1.4 J	21
	3/23/2022	ND<2.2	4.5
	9/16/2022	ND<2.2	4.5
	3/17/2023	0.84 J	10

---

The Wilcoxon Statistic is 41.5

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is -1.98334

The Standard Deviation adjusted for ties is 19.4365

The Z Score adjusted for ties is -2.00653

-1.98334 < 2.326 indicating no statistical significance at 1% level

-2.00653 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chromium, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 3

Non detect rank is 2

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	12	22
	4/2/2020	6.7	21
	9/30/2020	0.99 J	7
	3/22/2021	0.88 J	5
	9/8/2021	ND<5 U	2
	3/14/2022	3.1	17
	9/12/2022	1.4 J	9
	3/13/2023	12	23
GWM-15D	3/21/2016	3.1	18
	9/23/2016	4	19
	3/28/2017	4	20
	9/21/2017	2.9	16
	3/16/2018	1.5 J	10
	9/19/2018	1.7 J	11
	3/5/2019	1.9 J	13
	10/3/2019	0.96 J	6
	3/25/2020	2 J	15
	9/28/2020	ND<5 U	2
	3/19/2021	1 J	8
	9/15/2021	1.9 J	14
	3/22/2022	0.87 J	4
	9/14/2022	ND<2.2	2
	3/16/2023	1.7 J	12

---

The Wilcoxon Statistic is 50

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is -0.677772

The Standard Deviation adjusted for ties is 15.4766

The Z Score adjusted for ties is -0.678443

-0.677772 < 2.326 indicating no statistical significance at 1% level

-0.678443 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chromium, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 4

Non detect rank is 2.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	12	15
	4/2/2020	6.7	14
	9/30/2020	0.99 J	7
	3/22/2021	0.88 J	5
	9/8/2021	ND<5 U	2.5
	3/14/2022	3.1	13
	9/12/2022	1.4 J	9
	3/13/2023	12	16
GWM-17D	11/14/2019	ND<5 U	2.5
	3/26/2020	1.8 J	10
	9/29/2020	0.95 J	6
	3/16/2021	ND<5 U	2.5
	9/14/2021	ND<5 U	2.5
	3/18/2022	1.3 J	8
	9/13/2022	1.8 J	11
	3/14/2023	1.9 J	12

---

The Wilcoxon Statistic is 18.5

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -1.47029

The Standard Deviation adjusted for ties is 9.45163

The Z Score adjusted for ties is -1.48123

-1.47029 < 2.326 indicating no statistical significance at 1% level

-1.48123 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chromium, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 1

Non detect rank is 1

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	12	15
	4/2/2020	6.7	14
	9/30/2020	0.99 J	3
	3/22/2021	0.88 J	2
	9/8/2021	ND<5 U	1
	3/14/2022	3.1	13
	9/12/2022	1.4 J	5
	3/13/2023	12	16
GWM-19D	11/14/2019	1.3 J	4
	3/25/2020	2.4	12
	9/29/2020	1.5 J	6
	3/22/2021	1.8 J	9
	9/15/2021	1.6 J	8
	3/24/2022	1.5 J	7
	9/15/2022	2 J	10
	3/16/2023	2.1 J	11

---

The Wilcoxon Statistic is 31

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -0.157532

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is -0.157532

-0.157532 < 2.326 indicating no statistical significance at 1% level

-0.157532 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cobalt, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 3

Non detect rank is 2

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	6.5	9
	4/2/2020	9.3	18
	9/30/2020	6.2	8
	3/22/2021	5.4 J	5
	9/8/2021	5.5	6
	3/14/2022	6	7
	9/12/2022	4.6 J	4
	3/13/2023	6.9	10
SMW-13	9/23/2013	ND<5	2
	3/21/2014	7.5	11
	9/8/2014	7.6	12
	3/18/2015	7.8	13
	9/8/2015	8.7	15
	3/14/2016	8.1	14
	9/26/2016	8.9	16
	3/30/2017	9.1	17
	9/20/2017	9.8	20
	3/30/2018	11	23
	9/21/2018	9.4	19
	3/11/2019	9.9	21
	10/3/2019	10	22
	3/23/2020	ND<5 U	2
	9/25/2020	11	24
	3/23/2021	ND<5 U	2
	9/16/2021	11	25
	3/23/2022	11	26
	9/16/2022	12	27
	3/17/2023	12	28

---

The Wilcoxon Statistic is 129

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is 2.46646

The Standard Deviation adjusted for ties is 19.6531

The Z Score adjusted for ties is 2.46781

**2.46646 > 2.326 indicating statistical significance at 1% level**

**2.46781 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cobalt, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	6.5	6
	4/2/2020	9.3	8
	9/30/2020	6.2	5
	3/22/2021	5.4 J	2
	9/8/2021	5.5	3
	3/14/2022	6	4
	9/12/2022	4.6 J	1
	3/13/2023	6.9	7
SMW-32	9/23/2013	10	9
	12/5/2013	10	10
	3/19/2014	13	11
	9/8/2014	14	12
	3/18/2015	15	13
	9/8/2015	20	26
	3/14/2016	18	17
	9/20/2016	16	14
	3/24/2017	16	15
	9/20/2017	18	18
	3/27/2018	16	16
	9/18/2018	18	19
	3/11/2019	19	24
	10/3/2019	18	20
	3/23/2020	18	21
	9/24/2020	19	25
	3/23/2021	23	29
	9/16/2021	20	27
	3/24/2022	18	22
	9/16/2022	20	28
3/17/2023	18	23	

---

The Wilcoxon Statistic is 168

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is 4.07438

The Standard Deviation adjusted for ties is 20.4939

The Z Score adjusted for ties is 4.07438

**4.07438 > 2.326 indicating statistical significance at 1% level**

**4.07438 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cobalt, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	6.5	6
	4/2/2020	9.3	8
	9/30/2020	6.2	5
	3/22/2021	5.4 J	2
	9/8/2021	5.5	3
	3/14/2022	6	4
	9/12/2022	4.6 J	1
	3/13/2023	6.9	7
GWM-15D	3/21/2016	41	23
	9/23/2016	21	19
	3/28/2017	17	16
	9/21/2017	16	12
	3/16/2018	15	9
	9/19/2018	16	13
	3/5/2019	16	14
	10/3/2019	15	10
	3/25/2020	15	11
	9/28/2020	16	15
	3/19/2021	17	17
	9/15/2021	19	18
	3/22/2022	22	20
	9/14/2022	22	21
	3/16/2023	25	22

---

The Wilcoxon Statistic is 120

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is 3.84071

The Standard Deviation adjusted for ties is 15.4919

The Z Score adjusted for ties is 3.84071

**3.84071 > 2.326 indicating statistical significance at 1% level**

**3.84071 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cobalt, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	6.5	6
	4/2/2020	9.3	8
	9/30/2020	6.2	5
	3/22/2021	5.4 J	2
	9/8/2021	5.5	3
	3/14/2022	6	4
	9/12/2022	4.6 J	1
	3/13/2023	6.9	7
GWM-17D	11/14/2019	140	9
	3/26/2020	160	10
	9/29/2020	190	11
	3/16/2021	230	12
	9/14/2021	240	13
	3/18/2022	250	14
	9/13/2022	300	15
	3/14/2023	330	16

---

The Wilcoxon Statistic is 64

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 3.30816

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is 3.30816

**3.30816 > 2.326 indicating statistical significance at 1% level**

**3.30816 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cobalt, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	6.5	6
	4/2/2020	9.3	13
	9/30/2020	6.2	5
	3/22/2021	5.4 J	2
	9/8/2021	5.5	3
	3/14/2022	6	4
	9/12/2022	4.6 J	1
	3/13/2023	6.9	7
GWM-19D	11/14/2019	9.8	15
	3/25/2020	8.3	10
	9/29/2020	7.4	8
	3/22/2021	8.2	9
	9/15/2021	8.9	11
	3/24/2022	8.9	12
	9/15/2022	9.6	14
	3/16/2023	12	16

---

The Wilcoxon Statistic is 59

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 2.78306

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is 2.78306

**2.78306 > 2.326 indicating statistical significance at 1% level**

**2.78306 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Copper, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 1

Non detect rank is 1

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	7.4	3
	4/2/2020	10	5
	9/30/2020	12	7
	3/22/2021	5.6 UR	2
	9/8/2021	13	8
	3/14/2022	15	10
	9/12/2022	9.4	4
	3/13/2023	13	9
SMW-13	9/23/2013	60	14
	3/21/2014	62	17
	9/8/2014	68	19
	3/18/2015	41	11
	9/8/2015	470	28
	3/14/2016	110	26
	9/26/2016	70	21
	3/30/2017	69	20
	9/20/2017	60	15
	3/30/2018	59	13
	9/21/2018	66	18
	3/11/2019	89	24
	10/3/2019	58	12
	3/23/2020	ND<5 U	1
	9/25/2020	160	27
	3/23/2021	11	6
	9/16/2021	79	23
	3/23/2022	74	22
9/16/2022	100	25	
3/17/2023	60	16	

---

The Wilcoxon Statistic is 148

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is 3.4327

The Standard Deviation adjusted for ties is 19.6638

The Z Score adjusted for ties is 3.4327

**3.4327 > 2.326 indicating statistical significance at 1% level**

**3.4327 > 2.326 indicating statistical significance at 1% level when adjusted for ties**



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Copper, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	7.4	2
	4/2/2020	10	4
	9/30/2020	12	5
	3/22/2021	5.6 UR	1
	9/8/2021	13	6
	3/14/2022	15	8
	9/12/2022	9.4	3
	3/13/2023	13	7
SMW-32	9/23/2013	40	18
	12/5/2013	40	19
	3/19/2014	40	20
	9/8/2014	35	11
	3/18/2015	43	23
	9/8/2015	50	27
	3/14/2016	39	17
	9/20/2016	44	24
	3/24/2017	33	9
	9/20/2017	52	28
	3/27/2018	45	25
	9/18/2018	37	16
	3/11/2019	55	29
	10/3/2019	35	12
	3/23/2020	34	10
	9/24/2020	41	21
	3/23/2021	42	22
	9/16/2021	35	13
	3/24/2022	36	15
	9/16/2022	48	26
3/17/2023	35	14	

---

The Wilcoxon Statistic is 168

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is 4.07438

The Standard Deviation adjusted for ties is 20.4939

The Z Score adjusted for ties is 4.07438

**4.07438 > 2.326 indicating statistical significance at 1% level**

**4.07438 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Copper, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 1

Non detect rank is 1

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	7.4	17
	4/2/2020	10	19
	9/30/2020	12	20
	3/22/2021	5.6 UR	16
	9/8/2021	13	21
	3/14/2022	15	23
	9/12/2022	9.4	18
	3/13/2023	13	22
GWM-15D	3/21/2016	4.4 J	12
	9/23/2016	4.7 J	13
	3/28/2017	4.9 J	15
	9/21/2017	4.7 J	14
	3/16/2018	4.1 J	11
	9/19/2018	3.8 J	9
	3/5/2019	3.2 J	7
	10/3/2019	3.9 J	10
	3/25/2020	3.1 J	6
	9/28/2020	2.7 J	5
	3/19/2021	3.3 J	8
	9/15/2021	2.3 J	2
	3/22/2022	2.3 J	3
	9/14/2022	ND<5.6	1
	3/16/2023	2.3 J	4

---

The Wilcoxon Statistic is 0

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is -3.90526

The Standard Deviation adjusted for ties is 15.4919

The Z Score adjusted for ties is -3.90526

-3.90526 < 2.326 indicating no statistical significance at 1% level

-3.90526 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Copper, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 8

Non detect rank is 4.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	7.4	10
	4/2/2020	10	12
	9/30/2020	12	13
	3/22/2021	5.6 UR	9
	9/8/2021	13	14
	3/14/2022	15	16
	9/12/2022	9.4	11
	3/13/2023	13	15
GWM-17D	11/14/2019	ND<5 U	4.5
	3/26/2020	ND<5 U	4.5
	9/29/2020	ND<5 U	4.5
	3/16/2021	ND<5 U	4.5
	9/14/2021	ND<5 U	4.5
	3/18/2022	ND<5.6	4.5
	9/13/2022	ND<5.6	4.5
	3/14/2023	ND<5.6	4.5

---

The Wilcoxon Statistic is 0

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -3.41318

The Standard Deviation adjusted for ties is 8.91441

The Z Score adjusted for ties is -3.64578

-3.41318 < 2.326 indicating no statistical significance at 1% level

-3.64578 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Copper, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	7.4	2
	4/2/2020	10	6
	9/30/2020	12	8
	3/22/2021	5.6 UR	1
	9/8/2021	13	9
	3/14/2022	15	14
	9/12/2022	9.4	4
	3/13/2023	13	10
GWM-19D	11/14/2019	9.8	5
	3/25/2020	9	3
	9/29/2020	14	12
	3/22/2021	21	16
	9/15/2021	18	15
	3/24/2022	13	11
	9/15/2022	14	13
	3/16/2023	11	7

---

The Wilcoxon Statistic is 46

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 1.41778

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is 1.41778

1.41778 < 2.326 indicating no statistical significance at 1% level

1.41778 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Iron, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 2

Non detect rank is 1.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	76	22
	4/2/2020	71	20
	9/30/2020	ND<80 U	1.5
	3/22/2021	290 R	28
	9/8/2021	ND<80 U	1.5
	3/14/2022	110	25
	9/12/2022	58	16
	3/13/2023	74	21
SMW-32	9/23/2013	15	3
	12/5/2013	26	6
	3/19/2014	86	24
	9/8/2014	64	18
	3/18/2015	40 J	12
	9/8/2015	290	29
	3/14/2016	62	17
	9/20/2016	32 J	9
	3/24/2017	22 J	4
	9/20/2017	52 J	15
	3/27/2018	31 J	8
	9/18/2018	45 J	13
	3/11/2019	35 J	10
	10/3/2019	25 J	5
	3/23/2020	47 J	14
	9/24/2020	80	23
	3/23/2021	110	26
	9/16/2021	110	27
	3/24/2022	28 J	7
	9/16/2022	69	19
3/17/2023	39 J	11	

---

The Wilcoxon Statistic is 69

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is -0.756323

The Standard Deviation adjusted for ties is 20.4914

The Z Score adjusted for ties is -0.756416

-0.756323 < 2.326 indicating no statistical significance at 1% level

-0.756416 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Iron, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 3

Non detect rank is 2

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	76	22
	4/2/2020	71	20
	9/30/2020	ND<80 U	2
	3/22/2021	290 R	27
	9/8/2021	ND<80 U	2
	3/14/2022	110	24
	9/12/2022	58	17
	3/13/2023	74	21
SMW-13	9/23/2013	17	4
	3/21/2014	25 J	8
	9/8/2014	61	19
	3/18/2015	85	23
	9/8/2015	53 J	16
	3/14/2016	29 J	11
	9/26/2016	60	18
	3/30/2017	29 J	12
	9/20/2017	25 J	9
	3/30/2018	43 J	15
	9/21/2018	20 J	5
	3/11/2019	24 J	7
	10/3/2019	ND<80 U	2
	3/23/2020	180	25
	9/25/2020	510	28
	3/23/2021	20 J	6
	9/16/2021	200	26
	3/23/2022	34 J	14
9/16/2022	32 J	13	
3/17/2023	26 J	10	

---

The Wilcoxon Statistic is 61

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is -0.991668

The Standard Deviation adjusted for ties is 19.6531

The Z Score adjusted for ties is -0.992211

-0.991668 < 2.326 indicating no statistical significance at 1% level

-0.992211 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Iron, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 2

Non detect rank is 1.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	76	17
	4/2/2020	71	14
	9/30/2020	ND<80 U	1.5
	3/22/2021	290 R	22
	9/8/2021	ND<80 U	1.5
	3/14/2022	110	20
	9/12/2022	58	12
	3/13/2023	74	16
GWM-15D	3/21/2016	510	23
	9/23/2016	55 J	11
	3/28/2017	67	13
	9/21/2017	49 J	9
	3/16/2018	46 J	7
	9/19/2018	43 J	6
	3/5/2019	160	21
	10/3/2019	19 J	3
	3/25/2020	85	19
	9/28/2020	78	18
	3/19/2021	47 J	8
	9/15/2021	72 J	15
	3/22/2022	37 J	4
	9/14/2022	39 J	5
	3/16/2023	50 J	10

---

The Wilcoxon Statistic is 52

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is -0.548673

The Standard Deviation adjusted for ties is 15.4881

The Z Score adjusted for ties is -0.548808

-0.548673 < 2.326 indicating no statistical significance at 1% level

-0.548808 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Iron, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 2

Non detect rank is 1.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	76	10
	4/2/2020	71	8
	9/30/2020	ND<80 U	1.5
	3/22/2021	290 R	16
	9/8/2021	ND<80 U	1.5
	3/14/2022	110	12
	9/12/2022	58	7
	3/13/2023	74	9
GWM-17D	11/14/2019	180	14
	3/26/2020	130	13
	9/29/2020	76	11
	3/16/2021	49 J	5
	9/14/2021	56 J	6
	3/18/2022	31 J	3
	9/13/2022	32 J	4
	3/14/2023	180	15

---

The Wilcoxon Statistic is 35

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 0.262553

The Standard Deviation adjusted for ties is 9.5149

The Z Score adjusted for ties is 0.262746

0.262553 < 2.326 indicating no statistical significance at 1% level

0.262746 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Iron, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 6

Non detect rank is 3.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	76	12
	4/2/2020	71	10
	9/30/2020	ND<80 U	3.5
	3/22/2021	290 R	16
	9/8/2021	ND<80 U	3.5
	3/14/2022	110	14
	9/12/2022	58	8
	3/13/2023	74	11
GWM-19D	11/14/2019	94	13
	3/25/2020	29 J	7
	9/29/2020	240	15
	3/22/2021	61	9
	9/15/2021	ND<80 U	3.5
	3/24/2022	ND<56	3.5
	9/15/2022	ND<56	3.5
	3/16/2023	ND<56	3.5

---

The Wilcoxon Statistic is 22

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -1.10272

The Standard Deviation adjusted for ties is 9.27362

The Z Score adjusted for ties is -1.13224

-1.10272 < 2.326 indicating no statistical significance at 1% level

-1.13224 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Lead, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 11

Non detect rank is 6

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	9	29
	4/2/2020	3	28
	9/30/2020	1.6 J	24
	3/22/2021	2.2 UR	26
	9/8/2021	1.1 J	20
	3/14/2022	0.99 J	17
	9/12/2022	ND<2.2	6
	3/13/2023	0.82 J	13
SMW-32	9/23/2013	ND<5	6
	12/5/2013	ND<5	6
	3/19/2014	ND<5 U	6
	9/8/2014	1.1 J	21
	3/18/2015	0.97 J	16
	9/8/2015	2.3	27
	3/14/2016	1 J	18
	9/20/2016	1.2 J	22
	3/24/2017	0.77 J	12
	9/20/2017	1.4 J	23
	3/27/2018	1 J	19
	9/18/2018	0.88 J	14
	3/11/2019	1.6 J	25
	10/3/2019	ND<5 U	6
	3/23/2020	ND<5 U	6
	9/24/2020	0.9 J	15
	3/23/2021	ND<5 U	6
	9/16/2021	ND<5 U	6
	3/24/2022	ND<2.2	6
	9/16/2022	ND<2.2	6
3/17/2023	ND<2.2	6	

---

The Wilcoxon Statistic is 41

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is -2.12258

The Standard Deviation adjusted for ties is 19.9309

The Z Score adjusted for ties is -2.18254

-2.12258 < 2.326 indicating no statistical significance at 1% level

-2.18254 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Lead, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 3

Non detect rank is 2

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	9	11
	4/2/2020	3	9
	9/30/2020	1.6 J	7
	3/22/2021	2.2 UR	8
	9/8/2021	1.1 J	6
	3/14/2022	0.99 J	5
	9/12/2022	ND<2.2	2
	3/13/2023	0.82 J	4
SMW-13	9/23/2013	9	12
	3/21/2014	9.8	13
	9/8/2014	13	15
	3/18/2015	7.1	10
	9/8/2015	80	28
	3/14/2016	25	26
	9/26/2016	17	21
	3/30/2017	20	23
	9/20/2017	16	19
	3/30/2018	12	14
	9/21/2018	15	17
	3/11/2019	21	25
	10/3/2019	14	16
	3/23/2020	ND<5 U	2
	9/25/2020	28	27
	3/23/2021	ND<5 U	2
	9/16/2021	16	20
	3/23/2022	15	18
	9/16/2022	17	22
	3/17/2023	20	24

---

The Wilcoxon Statistic is 144

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is 3.22928

The Standard Deviation adjusted for ties is 19.6531

The Z Score adjusted for ties is 3.23105

**3.22928 > 2.326 indicating statistical significance at 1% level**

**3.23105 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Lead, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 16

Non detect rank is 8.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	9	23
	4/2/2020	3	22
	9/30/2020	1.6 J	20
	3/22/2021	2.2 UR	21
	9/8/2021	1.1 J	19
	3/14/2022	0.99 J	18
	9/12/2022	ND<2.2	8.5
	3/13/2023	0.82 J	17
GWM-15D	3/21/2016	ND<5 U	8.5
	9/23/2016	ND<5 U	8.5
	3/28/2017	ND<5 U	8.5
	9/21/2017	ND<5 U	8.5
	3/16/2018	ND<5 U	8.5
	9/19/2018	ND<5 U	8.5
	3/5/2019	ND<5 U	8.5
	10/3/2019	ND<5 U	8.5
	3/25/2020	ND<5 U	8.5
	9/28/2020	ND<5 U	8.5
	3/19/2021	ND<5 U	8.5
	9/15/2021	ND<5 U	8.5
	3/22/2022	ND<2.2	8.5
	9/14/2022	ND<2.2	8.5
	3/16/2023	ND<2.2	8.5

---

The Wilcoxon Statistic is 7.5

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is -3.42114

The Standard Deviation adjusted for ties is 12.6241

The Z Score adjusted for ties is -4.19832

-3.42114 < 2.326 indicating no statistical significance at 1% level

-4.19832 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Lead, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 9

Non detect rank is 5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	9	16
	4/2/2020	3	15
	9/30/2020	1.6 J	13
	3/22/2021	2.2 UR	14
	9/8/2021	1.1 J	12
	3/14/2022	0.99 J	11
	9/12/2022	ND<2.2	5
	3/13/2023	0.82 J	10
GWM-17D	11/14/2019	ND<5 U	5
	3/26/2020	ND<5 U	5
	9/29/2020	ND<5 U	5
	3/16/2021	ND<5 U	5
	9/14/2021	ND<5 U	5
	3/18/2022	ND<2.2	5
	9/13/2022	ND<2.2	5
	3/14/2023	ND<2.2	5

---

The Wilcoxon Statistic is 4

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -2.9931

The Standard Deviation adjusted for ties is 8.64099

The Z Score adjusted for ties is -3.29823

-2.9931 < 2.326 indicating no statistical significance at 1% level

-3.29823 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Lead, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 5

Non detect rank is 3

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	9	15
	4/2/2020	3	14
	9/30/2020	1.6 J	11
	3/22/2021	2.2 UR	12
	9/8/2021	1.1 J	8
	3/14/2022	0.99 J	7
	9/12/2022	ND<2.2	3
	3/13/2023	0.82 J	6
GWM-19D	11/14/2019	9.1	16
	3/25/2020	ND<5 U	3
	9/29/2020	ND<5 U	3
	3/22/2021	ND<5 U	3
	9/15/2021	ND<5 U	3
	3/24/2022	1.4 J	9
	9/15/2022	1.4 J	10
	3/16/2023	2.4	13

---

The Wilcoxon Statistic is 24

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -0.892679

The Standard Deviation adjusted for ties is 9.38083

The Z Score adjusted for ties is -0.906103

-0.892679 < 2.326 indicating no statistical significance at 1% level

-0.906103 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Magnesium, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	8000	25
	4/2/2020	8200	28
	9/30/2020	7900	24
	3/22/2021	2700 R	1
	9/8/2021	7700	19
	3/14/2022	8000	26
	9/12/2022	7700	20
	3/13/2023	7700	21
SMW-13	9/23/2013	5079	6
	3/21/2014	4900	3
	9/8/2014	5400	8
	3/18/2015	4900	4
	9/8/2015	5300	7
	3/14/2016	5500	9
	9/26/2016	5800	10
	3/30/2017	6500	12
	9/20/2017	6200	11
	3/30/2018	6700	13
	9/21/2018	6800	14
	3/11/2019	6800	15
	10/3/2019	6800	16
	3/23/2020	5000	5
	9/25/2020	7000	17
	3/23/2021	4500	2
	9/16/2021	7200	18
	3/23/2022	7800	22
	9/16/2022	8100	27
	3/17/2023	7800	23

---

The Wilcoxon Statistic is 32

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is -2.46646

The Standard Deviation adjusted for ties is 19.6638

The Z Score adjusted for ties is -2.46646

-2.46646 < 2.326 indicating no statistical significance at 1% level

-2.46646 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Magnesium, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	8000	22
	4/2/2020	8200	26
	9/30/2020	7900	19
	3/22/2021	2700 R	1
	9/8/2021	7700	13
	3/14/2022	8000	23
	9/12/2022	7700	14
3/13/2023	7700	15	
SMW-32	9/23/2013	5924	3
	12/5/2013	5814	2
	3/19/2014	6000	4
	9/8/2014	6400	6
	3/18/2015	6100	5
	9/8/2015	7500	12
	3/14/2016	7200	10
	9/20/2016	6600	8
	3/24/2017	6500	7
	9/20/2017	7300	11
	3/27/2018	7000	9
	9/18/2018	7700	16
	3/11/2019	7800	17
	10/3/2019	7800	18
	3/23/2020	8000	24
	9/24/2020	7900	20
	3/23/2021	9200	29
9/16/2021	8100	25	
3/24/2022	8500	28	
9/16/2022	8300	27	
3/17/2023	7900	21	

---

The Wilcoxon Statistic is 71

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is -0.658733

The Standard Deviation adjusted for ties is 20.4939

The Z Score adjusted for ties is -0.658733

-0.658733 < 2.326 indicating no statistical significance at 1% level

-0.658733 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Magnesium, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	8000	6
	4/2/2020	8200	8
	9/30/2020	7900	5
	3/22/2021	2700 R	1
	9/8/2021	7700	2
	3/14/2022	8000	7
	9/12/2022	7700	3
	3/13/2023	7700	4
GWM-15D	3/21/2016	17100	15
	9/23/2016	15200	13
	3/28/2017	14400	10
	9/21/2017	14200	9
	3/16/2018	14500	11
	9/19/2018	15000	12
	3/5/2019	18300	18
	10/3/2019	17200	16
	3/25/2020	17000	14
	9/28/2020	17400	17
	3/19/2021	20400	22
	9/15/2021	20000	19
	3/22/2022	20300	21
	9/14/2022	20200	20
	3/16/2023	20400	23

---

The Wilcoxon Statistic is 120

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is 3.84071

The Standard Deviation adjusted for ties is 15.4919

The Z Score adjusted for ties is 3.84071

**3.84071 > 2.326 indicating statistical significance at 1% level**

**3.84071 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Magnesium, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	8000	6
	4/2/2020	8200	8
	9/30/2020	7900	5
	3/22/2021	2700 R	1
	9/8/2021	7700	2
	3/14/2022	8000	7
	9/12/2022	7700	3
	3/13/2023	7700	4
GWM-17D	11/14/2019	24300	15
	3/26/2020	21800	9
	9/29/2020	23000	11
	3/16/2021	24800	16
	9/14/2021	24000	14
	3/18/2022	22700	10
	9/13/2022	23800	13
	3/14/2023	23600	12

---

The Wilcoxon Statistic is 64

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 3.30816

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is 3.30816

**3.30816 > 2.326 indicating statistical significance at 1% level**

**3.30816 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Magnesium, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	8000	14
	4/2/2020	8200	16
	9/30/2020	7900	13
	3/22/2021	2700 R	1
	9/8/2021	7700	10
	3/14/2022	8000	15
	9/12/2022	7700	11
	3/13/2023	7700	12
GWM-19D	11/14/2019	5300	9
	3/25/2020	5100	8
	9/29/2020	4400	2
	3/22/2021	4500	3
	9/15/2021	4700	4
	3/24/2022	4800	6
	9/15/2022	4700	5
	3/16/2023	4800	7

---

The Wilcoxon Statistic is 8

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -2.57301

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is -2.57301

-2.57301 < 2.326 indicating no statistical significance at 1% level

-2.57301 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Manganese, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	42	8
	4/2/2020	46	12
	9/30/2020	37	3
	3/22/2021	72 R	25
	9/8/2021	35	2
	3/14/2022	41	7
	9/12/2022	34	1
	3/13/2023	38	4
SMW-32	9/23/2013	40	5
	12/5/2013	40	6
	3/19/2014	44	10
	9/8/2014	42	9
	3/18/2015	44	11
	9/8/2015	83	27
	3/14/2016	64	18
	9/20/2016	48	13
	3/24/2017	55	14
	9/20/2017	61	17
	3/27/2018	56	15
	9/18/2018	64	19
	3/11/2019	70	22
	10/3/2019	60	16
	3/23/2020	73	26
	9/24/2020	71	24
	3/23/2021	100	29
	9/16/2021	70	23
	3/24/2022	67	20
	9/16/2022	88	28
3/17/2023	68	21	

---

The Wilcoxon Statistic is 142

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is 2.80571

The Standard Deviation adjusted for ties is 20.4939

The Z Score adjusted for ties is 2.80571

**2.80571 > 2.326 indicating statistical significance at 1% level**

**2.80571 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Manganese, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 1

Non detect rank is 1

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	42	21
	4/2/2020	46	23
	9/30/2020	37	16
	3/22/2021	72 R	28
	9/8/2021	35	9
	3/14/2022	41	18
	9/12/2022	34	8
	3/13/2023	38	17
SMW-13	9/23/2013	20	3
	3/21/2014	28	4
	9/8/2014	29	5
	3/18/2015	30	6
	9/8/2015	35	10
	3/14/2016	33	7
	9/26/2016	35	11
	3/30/2017	36	12
	9/20/2017	36	13
	3/30/2018	41	19
	9/21/2018	36	14
	3/11/2019	36	15
	10/3/2019	41	20
	3/23/2020	4.7 J	2
	9/25/2020	48	26
	3/23/2021	ND<5 U	1
	9/16/2021	42	22
	3/23/2022	51	27
	9/16/2022	46	24
	3/17/2023	46	25

---

The Wilcoxon Statistic is 56

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is -1.24594

The Standard Deviation adjusted for ties is 19.6638

The Z Score adjusted for ties is -1.24594

-1.24594 < 2.326 indicating no statistical significance at 1% level

-1.24594 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Manganese, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	42	6
	4/2/2020	46	7
	9/30/2020	37	3
	3/22/2021	72 R	8
	9/8/2021	35	2
	3/14/2022	41	5
	9/12/2022	34	1
	3/13/2023	38	4
GWM-15D	3/21/2016	690	19
	9/23/2016	390	12
	3/28/2017	380	10
	9/21/2017	350	9
	3/16/2018	380	11
	9/19/2018	440	13
	3/5/2019	500	14
	10/3/2019	540	15
	3/25/2020	580	16
	9/28/2020	660	17
	3/19/2021	680	18
	9/15/2021	720	20
	3/22/2022	910	21
	9/14/2022	920	22
	3/16/2023	980	23

---

The Wilcoxon Statistic is 120

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is 3.84071

The Standard Deviation adjusted for ties is 15.4919

The Z Score adjusted for ties is 3.84071

**3.84071 > 2.326 indicating statistical significance at 1% level**

**3.84071 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Manganese, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	42	6
	4/2/2020	46	7
	9/30/2020	37	3
	3/22/2021	72 R	8
	9/8/2021	35	2
	3/14/2022	41	5
	9/12/2022	34	1
	3/13/2023	38	4
GWM-17D	11/14/2019	2000	9
	3/26/2020	2000	10
	9/29/2020	2300	11
	3/16/2021	2600	12
	9/14/2021	2800	13
	3/18/2022	2900	14
	9/13/2022	3200	15
	3/14/2023	3400	16

---

The Wilcoxon Statistic is 64

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 3.30816

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is 3.30816

**3.30816 > 2.326 indicating statistical significance at 1% level**

**3.30816 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Manganese, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	42	9
	4/2/2020	46	11
	9/30/2020	37	3
	3/22/2021	72 R	16
	9/8/2021	35	2
	3/14/2022	41	6
	9/12/2022	34	1
	3/13/2023	38	4
GWM-19D	11/14/2019	48	13
	3/25/2020	43	10
	9/29/2020	41	7
	3/22/2021	39	5
	9/15/2021	41	8
	3/24/2022	47	12
	9/15/2022	50	14
	3/16/2023	58	15

---

The Wilcoxon Statistic is 48

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 1.62783

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is 1.62783

1.62783 < 2.326 indicating no statistical significance at 1% level

1.62783 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Mercury, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 8

Non detect rank is 4.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<0.2 U	4.5
	4/2/2020	ND<0.2 U	4.5
	9/30/2020	ND<0.2 U	4.5
	3/22/2021	ND<0.2 U	4.5
	9/8/2021	ND<0.2 U	4.5
	3/14/2022	ND<0.5	4.5
	9/12/2022	ND<0.5	4.5
	3/13/2023	ND<0.5	4.5
SMW-32	9/23/2013	2.02	10
	12/5/2013	1.9	9
	3/19/2014	2.6	12
	9/8/2014	3.2	23
	3/18/2015	3.3	26
	9/8/2015	2.7	13
	3/14/2016	3.1	20
	9/20/2016	3	17
	3/24/2017	3.1	21
	9/20/2017	3.1	22
	3/27/2018	3.2	24
	9/18/2018	2.8	15
	3/11/2019	2.8	16
	10/3/2019	3.3	27
	3/23/2020	3	18
	9/24/2020	3.3	28
	3/23/2021	2.7	14
	9/16/2021	3.2	25
	3/24/2022	3	19
	9/16/2022	2.3	11
3/17/2023	3.4	29	

---

The Wilcoxon Statistic is 168

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is 4.07438

The Standard Deviation adjusted for ties is 20.2808

The Z Score adjusted for ties is 4.1172

**4.07438 > 2.326 indicating statistical significance at 1% level**

**4.1172 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Mercury, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 8

Non detect rank is 4.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<0.2 U	4.5
	4/2/2020	ND<0.2 U	4.5
	9/30/2020	ND<0.2 U	4.5
	3/22/2021	ND<0.2 U	4.5
	9/8/2021	ND<0.2 U	4.5
	3/14/2022	ND<0.5	4.5
	9/12/2022	ND<0.5	4.5
	3/13/2023	ND<0.5	4.5
SMW-13	9/23/2013	0.92	9
	3/21/2014	0.94	10
	9/8/2014	1.4	13
	3/18/2015	1.7	16
	9/8/2015	1.1	11
	3/14/2016	2.3	22
	9/26/2016	2.4	25
	3/30/2017	2.8	28
	9/20/2017	2.7	27
	3/30/2018	2.5	26
	9/21/2018	2.3	23
	3/11/2019	2.3	24
	10/3/2019	2.1	21
	3/23/2020	2	20
	9/25/2020	1.5	14
	3/23/2021	1.1	12
	9/16/2021	1.6	15
	3/23/2022	1.7	17
	9/16/2022	1.7	18
	3/17/2023	1.8	19

---

The Wilcoxon Statistic is 160

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is 4.04295

The Standard Deviation adjusted for ties is 19.4365

The Z Score adjusted for ties is 4.09024

**4.04295 > 2.326 indicating statistical significance at 1% level**

**4.09024 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Mercury, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 23

Non detect rank is 12

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<0.2 U	12
	4/2/2020	ND<0.2 U	12
	9/30/2020	ND<0.2 U	12
	3/22/2021	ND<0.2 U	12
	9/8/2021	ND<0.2 U	12
	3/14/2022	ND<0.5	12
	9/12/2022	ND<0.5	12
	3/13/2023	ND<0.5	12
GWM-15D	3/21/2016	ND<0.2 U	12
	9/23/2016	ND<0.2 U	12
	3/28/2017	ND<0.2 U	12
	9/21/2017	ND<0.2 U	12
	3/16/2018	ND<0.2 U	12
	9/19/2018	ND<0.2 U	12
	3/5/2019	ND<0.2 U	12
	10/3/2019	ND<0.2 U	12
	3/25/2020	ND<0.2 U	12
	9/28/2020	ND<0.2 U	12
	3/19/2021	ND<0.2 U	12
	9/15/2021	ND<0.2 U	12
	3/22/2022	ND<0.5	12
	9/14/2022	ND<0.5	12
	3/16/2023	ND<0.5	12

---

The Wilcoxon Statistic is 60

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is -0.0322749

The Standard Deviation adjusted for ties is 0

The Z Score adjusted for ties is -1.#INF

-0.0322749 < 2.326 indicating no statistical significance at 1% level

-1.#INF < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Mercury, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 8

Non detect rank is 4.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<0.2 U	4.5
	4/2/2020	ND<0.2 U	4.5
	9/30/2020	ND<0.2 U	4.5
	3/22/2021	ND<0.2 U	4.5
	9/8/2021	ND<0.2 U	4.5
	3/14/2022	ND<0.5	4.5
	9/12/2022	ND<0.5	4.5
	3/13/2023	ND<0.5	4.5
GWM-17D	11/14/2019	0.45 J	12
	3/26/2020	0.38 J	10
	9/29/2020	0.29 J	9
	3/16/2021	0.49 J	13
	9/14/2021	0.85	14
	3/18/2022	1	16
	9/13/2022	0.9	15
	3/14/2023	0.39 J	11

---

The Wilcoxon Statistic is 64

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 3.30816

The Standard Deviation adjusted for ties is 8.91441

The Z Score adjusted for ties is 3.53361

**3.30816 > 2.326 indicating statistical significance at 1% level**

**3.53361 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Mercury, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 8

Non detect rank is 4.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<0.2 U	4.5
	4/2/2020	ND<0.2 U	4.5
	9/30/2020	ND<0.2 U	4.5
	3/22/2021	ND<0.2 U	4.5
	9/8/2021	ND<0.2 U	4.5
	3/14/2022	ND<0.5	4.5
	9/12/2022	ND<0.5	4.5
	3/13/2023	ND<0.5	4.5
GWM-19D	11/14/2019	1.9	10
	3/25/2020	1.9	11
	9/29/2020	2	12
	3/22/2021	2.3	15
	9/15/2021	2.2	14
	3/24/2022	1.8	9
	9/15/2022	2	13
	3/16/2023	2.3	16

---

The Wilcoxon Statistic is 64

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 3.30816

The Standard Deviation adjusted for ties is 8.91441

The Z Score adjusted for ties is 3.53361

**3.30816 > 2.326 indicating statistical significance at 1% level**

**3.53361 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Nickel, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 2

Non detect rank is 1.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	23	8
	4/2/2020	31	11
	9/30/2020	21	6
	3/22/2021	6.7 R	3
	9/8/2021	20	5
	3/14/2022	22	7
	9/12/2022	19	4
	3/13/2023	25	9
SMW-13	9/23/2013	29	10
	3/21/2014	33	13
	9/8/2014	32	12
	3/18/2015	34	14
	9/8/2015	51	25
	3/14/2016	37	15
	9/26/2016	40	16
	3/30/2017	41	17
	9/20/2017	41	18
	3/30/2018	45	21
	9/21/2018	41	19
	3/11/2019	43	20
	10/3/2019	45	22
	3/23/2020	ND<5 U	1.5
	9/25/2020	49	24
	3/23/2021	ND<5 U	1.5
	9/16/2021	48	23
	3/23/2022	52	28
9/16/2022	51	26	
3/17/2023	51	27	

---

The Wilcoxon Statistic is 143

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is 3.17842

The Standard Deviation adjusted for ties is 19.6612

The Z Score adjusted for ties is 3.17886

**3.17842 > 2.326 indicating statistical significance at 1% level**

**3.17886 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Nickel, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	23	6
	4/2/2020	31	8
	9/30/2020	21	4
	3/22/2021	6.7 R	1
	9/8/2021	20	3
	3/14/2022	22	5
	9/12/2022	19	2
	3/13/2023	25	7
SMW-32	9/23/2013	46	9
	12/5/2013	50	11
	3/19/2014	49	10
	9/8/2014	52	12
	3/18/2015	54	13
	9/8/2015	57	16
	3/14/2016	56	15
	9/20/2016	59	17
	3/24/2017	59	18
	9/20/2017	60	19
	3/27/2018	55	14
	9/18/2018	60	20
	3/11/2019	61	21
	10/3/2019	64	25
	3/23/2020	64	26
	9/24/2020	62	22
	3/23/2021	63	24
	9/16/2021	62	23
	3/24/2022	68	27
	9/16/2022	69	28
3/17/2023	70	29	

---

The Wilcoxon Statistic is 168

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is 4.07438

The Standard Deviation adjusted for ties is 20.4939

The Z Score adjusted for ties is 4.07438

**4.07438 > 2.326 indicating statistical significance at 1% level**

**4.07438 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Nickel, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	23	21
	4/2/2020	31	23
	9/30/2020	21	19
	3/22/2021	6.7 R	2
	9/8/2021	20	18
	3/14/2022	22	20
	9/12/2022	19	17
	3/13/2023	25	22
GWM-15D	3/21/2016	16	16
	9/23/2016	14	15
	3/28/2017	13	14
	9/21/2017	11	11
	3/16/2018	10	7
	9/19/2018	11	12
	3/5/2019	1.1	1
	10/3/2019	10	8
	3/25/2020	9.8	5
	9/28/2020	11	13
	3/19/2021	9.9	6
	9/15/2021	10	9
	3/22/2022	10	10
	9/14/2022	9	3
	3/16/2023	9.7	4

---

The Wilcoxon Statistic is 14

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is -3.00156

The Standard Deviation adjusted for ties is 15.4919

The Z Score adjusted for ties is -3.00156

-3.00156 < 2.326 indicating no statistical significance at 1% level

-3.00156 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Nickel, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	23	6
	4/2/2020	31	8
	9/30/2020	21	4
	3/22/2021	6.7 R	1
	9/8/2021	20	3
	3/14/2022	22	5
	9/12/2022	19	2
	3/13/2023	25	7
GWM-17D	11/14/2019	56	10
	3/26/2020	56	11
	9/29/2020	55	9
	3/16/2021	64	14
	9/14/2021	63	12
	3/18/2022	63	13
	9/13/2022	67	16
	3/14/2023	65	15

---

The Wilcoxon Statistic is 64

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 3.30816

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is 3.30816

**3.30816 > 2.326 indicating statistical significance at 1% level**

**3.30816 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Nickel, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	23	7
	4/2/2020	31	16
	9/30/2020	21	4
	3/22/2021	6.7 R	1
	9/8/2021	20	3
	3/14/2022	22	6
	9/12/2022	19	2
	3/13/2023	25	9
GWM-19D	11/14/2019	29	15
	3/25/2020	26	12
	9/29/2020	21	5
	3/22/2021	23	8
	9/15/2021	25	10
	3/24/2022	25	11
	9/15/2022	26	13
	3/16/2023	26	14

---

The Wilcoxon Statistic is 52

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 2.04791

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is 2.04791

2.04791 < 2.326 indicating no statistical significance at 1% level

2.04791 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Potassium, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	3400	22
	4/2/2020	8100	28
	9/30/2020	4400	26
	3/22/2021	1400 R	3
	9/8/2021	6300	27
	3/14/2022	4000	24
	9/12/2022	4100	25
	3/13/2023	3400	23
SMW-13	9/23/2013	1710	5
	3/21/2014	1700	4
	9/8/2014	1800	6
	3/18/2015	1800	7
	9/8/2015	1800	8
	3/14/2016	1800	9
	9/26/2016	1900	10
	3/30/2017	1900	11
	9/20/2017	1900	12
	3/30/2018	2000	13
	9/21/2018	2000	14
	3/11/2019	2000	15
	10/3/2019	2000	16
	3/23/2020	940	2
	9/25/2020	2100	17
	3/23/2021	190	1
	9/16/2021	2300	20
	3/23/2022	2200	18
	9/16/2022	2200	19
	3/17/2023	2300	21

---

The Wilcoxon Statistic is 18

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is -3.17842

The Standard Deviation adjusted for ties is 19.6638

The Z Score adjusted for ties is -3.17842

-3.17842 < 2.326 indicating no statistical significance at 1% level

-3.17842 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Potassium, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	3400	23
	4/2/2020	8100	29
	9/30/2020	4400	27
	3/22/2021	1400 R	1
	9/8/2021	6300	28
	3/14/2022	4000	25
	9/12/2022	4100	26
	3/13/2023	3400	24
SMW-32	9/23/2013	1940	3
	12/5/2013	1780	2
	3/19/2014	2000	4
	9/8/2014	2100	5
	3/18/2015	2100	6
	9/8/2015	2400	13
	3/14/2016	2300	9
	9/20/2016	2200	7
	3/24/2017	2200	8
	9/20/2017	2300	10
	3/27/2018	2300	11
	9/18/2018	2300	12
	3/11/2019	2400	14
	10/3/2019	2400	15
	3/23/2020	2400	16
	9/24/2020	2500	17
	3/23/2021	2900	22
	9/16/2021	2600	19
	3/24/2022	2600	20
	9/16/2022	2700	21
3/17/2023	2500	18	

---

The Wilcoxon Statistic is 21

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is -3.09848

The Standard Deviation adjusted for ties is 20.4939

The Z Score adjusted for ties is -3.09848

-3.09848 < 2.326 indicating no statistical significance at 1% level

-3.09848 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Potassium, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	3400	17
	4/2/2020	8100	23
	9/30/2020	4400	21
	3/22/2021	1400 R	1
	9/8/2021	6300	22
	3/14/2022	4000	19
	9/12/2022	4100	20
	3/13/2023	3400	18
GWM-15D	3/21/2016	2400	10
	9/23/2016	2300	5
	3/28/2017	2300	6
	9/21/2017	2000	2
	3/16/2018	2100	3
	9/19/2018	2100	4
	3/5/2019	2300	7
	10/3/2019	2300	8
	3/25/2020	2300	9
	9/28/2020	2400	11
	3/19/2021	2500	12
	9/15/2021	2600	13
	3/22/2022	2700	14
	9/14/2022	2800	15
	3/16/2023	2800	16

---

The Wilcoxon Statistic is 15

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is -2.93701

The Standard Deviation adjusted for ties is 15.4919

The Z Score adjusted for ties is -2.93701

-2.93701 < 2.326 indicating no statistical significance at 1% level

-2.93701 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Potassium, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	3400	2
	4/2/2020	8100	16
	9/30/2020	4400	10
	3/22/2021	1400 R	1
	9/8/2021	6300	15
	3/14/2022	4000	4
	9/12/2022	4100	6
	3/13/2023	3400	3
GWM-17D	11/14/2019	4200	8
	3/26/2020	5300	13
	9/29/2020	5000	12
	3/16/2021	4200	9
	9/14/2021	4000	5
	3/18/2022	4500	11
	9/13/2022	5400	14
	3/14/2023	4100	7

---

The Wilcoxon Statistic is 43

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 1.10272

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is 1.10272

1.10272 < 2.326 indicating no statistical significance at 1% level

1.10272 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Potassium, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	3400	8
	4/2/2020	8100	15
	9/30/2020	4400	12
	3/22/2021	1400 R	1
	9/8/2021	6300	14
	3/14/2022	4000	10
	9/12/2022	4100	11
	3/13/2023	3400	9
GWM-19D	11/14/2019	9100	16
	3/25/2020	5600	13
	9/29/2020	2700	5
	3/22/2021	2700	6
	9/15/2021	2800	7
	3/24/2022	2200	3
	9/15/2022	2300	4
	3/16/2023	2100	2

---

The Wilcoxon Statistic is 20

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -1.31276

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is -1.31276

-1.31276 < 2.326 indicating no statistical significance at 1% level

-1.31276 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Selenium, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 25

Non detect rank is 13

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	13
	4/2/2020	ND<5 U	13
	9/30/2020	ND<5 U	13
	3/22/2021	2.2 J	28
	9/8/2021	1.9 J	27
	3/14/2022	ND<5.6	13
	9/12/2022	ND<5.6	13
	3/13/2023	ND<5.6	13
SMW-13	9/23/2013	ND<5	13
	3/21/2014	ND<5 U	13
	9/8/2014	ND<5 U	13
	3/18/2015	ND<5 U	13
	9/8/2015	ND<5 U	13
	3/14/2016	ND<5 U	13
	9/26/2016	ND<5 U	13
	3/30/2017	ND<5 U	13
	9/20/2017	ND<5 U	13
	3/30/2018	ND<5 U	13
	9/21/2018	ND<5 U	13
	3/11/2019	ND<5 U	13
	10/3/2019	ND<5 U	13
	3/23/2020	ND<5 U	13
	9/25/2020	ND<5 U	13
	3/23/2021	ND<5 U	13
	9/16/2021	1.1 J	26
	3/23/2022	ND<5.6	13
	9/16/2022	ND<5.6	13
	3/17/2023	ND<5.6	13

---

The Wilcoxon Statistic is 63

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is -0.889958

The Standard Deviation adjusted for ties is 10.561

The Z Score adjusted for ties is -1.65704

-0.889958 < 2.326 indicating no statistical significance at 1% level

-1.65704 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Selenium, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 26

Non detect rank is 13.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	13.5
	4/2/2020	ND<5 U	13.5
	9/30/2020	ND<5 U	13.5
	3/22/2021	2.2 J	29
	9/8/2021	1.9 J	28
	3/14/2022	ND<5.6	13.5
	9/12/2022	ND<5.6	13.5
	3/13/2023	ND<5.6	13.5
SMW-32	9/23/2013	ND<5	13.5
	12/5/2013	ND<5	13.5
	3/19/2014	ND<5 U	13.5
	9/8/2014	ND<5 U	13.5
	3/18/2015	ND<5 U	13.5
	9/8/2015	ND<5 U	13.5
	3/14/2016	ND<5 U	13.5
	9/20/2016	ND<5 U	13.5
	3/24/2017	ND<5 U	13.5
	9/20/2017	ND<5 U	13.5
	3/27/2018	ND<5 U	13.5
	9/18/2018	ND<5 U	13.5
	3/11/2019	ND<5 U	13.5
	10/3/2019	ND<5 U	13.5
	3/23/2020	ND<5 U	13.5
	9/24/2020	ND<5 U	13.5
	3/23/2021	ND<5 U	13.5
	9/16/2021	1.4 J	27
3/24/2022	ND<5.6	13.5	
9/16/2022	ND<5.6	13.5	
3/17/2023	ND<5.6	13.5	

---

The Wilcoxon Statistic is 66

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is -0.902708

The Standard Deviation adjusted for ties is 10.8358

The Z Score adjusted for ties is -1.70731

-0.902708 < 2.326 indicating no statistical significance at 1% level

-1.70731 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Selenium, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 21

Non detect rank is 11

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	11
	4/2/2020	ND<5 U	11
	9/30/2020	ND<5 U	11
	3/22/2021	2.2 J	23
	9/8/2021	1.9 J	22
	3/14/2022	ND<5.6	11
	9/12/2022	ND<5.6	11
	3/13/2023	ND<5.6	11
GWM-15D	3/21/2016	ND<5 U	11
	9/23/2016	ND<5 U	11
	3/28/2017	ND<5 U	11
	9/21/2017	ND<5 U	11
	3/16/2018	ND<5 U	11
	9/19/2018	ND<5 U	11
	3/5/2019	ND<5 U	11
	10/3/2019	ND<5 U	11
	3/25/2020	ND<5 U	11
	9/28/2020	ND<5 U	11
	3/19/2021	ND<5 U	11
	9/15/2021	ND<5 U	11
	3/22/2022	ND<5.6	11
	9/14/2022	ND<5.6	11
	3/16/2023	ND<5.6	11

---

The Wilcoxon Statistic is 45

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is -1.00052

The Standard Deviation adjusted for ties is 7.5757

The Z Score adjusted for ties is -2.04601

-1.00052 < 2.326 indicating no statistical significance at 1% level

-2.04601 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Selenium, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 13

Non detect rank is 7

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	7
	4/2/2020	ND<5 U	7
	9/30/2020	ND<5 U	7
	3/22/2021	2.2 J	16
	9/8/2021	1.9 J	15
	3/14/2022	ND<5.6	7
	9/12/2022	ND<5.6	7
	3/13/2023	ND<5.6	7
GWM-17D	11/14/2019	ND<5 U	7
	3/26/2020	ND<5 U	7
	9/29/2020	ND<5 U	7
	3/16/2021	ND<5 U	7
	9/14/2021	0.85 J	14
	3/18/2022	ND<5.6	7
	9/13/2022	ND<5.6	7
	3/14/2023	ND<5.6	7

---

The Wilcoxon Statistic is 27

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -0.577616

The Standard Deviation adjusted for ties is 6.49102

The Z Score adjusted for ties is -0.847325

-0.577616 < 2.326 indicating no statistical significance at 1% level

-0.847325 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Selenium, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 12

Non detect rank is 6.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	6.5
	4/2/2020	ND<5 U	6.5
	9/30/2020	ND<5 U	6.5
	3/22/2021	2.2 J	16
	9/8/2021	1.9 J	14
	3/14/2022	ND<5.6	6.5
	9/12/2022	ND<5.6	6.5
	3/13/2023	ND<5.6	6.5
GWM-19D	11/14/2019	ND<5 U	6.5
	3/25/2020	ND<5 U	6.5
	9/29/2020	ND<5 U	6.5
	3/22/2021	2.1 J	15
	9/15/2021	1.5 J	13
	3/24/2022	ND<5.6	6.5
	9/15/2022	ND<5.6	6.5
	3/16/2023	ND<5.6	6.5

---

The Wilcoxon Statistic is 31

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -0.157532

The Standard Deviation adjusted for ties is 7.24799

The Z Score adjusted for ties is -0.206954

-0.157532 < 2.326 indicating no statistical significance at 1% level

-0.206954 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Silver, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 28

Non detect rank is 14.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	14.5
	4/2/2020	ND<5 U	14.5
	9/30/2020	ND<5 U	14.5
	3/22/2021	ND<5 U	14.5
	9/8/2021	ND<5 U	14.5
	3/14/2022	ND<2.2	14.5
	9/12/2022	ND<2.2	14.5
	3/13/2023	ND<2.2	14.5
SMW-13	9/23/2013	ND<5	14.5
	3/21/2014	ND<5 U	14.5
	9/8/2014	ND<5 U	14.5
	3/18/2015	ND<5 U	14.5
	9/8/2015	ND<5 U	14.5
	3/14/2016	ND<5 U	14.5
	9/26/2016	ND<5 U	14.5
	3/30/2017	ND<5 U	14.5
	9/20/2017	ND<5 U	14.5
	3/30/2018	ND<5 U	14.5
	9/21/2018	ND<5 U	14.5
	3/11/2019	ND<5 U	14.5
	10/3/2019	ND<5 U	14.5
	3/23/2020	ND<5 U	14.5
	9/25/2020	ND<5 U	14.5
	3/23/2021	ND<5 U	14.5
	9/16/2021	ND<5 U	14.5
	3/23/2022	ND<2.2	14.5
	9/16/2022	ND<2.2	14.5
	3/17/2023	ND<2.2	14.5

---

The Wilcoxon Statistic is 80

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is -0.0254274

The Standard Deviation adjusted for ties is 0

The Z Score adjusted for ties is -1.#INF

-0.0254274 < 2.326 indicating no statistical significance at 1% level

-1.#INF < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Silver, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 28

Non detect rank is 14.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	14.5
	4/2/2020	ND<5 U	14.5
	9/30/2020	ND<5 U	14.5
	3/22/2021	ND<5 U	14.5
	9/8/2021	ND<5 U	14.5
	3/14/2022	ND<2.2	14.5
	9/12/2022	ND<2.2	14.5
	3/13/2023	ND<2.2	14.5
SMW-32	9/23/2013	ND<5	14.5
	3/19/2014	ND<5 U	14.5
	9/8/2014	ND<5 U	14.5
	3/18/2015	ND<5 U	14.5
	9/8/2015	ND<5 U	14.5
	3/14/2016	ND<5 U	14.5
	9/20/2016	ND<5 U	14.5
	3/24/2017	ND<5 U	14.5
	9/20/2017	ND<5 U	14.5
	3/27/2018	ND<5 U	14.5
	9/18/2018	ND<5 U	14.5
	3/11/2019	ND<5 U	14.5
	10/3/2019	ND<5 U	14.5
	3/23/2020	ND<5 U	14.5
	9/24/2020	ND<5 U	14.5
	3/23/2021	ND<5 U	14.5
	9/16/2021	ND<5 U	14.5
	3/24/2022	ND<2.2	14.5
	9/16/2022	ND<2.2	14.5
	3/17/2023	ND<2.2	14.5

---

The Wilcoxon Statistic is 80

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is -0.0254274

The Standard Deviation adjusted for ties is 0

The Z Score adjusted for ties is -1.#INF

-0.0254274 < 2.326 indicating no statistical significance at 1% level

-1.#INF < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Silver, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 23

Non detect rank is 12

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	12
	4/2/2020	ND<5 U	12
	9/30/2020	ND<5 U	12
	3/22/2021	ND<5 U	12
	9/8/2021	ND<5 U	12
	3/14/2022	ND<2.2	12
	9/12/2022	ND<2.2	12
	3/13/2023	ND<2.2	12
GWM-15D	3/21/2016	ND<5 U	12
	9/23/2016	ND<5 U	12
	3/28/2017	ND<5 U	12
	9/21/2017	ND<5 U	12
	3/16/2018	ND<5 U	12
	9/19/2018	ND<5 U	12
	3/5/2019	ND<5 U	12
	10/3/2019	ND<5 U	12
	3/25/2020	ND<5 U	12
	9/28/2020	ND<5 U	12
	3/19/2021	ND<5 U	12
	9/15/2021	ND<5 U	12
	3/22/2022	ND<2.2	12
	9/14/2022	ND<2.2	12
	3/16/2023	ND<2.2	12

---

The Wilcoxon Statistic is 60

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is -0.0322749

The Standard Deviation adjusted for ties is 0

The Z Score adjusted for ties is -1.#INF

-0.0322749 < 2.326 indicating no statistical significance at 1% level

-1.#INF < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Silver, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 16

Non detect rank is 8.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	8.5
	4/2/2020	ND<5 U	8.5
	9/30/2020	ND<5 U	8.5
	3/22/2021	ND<5 U	8.5
	9/8/2021	ND<5 U	8.5
	3/14/2022	ND<2.2	8.5
	9/12/2022	ND<2.2	8.5
	3/13/2023	ND<2.2	8.5
GWM-17D	11/14/2019	ND<5 U	8.5
	3/26/2020	ND<5 U	8.5
	9/29/2020	ND<5 U	8.5
	3/16/2021	ND<5 U	8.5
	9/14/2021	ND<5 U	8.5
	3/18/2022	ND<2.2	8.5
	9/13/2022	ND<2.2	8.5
	3/14/2023	ND<2.2	8.5

---

The Wilcoxon Statistic is 32

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -0.0525105

The Standard Deviation adjusted for ties is 0

The Z Score adjusted for ties is -1.#INF

-0.0525105 < 2.326 indicating no statistical significance at 1% level

-1.#INF < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Silver, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 16

Non detect rank is 8.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	8.5
	4/2/2020	ND<5 U	8.5
	9/30/2020	ND<5 U	8.5
	3/22/2021	ND<5 U	8.5
	9/8/2021	ND<5 U	8.5
	3/14/2022	ND<2.2	8.5
	9/12/2022	ND<2.2	8.5
	3/13/2023	ND<2.2	8.5
GWM-19D	11/14/2019	ND<5 U	8.5
	3/25/2020	ND<5 U	8.5
	9/29/2020	ND<5 U	8.5
	3/22/2021	ND<5 U	8.5
	9/15/2021	ND<5 U	8.5
	3/24/2022	ND<2.2	8.5
	9/15/2022	ND<2.2	8.5
	3/16/2023	ND<2.2	8.5

---

The Wilcoxon Statistic is 32

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -0.0525105

The Standard Deviation adjusted for ties is 0

The Z Score adjusted for ties is -1.#INF

-0.0525105 < 2.326 indicating no statistical significance at 1% level

-1.#INF < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Sodium, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	30500	13
	4/2/2020	37200	25
	9/30/2020	32200	15
	3/22/2021	970 R	1
	9/8/2021	35000	22
	3/14/2022	34400	21
	9/12/2022	32600	17
	3/13/2023	32600	18
SMW-13	9/23/2013	20510	4
	3/21/2014	21000	5
	9/8/2014	22400	7
	3/18/2015	21200	6
	9/8/2015	23200	8
	3/14/2016	23700	9
	9/26/2016	25400	10
	3/30/2017	26000	11
	9/20/2017	28200	12
	3/30/2018	33000	19
	9/21/2018	31600	14
	3/11/2019	33500	20
	10/3/2019	32200	16
	3/23/2020	11800	3
	9/25/2020	35600	23
	3/23/2021	2100	2
	9/16/2021	36000	24
	3/23/2022	42700	27
	9/16/2022	41400	26
	3/17/2023	43200	28

---

The Wilcoxon Statistic is 64

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is -0.839104

The Standard Deviation adjusted for ties is 19.6638

The Z Score adjusted for ties is -0.839104

-0.839104 < 2.326 indicating no statistical significance at 1% level

-0.839104 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Sodium, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	30500	12
	4/2/2020	37200	22
	9/30/2020	32200	14
	3/22/2021	970 R	1
	9/8/2021	35000	19
	3/14/2022	34400	18
	9/12/2022	32600	15
	3/13/2023	32600	16
SMW-32	9/23/2013	21240	3
	12/5/2013	20400	2
	3/19/2014	23400	4
	9/8/2014	24000	5
	3/18/2015	24700	6
	9/8/2015	26900	7
	3/14/2016	28000	8
	9/20/2016	28600	10
	3/24/2017	28000	9
	9/20/2017	29700	11
	3/27/2018	32000	13
	9/18/2018	33500	17
	3/11/2019	36400	21
	10/3/2019	35300	20
	3/23/2020	38000	23
	9/24/2020	38100	24
	3/23/2021	43300	28
	9/16/2021	40000	26
	3/24/2022	45400	29
9/16/2022	39600	25	
3/17/2023	41700	27	

---

The Wilcoxon Statistic is 87

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is 0.121988

The Standard Deviation adjusted for ties is 20.4939

The Z Score adjusted for ties is 0.121988

0.121988 < 2.326 indicating no statistical significance at 1% level

0.121988 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Sodium, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	30500	9
	4/2/2020	37200	23
	9/30/2020	32200	13
	3/22/2021	970 R	1
	9/8/2021	35000	17
	3/14/2022	34400	16
	9/12/2022	32600	14
	3/13/2023	32600	15
GWM-15D	3/21/2016	28600	7
	9/23/2016	27400	6
	3/28/2017	26100	3
	9/21/2017	24900	2
	3/16/2018	26400	4
	9/19/2018	26800	5
	3/5/2019	30600	10
	10/3/2019	30400	8
	3/25/2020	30900	12
	9/28/2020	30700	11
	3/19/2021	35200	20
	9/15/2021	35000	18
	3/22/2022	35800	22
	9/14/2022	35600	21
	3/16/2023	35100	19

---

The Wilcoxon Statistic is 48

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is -0.806872

The Standard Deviation adjusted for ties is 15.4919

The Z Score adjusted for ties is -0.806872

-0.806872 < 2.326 indicating no statistical significance at 1% level

-0.806872 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Sodium, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	30500	2
	4/2/2020	37200	11
	9/30/2020	32200	3
	3/22/2021	970 R	1
	9/8/2021	35000	9
	3/14/2022	34400	7
	9/12/2022	32600	4
	3/13/2023	32600	5
GWM-17D	11/14/2019	34400	8
	3/26/2020	33900	6
	9/29/2020	35400	10
	3/16/2021	37600	12
	9/14/2021	38000	13
	3/18/2022	39100	14
	9/13/2022	42100	16
	3/14/2023	41400	15

---

The Wilcoxon Statistic is 58

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 2.67804

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is 2.67804

**2.67804 > 2.326 indicating statistical significance at 1% level**

**2.67804 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Sodium, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	30500	10
	4/2/2020	37200	16
	9/30/2020	32200	11
	3/22/2021	970 R	1
	9/8/2021	35000	15
	3/14/2022	34400	14
	9/12/2022	32600	12
	3/13/2023	32600	13
GWM-19D	11/14/2019	23900	9
	3/25/2020	18500	8
	9/29/2020	14100	3
	3/22/2021	15000	5
	9/15/2021	15000	6
	3/24/2022	15100	7
	9/15/2022	13900	2
	3/16/2023	14400	4

---

The Wilcoxon Statistic is 8

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -2.57301

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is -2.57301

-2.57301 < 2.326 indicating no statistical significance at 1% level

-2.57301 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Thallium, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 28

Non detect rank is 14.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	14.5
	4/2/2020	ND<5 U	14.5
	9/30/2020	ND<5 U	14.5
	3/22/2021	ND<5 U	14.5
	9/8/2021	ND<5 U	14.5
	3/14/2022	ND<1.1	14.5
	9/12/2022	ND<1.1	14.5
	3/13/2023	ND<1.1	14.5
SMW-13	9/23/2013	ND<5	14.5
	3/21/2014	ND<5 U	14.5
	9/8/2014	ND<5 U	14.5
	3/18/2015	ND<5 U	14.5
	9/8/2015	ND<5 U	14.5
	3/14/2016	ND<5 U	14.5
	9/26/2016	ND<5 U	14.5
	3/30/2017	ND<5 U	14.5
	9/20/2017	ND<5 U	14.5
	3/30/2018	ND<5 U	14.5
	9/21/2018	ND<5 U	14.5
	3/11/2019	ND<5 U	14.5
	10/3/2019	ND<5 U	14.5
	3/23/2020	ND<5 U	14.5
	9/25/2020	ND<5 U	14.5
	3/23/2021	ND<5 U	14.5
	9/16/2021	ND<5 U	14.5
	3/23/2022	ND<1.1	14.5
	9/16/2022	ND<1.1	14.5
	3/17/2023	ND<1.1	14.5

---

The Wilcoxon Statistic is 80

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is -0.0254274

The Standard Deviation adjusted for ties is 0

The Z Score adjusted for ties is -1.#INF

-0.0254274 < 2.326 indicating no statistical significance at 1% level

-1.#INF < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Thallium, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 29

Non detect rank is 15

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	15
	4/2/2020	ND<5 U	15
	9/30/2020	ND<5 U	15
	3/22/2021	ND<5 U	15
	9/8/2021	ND<5 U	15
	3/14/2022	ND<1.1	15
	9/12/2022	ND<1.1	15
	3/13/2023	ND<1.1	15
SMW-32	9/23/2013	ND<5	15
	12/5/2013	ND<5	15
	3/19/2014	ND<5 U	15
	9/8/2014	ND<5 U	15
	3/18/2015	ND<5 U	15
	9/8/2015	ND<5 U	15
	3/14/2016	ND<5 U	15
	9/20/2016	ND<5 U	15
	3/24/2017	ND<5 U	15
	9/20/2017	ND<5 U	15
	3/27/2018	ND<5 U	15
	9/18/2018	ND<5 U	15
	3/11/2019	ND<5 U	15
	10/3/2019	ND<5 U	15
	3/23/2020	ND<5 U	15
	9/24/2020	ND<5 U	15
	3/23/2021	ND<5 U	15
	9/16/2021	ND<5 U	15
	3/24/2022	ND<1.1	15
	9/16/2022	ND<1.1	15
3/17/2023	ND<1.1	15	

---

The Wilcoxon Statistic is 84

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is -0.0243975

The Standard Deviation adjusted for ties is 0

The Z Score adjusted for ties is -1.#INF

-0.0243975 < 2.326 indicating no statistical significance at 1% level

-1.#INF < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Thallium, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 23

Non detect rank is 12

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	12
	4/2/2020	ND<5 U	12
	9/30/2020	ND<5 U	12
	3/22/2021	ND<5 U	12
	9/8/2021	ND<5 U	12
	3/14/2022	ND<1.1	12
	9/12/2022	ND<1.1	12
	3/13/2023	ND<1.1	12
GWM-15D	3/21/2016	ND<5 U	12
	9/23/2016	ND<5 U	12
	3/28/2017	ND<5 U	12
	9/21/2017	ND<5 U	12
	3/16/2018	ND<5 U	12
	9/19/2018	ND<5 U	12
	3/5/2019	ND<5 U	12
	10/3/2019	ND<5 U	12
	3/25/2020	ND<5 U	12
	9/28/2020	ND<5 U	12
	3/19/2021	ND<5 U	12
	9/15/2021	ND<5 U	12
	3/22/2022	ND<1.1	12
	9/14/2022	ND<1.1	12
	3/16/2023	ND<1.1	12

---

The Wilcoxon Statistic is 60

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is -0.0322749

The Standard Deviation adjusted for ties is 0

The Z Score adjusted for ties is -1.#INF

-0.0322749 < 2.326 indicating no statistical significance at 1% level

-1.#INF < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Thallium, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 16

Non detect rank is 8.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	8.5
	4/2/2020	ND<5 U	8.5
	9/30/2020	ND<5 U	8.5
	3/22/2021	ND<5 U	8.5
	9/8/2021	ND<5 U	8.5
	3/14/2022	ND<1.1	8.5
	9/12/2022	ND<1.1	8.5
	3/13/2023	ND<1.1	8.5
GWM-17D	11/14/2019	ND<5 U	8.5
	3/26/2020	ND<5 U	8.5
	9/29/2020	ND<5 U	8.5
	3/16/2021	ND<5 U	8.5
	9/14/2021	ND<5 U	8.5
	3/18/2022	ND<1.1	8.5
	9/13/2022	ND<1.1	8.5
	3/14/2023	ND<1.1	8.5

---

The Wilcoxon Statistic is 32

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -0.0525105

The Standard Deviation adjusted for ties is 0

The Z Score adjusted for ties is -1.#INF

-0.0525105 < 2.326 indicating no statistical significance at 1% level

-1.#INF < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Thallium, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 16

Non detect rank is 8.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	8.5
	4/2/2020	ND<5 U	8.5
	9/30/2020	ND<5 U	8.5
	3/22/2021	ND<5 U	8.5
	9/8/2021	ND<5 U	8.5
	3/14/2022	ND<1.1	8.5
	9/12/2022	ND<1.1	8.5
	3/13/2023	ND<1.1	8.5
GWM-19D	11/14/2019	ND<5 U	8.5
	3/25/2020	ND<5 U	8.5
	9/29/2020	ND<5 U	8.5
	3/22/2021	ND<5 U	8.5
	9/15/2021	ND<5 U	8.5
	3/24/2022	ND<1.1	8.5
	9/15/2022	ND<1.1	8.5
	3/16/2023	ND<1.1	8.5

---

The Wilcoxon Statistic is 32

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -0.0525105

The Standard Deviation adjusted for ties is 0

The Z Score adjusted for ties is -1.#INF

-0.0525105 < 2.326 indicating no statistical significance at 1% level

-1.#INF < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Vanadium, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 27

Non detect rank is 14

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	14
	4/2/2020	ND<5 U	14
	9/30/2020	ND<5 U	14
	3/22/2021	ND<5 U	14
	9/8/2021	ND<5 U	14
	3/14/2022	ND<2.2	14
	9/12/2022	ND<2.2	14
	3/13/2023	ND<2.2	14
SMW-13	9/23/2013	ND<5	14
	3/21/2014	ND<5 U	14
	9/8/2014	ND<5 U	14
	3/18/2015	ND<5 U	14
	9/8/2015	ND<5 U	14
	3/14/2016	ND<5 U	14
	9/26/2016	ND<5 U	14
	3/30/2017	ND<5 U	14
	9/20/2017	ND<5 U	14
	3/30/2018	ND<5 U	14
	9/21/2018	ND<5 U	14
	3/11/2019	ND<5 U	14
	10/3/2019	ND<5 U	14
	3/23/2020	0.83 J	28
	9/25/2020	ND<5 U	14
	3/23/2021	ND<5 U	14
	9/16/2021	ND<5 U	14
	3/23/2022	ND<2.2	14
	9/16/2022	ND<2.2	14
	3/17/2023	ND<2.2	14

---

The Wilcoxon Statistic is 84

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is 0.177992

The Standard Deviation adjusted for ties is 6.32456

The Z Score adjusted for ties is 0.553399

0.177992 < 2.326 indicating no statistical significance at 1% level

0.553399 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Vanadium, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 29

Non detect rank is 15

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	15
	4/2/2020	ND<5 U	15
	9/30/2020	ND<5 U	15
	3/22/2021	ND<5 U	15
	9/8/2021	ND<5 U	15
	3/14/2022	ND<2.2	15
	9/12/2022	ND<2.2	15
	3/13/2023	ND<2.2	15
SMW-32	9/23/2013	ND<5	15
	12/5/2013	ND<5	15
	3/19/2014	ND<5 U	15
	9/8/2014	ND<5 U	15
	3/18/2015	ND<5 U	15
	9/8/2015	ND<5 U	15
	3/14/2016	ND<5 U	15
	9/20/2016	ND<5 U	15
	3/24/2017	ND<5 U	15
	9/20/2017	ND<5 U	15
	3/27/2018	ND<5 U	15
	9/18/2018	ND<5 U	15
	3/11/2019	ND<5 U	15
	10/3/2019	ND<5 U	15
	3/23/2020	ND<5 U	15
	9/24/2020	ND<5 U	15
	3/23/2021	ND<5 U	15
	9/16/2021	ND<5 U	15
	3/24/2022	ND<2.2	15
	9/16/2022	ND<2.2	15
3/17/2023	ND<2.2	15	

---

The Wilcoxon Statistic is 84

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is -0.0243975

The Standard Deviation adjusted for ties is 0

The Z Score adjusted for ties is -1.#INF

-0.0243975 < 2.326 indicating no statistical significance at 1% level

-1.#INF < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Vanadium, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 21

Non detect rank is 11

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	11
	4/2/2020	ND<5 U	11
	9/30/2020	ND<5 U	11
	3/22/2021	ND<5 U	11
	9/8/2021	ND<5 U	11
	3/14/2022	ND<2.2	11
	9/12/2022	ND<2.2	11
	3/13/2023	ND<2.2	11
GWM-15D	3/21/2016	1.5 J	23
	9/23/2016	ND<5 U	11
	3/28/2017	ND<5 U	11
	9/21/2017	ND<5 U	11
	3/16/2018	ND<5 U	11
	9/19/2018	ND<5 U	11
	3/5/2019	ND<5 U	11
	10/3/2019	ND<5 U	11
	3/25/2020	ND<5 U	11
	9/28/2020	ND<5 U	11
	3/19/2021	ND<5 U	11
	9/15/2021	1.1 J	22
	3/22/2022	ND<2.2	11
	9/14/2022	ND<2.2	11
	3/16/2023	ND<2.2	11

---

The Wilcoxon Statistic is 68

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is 0.484123

The Standard Deviation adjusted for ties is 7.5757

The Z Score adjusted for ties is 0.990007

0.484123 < 2.326 indicating no statistical significance at 1% level

0.990007 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Vanadium, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 9

Non detect rank is 5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	5
	4/2/2020	ND<5 U	5
	9/30/2020	ND<5 U	5
	3/22/2021	ND<5 U	5
	9/8/2021	ND<5 U	5
	3/14/2022	ND<2.2	5
	9/12/2022	ND<2.2	5
	3/13/2023	ND<2.2	5
GWM-17D	11/14/2019	1.2 J	13
	3/26/2020	ND<5 U	5
	9/29/2020	1.3 J	14
	3/16/2021	1.1 J	10
	9/14/2021	1.5 J	16
	3/18/2022	1.1 J	11
	9/13/2022	1.1 J	12
	3/14/2023	1.3 J	15

---

The Wilcoxon Statistic is 60

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 2.88808

The Standard Deviation adjusted for ties is 8.64099

The Z Score adjusted for ties is 3.18251

**2.88808 > 2.326 indicating statistical significance at 1% level**

**3.18251 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Vanadium, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 15

Non detect rank is 8

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	8
	4/2/2020	ND<5 U	8
	9/30/2020	ND<5 U	8
	3/22/2021	ND<5 U	8
	9/8/2021	ND<5 U	8
	3/14/2022	ND<2.2	8
	9/12/2022	ND<2.2	8
	3/13/2023	ND<2.2	8
GWM-19D	11/14/2019	1.7 J	16
	3/25/2020	ND<5 U	8
	9/29/2020	ND<5 U	8
	3/22/2021	ND<5 U	8
	9/15/2021	ND<5 U	8
	3/24/2022	ND<2.2	8
	9/15/2022	ND<2.2	8
	3/16/2023	ND<2.2	8

---

The Wilcoxon Statistic is 36

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 0.367574

The Standard Deviation adjusted for ties is 4

The Z Score adjusted for ties is 0.875

0.367574 < 2.326 indicating no statistical significance at 1% level

0.875 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Zinc, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	31	3
	4/2/2020	40	9
	9/30/2020	46	10
	3/22/2021	28 R	2
	9/8/2021	36	7
	3/14/2022	38	8
	9/12/2022	34	5
	3/13/2023	32	4
SMW-13	9/23/2013	90	13
	3/21/2014	110	15
	9/8/2014	140	16
	3/18/2015	87	12
	9/8/2015	2800	28
	3/14/2016	250	24
	9/26/2016	75	11
	3/30/2017	180	21
	9/20/2017	150	19
	3/30/2018	95	14
	9/21/2018	140	17
	3/11/2019	300	25
	10/3/2019	220	22
	3/23/2020	2.5 J	1
	9/25/2020	650	27
	3/23/2021	34	6
	9/16/2021	150	20
	3/23/2022	350	26
	9/16/2022	230	23
	3/17/2023	140	18

---

The Wilcoxon Statistic is 148

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is 3.4327

The Standard Deviation adjusted for ties is 19.6638

The Z Score adjusted for ties is 3.4327

**3.4327 > 2.326 indicating statistical significance at 1% level**

**3.4327 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Zinc, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	31	2
	4/2/2020	40	7
	9/30/2020	46	8
	3/22/2021	28 R	1
	9/8/2021	36	5
	3/14/2022	38	6
	9/12/2022	34	4
	3/13/2023	32	3
SMW-32	9/23/2013	630	29
	12/5/2013	620	28
	3/19/2014	390	22
	9/8/2014	270	12
	3/18/2015	320	18
	9/8/2015	550	27
	3/14/2016	450	24
	9/20/2016	480	25
	3/24/2017	380	21
	9/20/2017	310	16
	3/27/2018	420	23
	9/18/2018	310	17
	3/11/2019	500	26
	10/3/2019	300	15
	3/23/2020	230	10
	9/24/2020	360	20
	3/23/2021	290	14
	9/16/2021	280	13
	3/24/2022	260	11
	9/16/2022	320	19
3/17/2023	140	9	

---

The Wilcoxon Statistic is 168

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is 4.07438

The Standard Deviation adjusted for ties is 20.4939

The Z Score adjusted for ties is 4.07438

**4.07438 > 2.326 indicating statistical significance at 1% level**

**4.07438 > 2.326 indicating statistical significance at 1% level when adjusted for ties**

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Zinc, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	31	17
	4/2/2020	40	22
	9/30/2020	46	23
	3/22/2021	28 R	16
	9/8/2021	36	20
	3/14/2022	38	21
	9/12/2022	34	19
	3/13/2023	32	18
GWM-15D	3/21/2016	23	15
	9/23/2016	11	12
	3/28/2017	10	10
	9/21/2017	9.2	4
	3/16/2018	9.3	6
	9/19/2018	9.6	7
	3/5/2019	9	3
	10/3/2019	9.6	8
	3/25/2020	8.8	2
	9/28/2020	15	14
	3/19/2021	10	11
	9/15/2021	11	13
	3/22/2022	9.9	9
	9/14/2022	8.3	1
	3/16/2023	9.2	5

---

The Wilcoxon Statistic is 0

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is -3.90526

The Standard Deviation adjusted for ties is 15.4919

The Z Score adjusted for ties is -3.90526

-3.90526 < 2.326 indicating no statistical significance at 1% level

-3.90526 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Zinc, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	31	4
	4/2/2020	40	15
	9/30/2020	46	16
	3/22/2021	28 R	1
	9/8/2021	36	10
	3/14/2022	38	14
	9/12/2022	34	8
	3/13/2023	32	6
GWM-17D	11/14/2019	31	5
	3/26/2020	28	2
	9/29/2020	36	11
	3/16/2021	36	12
	9/14/2021	36	13
	3/18/2022	35	9
	9/13/2022	28	3
	3/14/2023	32	7

---

The Wilcoxon Statistic is 26

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -0.682637

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is -0.682637

-0.682637 < 2.326 indicating no statistical significance at 1% level

-0.682637 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Zinc, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 0

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	31	4
	4/2/2020	40	14
	9/30/2020	46	16
	3/22/2021	28 R	2
	9/8/2021	36	12
	3/14/2022	38	13
	9/12/2022	34	9
	3/13/2023	32	6
GWM-19D	11/14/2019	44	15
	3/25/2020	28	3
	9/29/2020	26	1
	3/22/2021	32	7
	9/15/2021	34	10
	3/24/2022	34	11
	9/15/2022	31	5
	3/16/2023	32	8

---

The Wilcoxon Statistic is 24

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -0.892679

The Standard Deviation adjusted for ties is 9.5219

The Z Score adjusted for ties is -0.892679

-0.892679 < 2.326 indicating no statistical significance at 1% level

-0.892679 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Arsenic, Total

Location: SMW-13

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 27

Non detect rank is 14

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	14
	4/2/2020	ND<5 U	14
	9/30/2020	ND<5 U	14
	3/22/2021	ND<5 U	14
	9/8/2021	ND<5 U	14
	3/14/2022	ND<3.3	14
	9/12/2022	ND<3.3	14
	3/13/2023	ND<3.3	14
SMW-13	9/23/2013	ND<5	14
	3/21/2014	ND<5 U	14
	9/8/2014	ND<5 U	14
	3/18/2015	ND<5 U	14
	9/8/2015	ND<5 U	14
	3/14/2016	ND<5 U	14
	9/26/2016	ND<5 U	14
	3/30/2017	ND<5 U	14
	9/20/2017	ND<5 U	14
	3/30/2018	ND<5 U	14
	9/21/2018	ND<5 U	14
	3/11/2019	ND<5 U	14
	10/3/2019	ND<5 U	14
	3/23/2020	ND<5 U	14
	9/25/2020	ND<5 U	14
	3/23/2021	ND<5 U	14
	9/16/2021	0.22 J	28
	3/23/2022	ND<3.3	14
	9/16/2022	ND<3.3	14
	3/17/2023	ND<3.3	14

---

The Wilcoxon Statistic is 84

The Expected value is 80

The Standard Deviation is 19.6638

The Z Score is 0.177992

The Standard Deviation adjusted for ties is 6.32456

The Z Score adjusted for ties is 0.553399

0.177992 < 2.326 indicating no statistical significance at 1% level

0.553399 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Arsenic, Total

Location: SMW-32

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 28

Non detect rank is 14.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	14.5
	4/2/2020	ND<5 U	14.5
	9/30/2020	ND<5 U	14.5
	3/22/2021	ND<5 U	14.5
	9/8/2021	ND<5 U	14.5
	3/14/2022	ND<3.3	14.5
	9/12/2022	ND<3.3	14.5
	3/13/2023	ND<3.3	14.5
SMW-32	9/23/2013	ND<5	14.5
	12/5/2013	ND<5	14.5
	3/19/2014	ND<5 U	14.5
	9/8/2014	ND<5 U	14.5
	3/18/2015	ND<5 U	14.5
	9/8/2015	ND<5 U	14.5
	3/14/2016	ND<5 U	14.5
	9/20/2016	ND<5 U	14.5
	3/24/2017	ND<5 U	14.5
	9/20/2017	ND<5 U	14.5
	3/27/2018	ND<5 U	14.5
	9/18/2018	ND<5 U	14.5
	3/11/2019	ND<5 U	14.5
	10/3/2019	ND<5 U	14.5
	3/23/2020	ND<5 U	14.5
	9/24/2020	ND<5 U	14.5
	3/23/2021	ND<5 U	14.5
	9/16/2021	0.33 J	29
	3/24/2022	ND<3.3	14.5
	9/16/2022	ND<3.3	14.5
3/17/2023	ND<3.3	14.5	

---

The Wilcoxon Statistic is 88

The Expected value is 84

The Standard Deviation is 20.4939

The Z Score is 0.170783

The Standard Deviation adjusted for ties is 6.48074

The Z Score adjusted for ties is 0.540062

0.170783 < 2.326 indicating no statistical significance at 1% level

0.540062 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Arsenic, Total

Location: GWM-15D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 22

Non detect rank is 11.5

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	11.5
	4/2/2020	ND<5 U	11.5
	9/30/2020	ND<5 U	11.5
	3/22/2021	ND<5 U	11.5
	9/8/2021	ND<5 U	11.5
	3/14/2022	ND<3.3	11.5
	9/12/2022	ND<3.3	11.5
	3/13/2023	ND<3.3	11.5
GWM-15D	3/21/2016	ND<5 U	11.5
	9/23/2016	ND<5 U	11.5
	3/28/2017	ND<5 U	11.5
	9/21/2017	ND<5 U	11.5
	3/16/2018	ND<5 U	11.5
	9/19/2018	ND<5 U	11.5
	3/5/2019	ND<5 U	11.5
	10/3/2019	ND<5 U	11.5
	3/25/2020	ND<5 U	11.5
	9/28/2020	ND<5 U	11.5
	3/19/2021	ND<5 U	11.5
	9/15/2021	0.31 J	23
	3/22/2022	ND<3.3	11.5
	9/14/2022	ND<3.3	11.5
	3/16/2023	ND<3.3	11.5

---

The Wilcoxon Statistic is 64

The Expected value is 60

The Standard Deviation is 15.4919

The Z Score is 0.225924

The Standard Deviation adjusted for ties is 5.47723

The Z Score adjusted for ties is 0.63901

0.225924 < 2.326 indicating no statistical significance at 1% level

0.63901 < 2.326 indicating no statistical significance at 1% level when adjusted for ties



## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Arsenic, Total

Location: GWM-17D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 15

Non detect rank is 8

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	8
	4/2/2020	ND<5 U	8
	9/30/2020	ND<5 U	8
	3/22/2021	ND<5 U	8
	9/8/2021	ND<5 U	8
	3/14/2022	ND<3.3	8
	9/12/2022	ND<3.3	8
	3/13/2023	ND<3.3	8
GWM-17D	11/14/2019	ND<5 U	8
	3/26/2020	ND<5 U	8
	9/29/2020	ND<5 U	8
	3/16/2021	ND<5 U	8
	9/14/2021	0.34 J	16
	3/18/2022	ND<3.3	8
	9/13/2022	ND<3.3	8
	3/14/2023	ND<3.3	8

---

The Wilcoxon Statistic is 36

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 0.367574

The Standard Deviation adjusted for ties is 4

The Z Score adjusted for ties is 0.875

0.367574 < 2.326 indicating no statistical significance at 1% level

0.875 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

## Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Arsenic, Total

Location: GWM-19D

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 15

Non detect rank is 8

---

### Wilcoxon Ranks

Location	Date	Conc.	Rank
GWM-16D	11/15/2019	ND<5 U	8
	4/2/2020	ND<5 U	8
	9/30/2020	ND<5 U	8
	3/22/2021	ND<5 U	8
	9/8/2021	ND<5 U	8
	3/14/2022	ND<3.3	8
	9/12/2022	ND<3.3	8
	3/13/2023	ND<3.3	8
GWM-19D	11/14/2019	ND<5 U	8
	3/25/2020	ND<5 U	8
	9/29/2020	ND<5 U	8
	3/22/2021	ND<5 U	8
	9/15/2021	0.25 J	16
	3/24/2022	ND<3.3	8
	9/15/2022	ND<3.3	8
	3/16/2023	ND<3.3	8

---

The Wilcoxon Statistic is 36

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 0.367574

The Standard Deviation adjusted for ties is 4

The Z Score adjusted for ties is 0.875

0.367574 < 2.326 indicating no statistical significance at 1% level

0.875 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

# 12) Patuxent Aquifer Metals Intra-well Statistics

APPENDIX F

## Shapiro-Francia Test of Normality

Parameter: Antimony, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 120

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.97737	14.3114	0
4	0	-1.83843	17.6912	0
5	0	-1.7392	20.716	0
6	0	-1.65463	23.4538	0
7	0	-1.58047	25.9517	0
8	0	-1.50626	28.2205	0
9	0	-1.44663	30.3132	0
10	0	-1.39175	32.2502	0
11	0	-1.34075	34.0478	0
12	0	-1.28727	35.7049	0
13	0	-1.24264	37.249	0
14	0	-1.20036	38.6899	0
15	0	-1.16012	40.0358	0
16	0	-1.11699	41.2834	0
17	0	-1.08032	42.4505	0
18	0	-1.04505	43.5427	0
19	0	-1.00687	44.5564	0
20	0	-0.974114	45.5053	0
21	0	-0.942375	46.3934	0
22	0	-0.911562	47.2243	0
23	0	-0.877897	47.9951	0
24	0	-0.848786	48.7155	0
25	0	-0.820379	49.3885	0
26	0	-0.792618	50.0168	0
27	0	-0.7621	50.5975	0
28	0	-0.735557	51.1386	0
29	0	-0.709522	51.642	0
30	0	-0.68396	52.1098	0
31	0	-0.655726	52.5398	0
32	0	-0.631062	52.938	0
33	0	-0.606775	53.3062	0
34	0	-0.582841	53.6459	0
35	0	-0.556308	53.9554	0
36	0	-0.533048	54.2395	0
37	0	-0.510074	54.4997	0
38	0	-0.484544	54.7345	0
39	0	-0.462114	54.948	0
40	0	-0.439913	55.1416	0
41	0	-0.417928	55.3162	0
42	0	-0.393433	55.471	0
43	0	-0.371856	55.6093	0
44	0	-0.350451	55.7321	0
45	0	-0.329206	55.8405	0
46	0	-0.305481	55.9338	0
47	0	-0.284535	56.0148	0

48	0	-0.263715	56.0843	0
49	0	-0.243007	56.1434	0
50	0	-0.219834	56.1917	0
51	0	-0.199336	56.2314	0
52	0	-0.17892	56.2634	0
53	0	-0.156042	56.2878	0
54	0	-0.135774	56.3062	0
55	0	-0.115562	56.3196	0
56	0	-0.0953969	56.3287	0
57	0	-0.0727562	56.334	0
58	0	-0.0526632	56.3367	0
59	0	-0.0325917	56.3378	0
60	0	-0.0125328	56.338	0
61	0	0.0125328	56.3381	0
62	0	0.0325917	56.3392	0
63	0	0.0526632	56.342	0
64	0	0.0727562	56.3472	0
65	0	0.0953969	56.3563	0
66	0	0.115562	56.3697	0
67	0	0.135774	56.3881	0
68	0	0.156042	56.4125	0
69	0	0.17892	56.4445	0
70	0	0.199336	56.4842	0
71	0	0.219834	56.5326	0
72	0	0.243007	56.5916	0
73	0	0.263715	56.6612	0
74	0	0.284535	56.7421	0
75	0	0.305481	56.8354	0
76	0	0.329206	56.9438	0
77	0	0.350451	57.0666	0
78	0	0.371856	57.2049	0
79	0	0.393433	57.3597	0
80	0	0.417928	57.5344	0
81	0	0.439913	57.7279	0
82	0	0.462114	57.9414	0
83	0	0.484544	58.1762	0
84	0	0.510074	58.4364	0
85	0	0.533048	58.7205	0
86	0	0.556308	59.03	0
87	0	0.582841	59.3697	0
88	0	0.606775	59.7379	0
89	0	0.631062	60.1361	0
90	0	0.655726	60.5661	0
91	0	0.68396	61.0339	0
92	0	0.709522	61.5373	0
93	0	0.735557	62.0784	0
94	0	0.7621	62.6592	0
95	0	0.792618	63.2874	0
96	0	0.820379	63.9604	0
97	0	0.848786	64.6809	0
98	0	0.877897	65.4516	0
99	0	0.911562	66.2825	0
100	0	0.942375	67.1706	0
101	0	0.974114	68.1195	0
102	0	1.00687	69.1333	0
103	0	1.04505	70.2254	0
104	0	1.08032	71.3925	0

105	0	1.11699	72.6401	0
106	0	1.16012	73.986	0
107	0	1.20036	75.4269	0
108	0	1.24264	76.9711	0
109	0	1.28727	78.6281	0
110	0	1.34075	80.4257	0
111	0	1.39175	82.3627	0
112	0	1.44663	84.4554	0
113	0	1.50626	86.7243	0
114	0	1.58047	89.2221	0
115	0	1.65463	91.9599	0
116	0	1.7392	94.9847	0
117	1.2	1.83843	98.3645	2.20611
118	1.2	1.97737	102.275	4.57895
119	1.3	2.14441	106.873	7.36668
120	1.3	2.40892	112.676	10.4983

---

Data Set Standard Deviation = 0.225509  
 Numerator = 110.214  
 Denominator = 681.877  
 W Statistic = 0.161633 = 110.214 / 681.877

**5% Critical value of 0.976 exceeds 0.161633**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.161633**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Antimony, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 94.7368%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 1.3

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/18/2015	ND<0 U
	9/8/2015	1.3 J
	3/14/2016	ND<0 U
	9/26/2016	ND<0 U
	3/30/2017	ND<0 U
	9/20/2017	ND<0 U
	3/30/2018	ND<0 U
	9/21/2018	ND<0 U
	3/11/2019	ND<0 U
	10/3/2019	ND<0 U
	3/23/2020	ND<0 U
	9/25/2020	ND<0 U
	3/23/2021	ND<0 U
	9/16/2021	ND<0 U
	3/23/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Antimony, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 95%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 1.2

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	ND<0 U
	9/8/2014	ND<0 U
	3/18/2015	ND<0 U
	9/8/2015	ND<0 U
	3/14/2016	1.2 J
	9/20/2016	ND<0 U
	3/24/2017	ND<0 U
	9/20/2017	ND<0 U
	3/27/2018	ND<0 U
	9/18/2018	ND<0 U
	3/11/2019	ND<0 U
	10/3/2019	ND<0 U
	3/23/2020	ND<0 U
	9/24/2020	ND<0 U
	3/23/2021	ND<0 U
	9/16/2021	ND<0 U
	3/24/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Antimony, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 0

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/28/2017	ND<0 U
	9/21/2017	ND<0 U
	3/16/2018	ND<0 U
	9/19/2018	ND<0 U
	3/5/2019	ND<0 U
	10/3/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Antimony, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	ND<0 U
	9/29/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Antimony, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 85.7143%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 1.2

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/25/2020	ND<0 U
	9/29/2020	ND<0 U
	3/22/2021	1.2 J
	9/15/2021	ND<0 U
	3/24/2022	ND<0
	9/15/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Shapiro-Francia Test of Normality

Parameter: Arsenic, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 120

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.97737	14.3114	0
4	0	-1.83843	17.6912	0
5	0	-1.7392	20.716	0
6	0	-1.65463	23.4538	0
7	0	-1.58047	25.9517	0
8	0	-1.50626	28.2205	0
9	0	-1.44663	30.3132	0
10	0	-1.39175	32.2502	0
11	0	-1.34075	34.0478	0
12	0	-1.28727	35.7049	0
13	0	-1.24264	37.249	0
14	0	-1.20036	38.6899	0
15	0	-1.16012	40.0358	0
16	0	-1.11699	41.2834	0
17	0	-1.08032	42.4505	0
18	0	-1.04505	43.5427	0
19	0	-1.00687	44.5564	0
20	0	-0.974114	45.5053	0
21	0	-0.942375	46.3934	0
22	0	-0.911562	47.2243	0
23	0	-0.877897	47.9951	0
24	0	-0.848786	48.7155	0
25	0	-0.820379	49.3885	0
26	0	-0.792618	50.0168	0
27	0	-0.7621	50.5975	0
28	0	-0.735557	51.1386	0
29	0	-0.709522	51.642	0
30	0	-0.68396	52.1098	0
31	0	-0.655726	52.5398	0
32	0	-0.631062	52.938	0
33	0	-0.606775	53.3062	0
34	0	-0.582841	53.6459	0
35	0	-0.556308	53.9554	0
36	0	-0.533048	54.2395	0
37	0	-0.510074	54.4997	0
38	0	-0.484544	54.7345	0
39	0	-0.462114	54.948	0
40	0	-0.439913	55.1416	0
41	0	-0.417928	55.3162	0
42	0	-0.393433	55.471	0
43	0	-0.371856	55.6093	0
44	0	-0.350451	55.7321	0
45	0	-0.329206	55.8405	0
46	0	-0.305481	55.9338	0
47	0	-0.284535	56.0148	0

48	0	-0.263715	56.0843	0
49	0	-0.243007	56.1434	0
50	0	-0.219834	56.1917	0
51	0	-0.199336	56.2314	0
52	0	-0.17892	56.2634	0
53	0	-0.156042	56.2878	0
54	0	-0.135774	56.3062	0
55	0	-0.115562	56.3196	0
56	0	-0.0953969	56.3287	0
57	0	-0.0727562	56.334	0
58	0	-0.0526632	56.3367	0
59	0	-0.0325917	56.3378	0
60	0	-0.0125328	56.338	0
61	0	0.0125328	56.3381	0
62	0	0.0325917	56.3392	0
63	0	0.0526632	56.342	0
64	0	0.0727562	56.3472	0
65	0	0.0953969	56.3563	0
66	0	0.115562	56.3697	0
67	0	0.135774	56.3881	0
68	0	0.156042	56.4125	0
69	0	0.17892	56.4445	0
70	0	0.199336	56.4842	0
71	0	0.219834	56.5326	0
72	0	0.243007	56.5916	0
73	0	0.263715	56.6612	0
74	0	0.284535	56.7421	0
75	0	0.305481	56.8354	0
76	0	0.329206	56.9438	0
77	0	0.350451	57.0666	0
78	0	0.371856	57.2049	0
79	0	0.393433	57.3597	0
80	0	0.417928	57.5344	0
81	0	0.439913	57.7279	0
82	0	0.462114	57.9414	0
83	0	0.484544	58.1762	0
84	0	0.510074	58.4364	0
85	0	0.533048	58.7205	0
86	0	0.556308	59.03	0
87	0	0.582841	59.3697	0
88	0	0.606775	59.7379	0
89	0	0.631062	60.1361	0
90	0	0.655726	60.5661	0
91	0	0.68396	61.0339	0
92	0	0.709522	61.5373	0
93	0	0.735557	62.0784	0
94	0	0.7621	62.6592	0
95	0	0.792618	63.2874	0
96	0	0.820379	63.9604	0
97	0	0.848786	64.6809	0
98	0	0.877897	65.4516	0
99	0	0.911562	66.2825	0
100	0	0.942375	67.1706	0
101	0	0.974114	68.1195	0
102	0	1.00687	69.1333	0
103	0	1.04505	70.2254	0
104	0	1.08032	71.3925	0

105	0	1.11699	72.6401	0
106	0	1.16012	73.986	0
107	0	1.20036	75.4269	0
108	0	1.24264	76.9711	0
109	0	1.28727	78.6281	0
110	0	1.34075	80.4257	0
111	0	1.39175	82.3627	0
112	0	1.44663	84.4554	0
113	0.22	1.50626	86.7243	0.331377
114	0.25	1.58047	89.2221	0.726493
115	0.31	1.65463	91.9599	1.23943
116	0.33	1.7392	94.9847	1.81336
117	0.34	1.83843	98.3645	2.43843
118	1.6	1.97737	102.275	5.60222
119	1.9	2.14441	106.873	9.67659
120	3.2	2.40892	112.676	17.3851

---

Data Set Standard Deviation = 0.369965  
 Numerator = 302.243  
 Denominator = 1835.26  
 W Statistic = 0.164687 = 302.243 / 1835.26

**5% Critical value of 0.976 exceeds 0.164687**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.164687**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Arsenic, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 94.7368%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0.22

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/18/2015	ND<0 U
	9/8/2015	ND<0 U
	3/14/2016	ND<0 U
	9/26/2016	ND<0 U
	3/30/2017	ND<0 U
	9/20/2017	ND<0 U
	3/30/2018	ND<0 U
	9/21/2018	ND<0 U
	3/11/2019	ND<0 U
	10/3/2019	ND<0 U
	3/23/2020	ND<0 U
	9/25/2020	ND<0 U
	3/23/2021	ND<0 U
	9/16/2021	0.22 J
	3/23/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Arsenic, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 95%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 0.33

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	ND<0 U
	9/8/2014	ND<0 U
	3/18/2015	ND<0 U
	9/8/2015	ND<0 U
	3/14/2016	ND<0 U
	9/20/2016	ND<0 U
	3/24/2017	ND<0 U
	9/20/2017	ND<0 U
	3/27/2018	ND<0 U
	9/18/2018	ND<0 U
	3/11/2019	ND<0 U
	10/3/2019	ND<0 U
	3/23/2020	ND<0 U
	9/24/2020	ND<0 U
	3/23/2021	ND<0 U
	9/16/2021	0.33 J
	3/24/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Arsenic, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 92.8571%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 0.31

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/28/2017	ND<0 U
	9/21/2017	ND<0 U
	3/16/2018	ND<0 U
	9/19/2018	ND<0 U
	3/5/2019	ND<0 U
	10/3/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	0.31 J
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Arsenic, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 85.7143%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0.34

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	ND<0 U
	9/29/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	0.34 J
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Arsenic, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 85.7143%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0.25

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/25/2020	ND<0 U
	9/29/2020	ND<0 U
	3/22/2021	ND<0 U
	9/15/2021	0.25 J
	3/24/2022	ND<0
	9/15/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

# Shapiro-Francia Test of Normality

Parameter: Barium, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 120

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.40892	5.80292	0
2	14	-2.14441	10.4014	-30.0217
3	20	-1.97737	14.3114	-69.5691
4	42	-1.83843	17.6912	-146.783
5	46	-1.7392	20.716	-226.786
6	49	-1.65463	23.4538	-307.863
7	49	-1.58047	25.9517	-385.306
8	51	-1.50626	28.2205	-462.125
9	54	-1.44663	30.3132	-540.243
10	54	-1.39175	32.2502	-615.397
11	56	-1.34075	34.0478	-690.479
12	57	-1.28727	35.7049	-763.854
13	59	-1.24264	37.249	-837.17
14	59	-1.20036	38.6899	-907.991
15	60	-1.16012	40.0358	-977.598
16	60	-1.11699	41.2834	-1044.62
17	60	-1.08032	42.4505	-1109.44
18	61	-1.04505	43.5427	-1173.18
19	67	-1.00687	44.5564	-1240.64
20	68	-0.974114	45.5053	-1306.88
21	69	-0.942375	46.3934	-1371.91
22	71	-0.911562	47.2243	-1436.63
23	75	-0.877897	47.9951	-1502.47
24	76	-0.848786	48.7155	-1566.98
25	80	-0.820379	49.3885	-1632.61
26	80	-0.792618	50.0168	-1696.02
27	81	-0.7621	50.5975	-1757.75
28	82	-0.735557	51.1386	-1818.06
29	83	-0.709522	51.642	-1876.96
30	84	-0.68396	52.1098	-1934.41
31	86	-0.655726	52.5398	-1990.8
32	86	-0.631062	52.938	-2045.07
33	87	-0.606775	53.3062	-2097.86
34	88	-0.582841	53.6459	-2149.15
35	88	-0.556308	53.9554	-2198.11
36	89	-0.533048	54.2395	-2245.55
37	90	-0.510074	54.4997	-2291.45
38	90	-0.484544	54.7345	-2335.06
39	91	-0.462114	54.948	-2377.12
40	91	-0.439913	55.1416	-2417.15
41	91	-0.417928	55.3162	-2455.18
42	91	-0.393433	55.471	-2490.98
43	92	-0.371856	55.6093	-2525.19
44	92	-0.350451	55.7321	-2557.43
45	92	-0.329206	55.8405	-2587.72
46	93	-0.305481	55.9338	-2616.13
47	93	-0.284535	56.0148	-2642.59

48	94	-0.263715	56.0843	-2667.38
49	95	-0.243007	56.1434	-2690.47
50	95	-0.219834	56.1917	-2711.35
51	95	-0.199336	56.2314	-2730.29
52	96	-0.17892	56.2634	-2747.46
53	96	-0.156042	56.2878	-2762.44
54	97	-0.135774	56.3062	-2775.61
55	98	-0.115562	56.3196	-2786.94
56	99	-0.0953969	56.3287	-2796.38
57	99	-0.0727562	56.334	-2803.59
58	99	-0.0526632	56.3367	-2808.8
59	100	-0.0325917	56.3378	-2812.06
60	100	-0.0125328	56.338	-2813.31
61	100	0.0125328	56.3381	-2812.06
62	100	0.0325917	56.3392	-2808.8
63	100	0.0526632	56.342	-2803.53
64	100	0.0727562	56.3472	-2796.26
65	100	0.0953969	56.3563	-2786.72
66	100	0.115562	56.3697	-2775.16
67	110	0.135774	56.3881	-2760.23
68	110	0.156042	56.4125	-2743.06
69	110	0.17892	56.4445	-2723.38
70	110	0.199336	56.4842	-2701.45
71	110	0.219834	56.5326	-2677.27
72	110	0.243007	56.5916	-2650.54
73	110	0.263715	56.6612	-2621.53
74	110	0.284535	56.7421	-2590.23
75	110	0.305481	56.8354	-2556.63
76	110	0.329206	56.9438	-2520.42
77	110	0.350451	57.0666	-2481.87
78	110	0.371856	57.2049	-2440.97
79	110	0.393433	57.3597	-2397.69
80	110	0.417928	57.5344	-2351.72
81	110	0.439913	57.7279	-2303.33
82	110	0.462114	57.9414	-2252.49
83	120	0.484544	58.1762	-2194.35
84	120	0.510074	58.4364	-2133.14
85	120	0.533048	58.7205	-2069.17
86	120	0.556308	59.03	-2002.42
87	120	0.582841	59.3697	-1932.47
88	120	0.606775	59.7379	-1859.66
89	120	0.631062	60.1361	-1783.93
90	120	0.655726	60.5661	-1705.25
91	120	0.68396	61.0339	-1623.17
92	120	0.709522	61.5373	-1538.03
93	120	0.735557	62.0784	-1449.76
94	120	0.7621	62.6592	-1358.31
95	120	0.792618	63.2874	-1263.2
96	130	0.820379	63.9604	-1156.55
97	130	0.848786	64.6809	-1046.2
98	130	0.877897	65.4516	-932.078
99	130	0.911562	66.2825	-813.575
100	130	0.942375	67.1706	-691.067
101	130	0.974114	68.1195	-564.432
102	130	1.00687	69.1333	-433.539
103	140	1.04505	70.2254	-287.232
104	140	1.08032	71.3925	-135.987

105	140	1.11699	72.6401	20.3909
106	140	1.16012	73.986	182.808
107	140	1.20036	75.4269	350.858
108	140	1.24264	76.9711	524.828
109	140	1.28727	78.6281	705.046
110	150	1.34075	80.4257	906.159
111	170	1.39175	82.3627	1142.76
112	190	1.44663	84.4554	1417.62
113	240	1.50626	86.7243	1779.12
114	250	1.58047	89.2221	2174.23
115	270	1.65463	91.9599	2620.98
116	280	1.7392	94.9847	3107.96
117	290	1.83843	98.3645	3641.1
118	290	1.97737	102.275	4214.54
119	290	2.14441	106.873	4836.42
120	290	2.40892	112.676	5535.01

---

Data Set Standard Deviation = 53.6365

Numerator = 3.06363e+007

Denominator = 3.85744e+007

W Statistic = 0.794213 = 3.06363e+007 / 3.85744e+007

**5% Critical value of 0.976 exceeds 0.794213**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.794213**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Barium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 130

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	100
	12/5/2013	120
	3/19/2014	91
	9/8/2014	97
	3/18/2015	100
	9/8/2015	110
	3/14/2016	100
	9/20/2016	110
	3/24/2017	110
	9/20/2017	99
	3/27/2018	100
	9/18/2018	120
	3/11/2019	110
	10/3/2019	120
	3/23/2020	120
	9/24/2020	110
	3/23/2021	120
	9/16/2021	120
	3/24/2022	130
	9/16/2022	120

---

Date	Count	Mean	Significant
3/17/2023	1	120	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Barium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 120

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	90
	3/21/2014	76
	9/8/2014	80
	3/18/2015	80
	9/8/2015	86
	3/14/2016	84
	9/26/2016	99
	3/30/2017	96
	9/20/2017	91
	3/30/2018	110
	9/21/2018	110
	3/11/2019	110
	10/3/2019	110
	3/23/2020	14
	9/25/2020	110
	3/23/2021	ND<0 U
	9/16/2021	120
	3/23/2022	120
	9/16/2022	120

---

Date	Count	Mean	Significant
3/17/2023	1	130	TRUE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Barium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 190

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	190
	9/23/2016	140
	3/28/2017	130
	9/21/2017	110
	3/16/2018	110
	9/19/2018	100
	3/5/2019	110
	10/3/2019	96
	3/25/2020	91
	9/28/2020	88
	3/19/2021	90
	9/15/2021	86
	3/22/2022	87
	9/14/2022	82

---

Date	Count	Mean	Significant
3/16/2023	1	81	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Barium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 290

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	270
	3/26/2020	250
	9/29/2020	240
	3/16/2021	290
	9/14/2021	290
	3/18/2022	280
	9/13/2022	290

---

Date	Count	Mean	Significant
3/14/2023	1	290	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Barium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 68

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	68
	3/25/2020	59
	9/29/2020	49
	3/22/2021	54
	9/15/2021	57
	3/24/2022	60
	9/15/2022	60

---

Date	Count	Mean	Significant
3/16/2023	1	61	FALSE

## Shapiro-Francia Test of Normality

Parameter: Beryllium, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 120

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.97737	14.3114	0
4	0	-1.83843	17.6912	0
5	0	-1.7392	20.716	0
6	0	-1.65463	23.4538	0
7	0	-1.58047	25.9517	0
8	0	-1.50626	28.2205	0
9	0	-1.44663	30.3132	0
10	0	-1.39175	32.2502	0
11	0	-1.34075	34.0478	0
12	0	-1.28727	35.7049	0
13	0	-1.24264	37.249	0
14	0	-1.20036	38.6899	0
15	0	-1.16012	40.0358	0
16	0	-1.11699	41.2834	0
17	0	-1.08032	42.4505	0
18	0	-1.04505	43.5427	0
19	0	-1.00687	44.5564	0
20	0	-0.974114	45.5053	0
21	0	-0.942375	46.3934	0
22	0	-0.911562	47.2243	0
23	0	-0.877897	47.9951	0
24	0	-0.848786	48.7155	0
25	0	-0.820379	49.3885	0
26	0	-0.792618	50.0168	0
27	0	-0.7621	50.5975	0
28	0	-0.735557	51.1386	0
29	0	-0.709522	51.642	0
30	0	-0.68396	52.1098	0
31	0	-0.655726	52.5398	0
32	0	-0.631062	52.938	0
33	0	-0.606775	53.3062	0
34	0	-0.582841	53.6459	0
35	0	-0.556308	53.9554	0
36	0	-0.533048	54.2395	0
37	0	-0.510074	54.4997	0
38	0	-0.484544	54.7345	0
39	0	-0.462114	54.948	0
40	0	-0.439913	55.1416	0
41	0	-0.417928	55.3162	0
42	0	-0.393433	55.471	0
43	0	-0.371856	55.6093	0
44	0	-0.350451	55.7321	0
45	0	-0.329206	55.8405	0
46	0	-0.305481	55.9338	0
47	0	-0.284535	56.0148	0

48	0	-0.263715	56.0843	0
49	0	-0.243007	56.1434	0
50	0	-0.219834	56.1917	0
51	0	-0.199336	56.2314	0
52	0	-0.17892	56.2634	0
53	0	-0.156042	56.2878	0
54	0	-0.135774	56.3062	0
55	0	-0.115562	56.3196	0
56	0	-0.0953969	56.3287	0
57	0	-0.0727562	56.334	0
58	0	-0.0526632	56.3367	0
59	0	-0.0325917	56.3378	0
60	0	-0.0125328	56.338	0
61	0	0.0125328	56.3381	0
62	0	0.0325917	56.3392	0
63	0	0.0526632	56.342	0
64	0	0.0727562	56.3472	0
65	0.14	0.0953969	56.3563	0.0133556
66	0.32	0.115562	56.3697	0.0503353
67	0.32	0.135774	56.3881	0.0937829
68	0.38	0.156042	56.4125	0.153079
69	0.38	0.17892	56.4445	0.221069
70	0.39	0.199336	56.4842	0.29881
71	0.4	0.219834	56.5326	0.386743
72	0.4	0.243007	56.5916	0.483946
73	0.41	0.263715	56.6612	0.592069
74	0.42	0.284535	56.7421	0.711574
75	0.44	0.305481	56.8354	0.845986
76	0.45	0.329206	56.9438	0.994129
77	0.45	0.350451	57.0666	1.15183
78	0.47	0.371856	57.2049	1.3266
79	0.48	0.393433	57.3597	1.51545
80	0.54	0.417928	57.5344	1.74113
81	0.56	0.439913	57.7279	1.98748
82	0.59	0.462114	57.9414	2.26013
83	0.59	0.484544	58.1762	2.54601
84	0.59	0.510074	58.4364	2.84696
85	0.6	0.533048	58.7205	3.16678
86	0.6	0.556308	59.03	3.50057
87	0.61	0.582841	59.3697	3.8561
88	0.62	0.606775	59.7379	4.2323
89	0.64	0.631062	60.1361	4.63618
90	0.65	0.655726	60.5661	5.0624
91	0.68	0.68396	61.0339	5.5275
92	0.72	0.709522	61.5373	6.03835
93	0.73	0.735557	62.0784	6.57531
94	0.73	0.7621	62.6592	7.13164
95	0.74	0.792618	63.2874	7.71818
96	0.75	0.820379	63.9604	8.33346
97	0.77	0.848786	64.6809	8.98703
98	0.77	0.877897	65.4516	9.66301
99	0.78	0.911562	66.2825	10.374
100	0.78	0.942375	67.1706	11.1091
101	0.79	0.974114	68.1195	11.8786
102	0.79	1.00687	69.1333	12.6741
103	0.81	1.04505	70.2254	13.5205
104	0.84	1.08032	71.3925	14.428

105	0.84	1.11699	72.6401	15.3663
106	0.86	1.16012	73.986	16.364
107	0.86	1.20036	75.4269	17.3963
108	0.88	1.24264	76.9711	18.4898
109	0.89	1.28727	78.6281	19.6355
110	0.89	1.34075	80.4257	20.8288
111	0.91	1.39175	82.3627	22.0953
112	0.92	1.44663	84.4554	23.4262
113	0.93	1.50626	86.7243	24.827
114	0.97	1.58047	89.2221	26.36
115	1	1.65463	91.9599	28.0147
116	1	1.7392	94.9847	29.7539
117	1.1	1.83843	98.3645	31.7761
118	1.1	1.97737	102.275	33.9512
119	1.1	2.14441	106.873	36.3101
120	1.2	2.40892	112.676	39.2008

---

Data Set Standard Deviation = 0.380222

Numerator = 1536.7

Denominator = 1938.44

W Statistic = 0.792752 = 1536.7 / 1938.44

**5% Critical value of 0.976 exceeds 0.792752  
Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.792752  
Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Beryllium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 15.7895%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0.97

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	3/21/2014	0.54 J
	9/8/2014	0.65 J
	3/18/2015	0.6 J
	9/8/2015	0.59 J
	3/14/2016	0.59 J
	9/26/2016	0.61 J
	3/30/2017	0.73 J
	9/20/2017	0.64 J
	3/30/2018	0.78 J
	9/21/2018	0.68 J
	3/11/2019	0.72 J
	10/3/2019	0.77 J
	3/23/2020	ND<0 U
	9/25/2020	0.74 J
	3/23/2021	ND<0 U
	9/16/2021	0.88 J
	3/23/2022	0.84 J
	9/16/2022	0.97 J

---

Date	Count	Mean	Significant
3/17/2023	1	0.91	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Beryllium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 10%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 1.2

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	0.79 J
	9/8/2014	0.89 J
	3/18/2015	0.78 J
	9/8/2015	0.81 J
	3/14/2016	0.84 J
	9/20/2016	0.77 J
	3/24/2017	0.75 J
	9/20/2017	0.79 J
	3/27/2018	0.86 J
	9/18/2018	0.86 J
	3/11/2019	0.93 J
	10/3/2019	0.89 J
	3/23/2020	0.92 J
	9/24/2020	1 J
	3/23/2021	1.1 J
	9/16/2021	1 J
	3/24/2022	1.1 J
	9/16/2022	1.2

---

Date	Count	Mean	Significant
3/17/2023	1	1.1	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Beryllium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 0

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/28/2017	ND<0 U
	9/21/2017	ND<0 U
	3/16/2018	ND<0 U
	9/19/2018	ND<0 U
	3/5/2019	ND<0 U
	10/3/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Beryllium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	ND<0 U
	9/29/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Beryllium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0.6

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	0.59 J
	3/25/2020	0.42 J
	9/29/2020	0.39 J
	3/22/2021	0.6 J
	9/15/2021	0.45 J
	3/24/2022	0.45 J
	9/15/2022	0.41 J

---

Date	Count	Mean	Significant
3/16/2023	1	0.38	FALSE

## Shapiro-Francia Test of Normality

Parameter: Cadmium, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 120

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.97737	14.3114	0
4	0	-1.83843	17.6912	0
5	0	-1.7392	20.716	0
6	0	-1.65463	23.4538	0
7	0	-1.58047	25.9517	0
8	0	-1.50626	28.2205	0
9	0	-1.44663	30.3132	0
10	0	-1.39175	32.2502	0
11	0	-1.34075	34.0478	0
12	0	-1.28727	35.7049	0
13	0	-1.24264	37.249	0
14	0	-1.20036	38.6899	0
15	0	-1.16012	40.0358	0
16	0	-1.11699	41.2834	0
17	0	-1.08032	42.4505	0
18	0	-1.04505	43.5427	0
19	0	-1.00687	44.5564	0
20	0	-0.974114	45.5053	0
21	0	-0.942375	46.3934	0
22	0	-0.911562	47.2243	0
23	0	-0.877897	47.9951	0
24	0	-0.848786	48.7155	0
25	0	-0.820379	49.3885	0
26	0	-0.792618	50.0168	0
27	0	-0.7621	50.5975	0
28	0	-0.735557	51.1386	0
29	0	-0.709522	51.642	0
30	0	-0.68396	52.1098	0
31	0	-0.655726	52.5398	0
32	0	-0.631062	52.938	0
33	0	-0.606775	53.3062	0
34	0	-0.582841	53.6459	0
35	0	-0.556308	53.9554	0
36	0	-0.533048	54.2395	0
37	0	-0.510074	54.4997	0
38	0	-0.484544	54.7345	0
39	0	-0.462114	54.948	0
40	0	-0.439913	55.1416	0
41	0	-0.417928	55.3162	0
42	0	-0.393433	55.471	0
43	0	-0.371856	55.6093	0
44	0	-0.350451	55.7321	0
45	0	-0.329206	55.8405	0
46	0	-0.305481	55.9338	0
47	0	-0.284535	56.0148	0

48	0	-0.263715	56.0843	0
49	0	-0.243007	56.1434	0
50	0	-0.219834	56.1917	0
51	0	-0.199336	56.2314	0
52	0	-0.17892	56.2634	0
53	0	-0.156042	56.2878	0
54	0	-0.135774	56.3062	0
55	0	-0.115562	56.3196	0
56	0	-0.0953969	56.3287	0
57	0	-0.0727562	56.334	0
58	0	-0.0526632	56.3367	0
59	0	-0.0325917	56.3378	0
60	0	-0.0125328	56.338	0
61	0	0.0125328	56.3381	0
62	0	0.0325917	56.3392	0
63	0	0.0526632	56.342	0
64	0	0.0727562	56.3472	0
65	0	0.0953969	56.3563	0
66	0	0.115562	56.3697	0
67	0	0.135774	56.3881	0
68	0	0.156042	56.4125	0
69	0	0.17892	56.4445	0
70	0	0.199336	56.4842	0
71	0	0.219834	56.5326	0
72	0	0.243007	56.5916	0
73	0	0.263715	56.6612	0
74	0	0.284535	56.7421	0
75	0	0.305481	56.8354	0
76	0	0.329206	56.9438	0
77	0	0.350451	57.0666	0
78	0	0.371856	57.2049	0
79	0	0.393433	57.3597	0
80	0	0.417928	57.5344	0
81	0	0.439913	57.7279	0
82	0	0.462114	57.9414	0
83	0	0.484544	58.1762	0
84	0	0.510074	58.4364	0
85	0	0.533048	58.7205	0
86	0	0.556308	59.03	0
87	0	0.582841	59.3697	0
88	0	0.606775	59.7379	0
89	0	0.631062	60.1361	0
90	0	0.655726	60.5661	0
91	0	0.68396	61.0339	0
92	0	0.709522	61.5373	0
93	0	0.735557	62.0784	0
94	0	0.7621	62.6592	0
95	0	0.792618	63.2874	0
96	0	0.820379	63.9604	0
97	0	0.848786	64.6809	0
98	0	0.877897	65.4516	0
99	0	0.911562	66.2825	0
100	0	0.942375	67.1706	0
101	0	0.974114	68.1195	0
102	0	1.00687	69.1333	0
103	0	1.04505	70.2254	0
104	0	1.08032	71.3925	0

105	0	1.11699	72.6401	0
106	0	1.16012	73.986	0
107	0	1.20036	75.4269	0
108	0.16	1.24264	76.9711	0.198823
109	0.18	1.28727	78.6281	0.430532
110	0.19	1.34075	80.4257	0.685275
111	0.26	1.39175	82.3627	1.04713
112	0.41	1.44663	84.4554	1.64025
113	0.42	1.50626	86.7243	2.27288
114	0.53	1.58047	89.2221	3.11052
115	0.58	1.65463	91.9599	4.07021
116	0.8	1.7392	94.9847	5.46157
117	0.8	1.83843	98.3645	6.93231
118	1.1	1.97737	102.275	9.10741
119	1.8	2.14441	106.873	12.9673
120	2.2	2.40892	112.676	18.267

---

Data Set Standard Deviation = 0.303377

Numerator = 333.682

Denominator = 1234.08

W Statistic = 0.27039 = 333.682 / 1234.08

**5% Critical value of 0.976 exceeds 0.27039**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.27039**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Cadmium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 95%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 0.26

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	ND<0 U
	9/8/2014	ND<0 U
	3/18/2015	ND<0 U
	9/8/2015	ND<0 U
	3/14/2016	ND<0 U
	9/20/2016	ND<0 U
	3/24/2017	ND<0 U
	9/20/2017	ND<0 U
	3/27/2018	ND<0 U
	9/18/2018	ND<0 U
	3/11/2019	ND<0 U
	10/3/2019	ND<0 U
	3/23/2020	ND<0 U
	9/24/2020	ND<0 U
	3/23/2021	ND<0 U
	9/16/2021	0.26 J
	3/24/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Cadmium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 84.2105%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 2.2

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/18/2015	ND<0 U
	9/8/2015	2.2
	3/14/2016	ND<0 U
	9/26/2016	ND<0 U
	3/30/2017	ND<0 U
	9/20/2017	ND<0 U
	3/30/2018	ND<0 U
	9/21/2018	ND<0 U
	3/11/2019	ND<0 U
	10/3/2019	1.1
	3/23/2020	ND<0 U
	9/25/2020	ND<0 U
	3/23/2021	ND<0 U
	9/16/2021	0.19 J
	3/23/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Cadmium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 92.8571%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 0.16

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/28/2017	ND<0 U
	9/21/2017	ND<0 U
	3/16/2018	ND<0 U
	9/19/2018	ND<0 U
	3/5/2019	ND<0 U
	10/3/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	0.16 J
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Cadmium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	ND<0 U
	9/29/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Cadmium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/25/2020	ND<0 U
	9/29/2020	ND<0 U
	3/22/2021	ND<0 U
	9/15/2021	ND<0 U
	3/24/2022	ND<0
	9/15/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Shapiro-Francia Test of Normality

Parameter: Calcium, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 120

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	1950	-2.40892	5.80292	-4697.4
2	5900	-2.14441	10.4014	-17349.4
3	7000	-1.97737	14.3114	-31191
4	7100	-1.83843	17.6912	-44243.8
5	7100	-1.7392	20.716	-56592.1
6	7100	-1.65463	23.4538	-68340
7	7200	-1.58047	25.9517	-79719.3
8	7400	-1.50626	28.2205	-90865.6
9	7500	-1.44663	30.3132	-101715
10	7500	-1.39175	32.2502	-112153
11	7600	-1.34075	34.0478	-122343
12	7600	-1.28727	35.7049	-132126
13	7700	-1.24264	37.249	-141695
14	7800	-1.20036	38.6899	-151058
15	8000	-1.16012	40.0358	-160339
16	8100	-1.11699	41.2834	-169386
17	8100	-1.08032	42.4505	-178137
18	8100	-1.04505	43.5427	-186602
19	8200	-1.00687	44.5564	-194858
20	8240	-0.974114	45.5053	-202885
21	8300	-0.942375	46.3934	-210706
22	8300	-0.911562	47.2243	-218272
23	8400	-0.877897	47.9951	-225647
24	8400	-0.848786	48.7155	-232776
25	8500	-0.820379	49.3885	-239750
26	8500	-0.792618	50.0168	-246487
27	8500	-0.7621	50.5975	-252965
28	8500	-0.735557	51.1386	-259217
29	8500	-0.709522	51.642	-265248
30	8600	-0.68396	52.1098	-271130
31	8800	-0.655726	52.5398	-276900
32	8800	-0.631062	52.938	-282454
33	8900	-0.606775	53.3062	-287854
34	9100	-0.582841	53.6459	-293158
35	9200	-0.556308	53.9554	-298276
36	9200	-0.533048	54.2395	-303180
37	9500	-0.510074	54.4997	-308026
38	9700	-0.484544	54.7345	-312726
39	9900	-0.462114	54.948	-317301
40	10000	-0.439913	55.1416	-321700
41	10100	-0.417928	55.3162	-325921
42	10200	-0.393433	55.471	-329934
43	10400	-0.371856	55.6093	-333801
44	10800	-0.350451	55.7321	-337586
45	10900	-0.329206	55.8405	-341174
46	11200	-0.305481	55.9338	-344596
47	11300	-0.284535	56.0148	-347811

48	11300	-0.263715	56.0843	-350791
49	11400	-0.243007	56.1434	-353561
50	11600	-0.219834	56.1917	-356111
51	11700	-0.199336	56.2314	-358444
52	11700	-0.17892	56.2634	-360537
53	11800	-0.156042	56.2878	-362378
54	11800	-0.135774	56.3062	-363980
55	11900	-0.115562	56.3196	-365356
56	11900	-0.0953969	56.3287	-366491
57	11900	-0.0727562	56.334	-367357
58	12200	-0.0526632	56.3367	-367999
59	12300	-0.0325917	56.3378	-368400
60	12400	-0.0125328	56.338	-368555
61	12500	0.0125328	56.3381	-368399
62	12500	0.0325917	56.3392	-367991
63	12600	0.0526632	56.342	-367328
64	12600	0.0727562	56.3472	-366411
65	12880	0.0953969	56.3563	-365182
66	12900	0.115562	56.3697	-363692
67	13000	0.135774	56.3881	-361927
68	13200	0.156042	56.4125	-359867
69	13300	0.17892	56.4445	-357487
70	13300	0.199336	56.4842	-354836
71	13300	0.219834	56.5326	-351912
72	13400	0.243007	56.5916	-348656
73	13500	0.263715	56.6612	-345096
74	13500	0.284535	56.7421	-341255
75	13600	0.305481	56.8354	-337100
76	13600	0.329206	56.9438	-332623
77	13600	0.350451	57.0666	-327857
78	13800	0.371856	57.2049	-322725
79	13800	0.393433	57.3597	-317296
80	13870	0.417928	57.5344	-311499
81	14000	0.439913	57.7279	-305340
82	14000	0.462114	57.9414	-298871
83	14100	0.484544	58.1762	-292039
84	14100	0.510074	58.4364	-284847
85	14200	0.533048	58.7205	-277277
86	14200	0.556308	59.03	-269378
87	14200	0.582841	59.3697	-261101
88	14400	0.606775	59.7379	-252364
89	14500	0.631062	60.1361	-243213
90	14500	0.655726	60.5661	-233705
91	14500	0.68396	61.0339	-223788
92	14700	0.709522	61.5373	-213358
93	14700	0.735557	62.0784	-202545
94	14800	0.7621	62.6592	-191266
95	14900	0.792618	63.2874	-179456
96	14900	0.820379	63.9604	-167233
97	15000	0.848786	64.6809	-154501
98	15000	0.877897	65.4516	-141332
99	15900	0.911562	66.2825	-126838
100	16000	0.942375	67.1706	-111760
101	16200	0.974114	68.1195	-95979.8
102	16800	1.00687	69.1333	-79064.5
103	17300	1.04505	70.2254	-60985.1
104	18000	1.08032	71.3925	-41539.3

105	18200	1.11699	72.6401	-21210.2
106	18700	1.16012	73.986	484.084
107	19000	1.20036	75.4269	23290.9
108	20200	1.24264	76.9711	48392.3
109	20300	1.28727	78.6281	74523.9
110	21500	1.34075	80.4257	103350
111	28100	1.39175	82.3627	142458
112	37100	1.44663	84.4554	196128
113	38400	1.50626	86.7243	253969
114	38700	1.58047	89.2221	315133
115	40300	1.65463	91.9599	381814
116	41300	1.7392	94.9847	453643
117	41700	1.83843	98.3645	530305
118	42500	1.97737	102.275	614344
119	43200	2.14441	106.873	706982
120	45000	2.40892	112.676	815383

---

Data Set Standard Deviation = 8525.1

Numerator = 6.6485e+011

Denominator = 9.7449e+011

W Statistic = 0.682254 = 6.6485e+011 / 9.7449e+011

**5% Critical value of 0.976 exceeds 0.682254**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.682254**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Calcium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 15000

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	7000
	3/21/2014	8900
	9/8/2014	10200
	3/18/2015	9700
	9/8/2015	10100
	3/14/2016	10800
	9/26/2016	11200
	3/30/2017	11900
	9/20/2017	11800
	3/30/2018	13300
	9/21/2018	11600
	3/11/2019	12500
	10/3/2019	13600
	3/23/2020	12500
	9/25/2020	13600
	3/23/2021	7800
	9/16/2021	15000
	3/23/2022	14500
	9/16/2022	14200

---

Date	Count	Mean	Significant
3/17/2023	1	14700	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Calcium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 15000

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	8240
	12/5/2013	13870
	3/19/2014	10900
	9/8/2014	11900
	3/18/2015	11800
	9/8/2015	11700
	3/14/2016	12600
	9/20/2016	12900
	3/24/2017	12300
	9/20/2017	12600
	3/27/2018	12400
	9/18/2018	13000
	3/11/2019	13600
	10/3/2019	14500
	3/23/2020	14200
	9/24/2020	14100
	3/23/2021	13800
	9/16/2021	15000
	3/24/2022	14900
	9/16/2022	13300

---

Date	Count	Mean	Significant
3/17/2023	1	14000	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Calcium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 20200

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	18200
	9/23/2016	14800
	3/28/2017	14100
	9/21/2017	13500
	3/16/2018	13800
	9/19/2018	14500
	3/5/2019	16200
	10/3/2019	15900
	3/25/2020	16000
	9/28/2020	17300
	3/19/2021	18000
	9/15/2021	19000
	3/22/2022	20200
	9/14/2022	18700

---

Date	Count	Mean	Significant
3/16/2023	1	20300	TRUE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Calcium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 45000

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	40300
	3/26/2020	38700
	9/29/2020	38400
	3/16/2021	41300
	9/14/2021	45000
	3/18/2022	41700
	9/13/2022	42500

---

Date	Count	Mean	Significant
3/14/2023	1	43200	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Calcium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 9900

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	9900
	3/25/2020	8400
	9/29/2020	7500
	3/22/2021	7700
	9/15/2021	8500
	3/24/2022	8400
	9/15/2022	8100

---

Date	Count	Mean	Significant
3/16/2023	1	8500	FALSE

# Shapiro-Francia Test of Normality

Parameter: Chromium, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 120

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.97737	14.3114	0
4	0	-1.83843	17.6912	0
5	0	-1.7392	20.716	0
6	0	-1.65463	23.4538	0
7	0	-1.58047	25.9517	0
8	0	-1.50626	28.2205	0
9	0	-1.44663	30.3132	0
10	0	-1.39175	32.2502	0
11	0	-1.34075	34.0478	0
12	0	-1.28727	35.7049	0
13	0	-1.24264	37.249	0
14	0	-1.20036	38.6899	0
15	0	-1.16012	40.0358	0
16	0	-1.11699	41.2834	0
17	0	-1.08032	42.4505	0
18	0	-1.04505	43.5427	0
19	0	-1.00687	44.5564	0
20	0	-0.974114	45.5053	0
21	0	-0.942375	46.3934	0
22	0	-0.911562	47.2243	0
23	0.75	-0.877897	47.9951	-0.658422
24	0.77	-0.848786	48.7155	-1.31199
25	0.84	-0.820379	49.3885	-2.00111
26	0.87	-0.792618	50.0168	-2.69068
27	0.88	-0.7621	50.5975	-3.36133
28	0.92	-0.735557	51.1386	-4.03804
29	0.94	-0.709522	51.642	-4.70499
30	0.95	-0.68396	52.1098	-5.35476
31	0.96	-0.655726	52.5398	-5.98425
32	0.99	-0.631062	52.938	-6.60901
33	1	-0.606775	53.3062	-7.21578
34	1	-0.582841	53.6459	-7.79862
35	1.1	-0.556308	53.9554	-8.41056
36	1.1	-0.533048	54.2395	-8.99691
37	1.1	-0.510074	54.4997	-9.55799
38	1.1	-0.484544	54.7345	-10.091
39	1.2	-0.462114	54.948	-10.6455
40	1.2	-0.439913	55.1416	-11.1734
41	1.2	-0.417928	55.3162	-11.6749
42	1.2	-0.393433	55.471	-12.1471
43	1.2	-0.371856	55.6093	-12.5933
44	1.3	-0.350451	55.7321	-13.0489
45	1.3	-0.329206	55.8405	-13.4768
46	1.3	-0.305481	55.9338	-13.874
47	1.3	-0.284535	56.0148	-14.2439

48	1.3	-0.263715	56.0843	-14.5867
49	1.4	-0.243007	56.1434	-14.9269
50	1.4	-0.219834	56.1917	-15.2347
51	1.4	-0.199336	56.2314	-15.5137
52	1.4	-0.17892	56.2634	-15.7642
53	1.4	-0.156042	56.2878	-15.9827
54	1.5	-0.135774	56.3062	-16.1863
55	1.5	-0.115562	56.3196	-16.3597
56	1.5	-0.0953969	56.3287	-16.5028
57	1.5	-0.0727562	56.334	-16.6119
58	1.5	-0.0526632	56.3367	-16.6909
59	1.5	-0.0325917	56.3378	-16.7398
60	1.5	-0.0125328	56.338	-16.7586
61	1.6	0.0125328	56.3381	-16.7385
62	1.6	0.0325917	56.3392	-16.6864
63	1.6	0.0526632	56.342	-16.6021
64	1.6	0.0727562	56.3472	-16.4857
65	1.7	0.0953969	56.3563	-16.3236
66	1.7	0.115562	56.3697	-16.1271
67	1.7	0.135774	56.3881	-15.8963
68	1.8	0.156042	56.4125	-15.6154
69	1.8	0.17892	56.4445	-15.2934
70	1.8	0.199336	56.4842	-14.9345
71	1.8	0.219834	56.5326	-14.5388
72	1.8	0.243007	56.5916	-14.1014
73	1.9	0.263715	56.6612	-13.6004
74	1.9	0.284535	56.7421	-13.0598
75	1.9	0.305481	56.8354	-12.4793
76	1.9	0.329206	56.9438	-11.8539
77	2	0.350451	57.0666	-11.153
78	2	0.371856	57.2049	-10.4092
79	2.1	0.393433	57.3597	-9.58303
80	2.1	0.417928	57.5344	-8.70538
81	2.1	0.439913	57.7279	-7.78156
82	2.3	0.462114	57.9414	-6.7187
83	2.4	0.484544	58.1762	-5.5558
84	2.5	0.510074	58.4364	-4.28061
85	2.5	0.533048	58.7205	-2.94799
86	2.6	0.556308	59.03	-1.50159
87	2.8	0.582841	59.3697	0.130364
88	2.9	0.606775	59.7379	1.89001
89	3.1	0.631062	60.1361	3.8463
90	3.1	0.655726	60.5661	5.87906
91	3.1	0.68396	61.0339	7.99933
92	3.1	0.709522	61.5373	10.1989
93	3.2	0.735557	62.0784	12.5526
94	3.2	0.7621	62.6592	14.9914
95	3.5	0.792618	63.2874	17.7655
96	3.7	0.820379	63.9604	20.8009
97	3.7	0.848786	64.6809	23.9414
98	3.8	0.877897	65.4516	27.2774
99	3.9	0.911562	66.2825	30.8325
100	4	0.942375	67.1706	34.602
101	4	0.974114	68.1195	38.4985
102	4.3	1.00687	69.1333	42.828
103	4.5	1.04505	70.2254	47.5307
104	4.8	1.08032	71.3925	52.7163

105	4.8	1.11699	72.6401	58.0778
106	5.5	1.16012	73.986	64.4585
107	5.6	1.20036	75.4269	71.1805
108	6.7	1.24264	76.9711	79.5062
109	7.7	1.28727	78.6281	89.4182
110	8.8	1.34075	80.4257	101.217
111	12	1.39175	82.3627	117.918
112	12	1.44663	84.4554	135.277
113	12	1.50626	86.7243	153.352
114	16	1.58047	89.2221	178.64
115	17	1.65463	91.9599	206.769
116	17	1.7392	94.9847	236.335
117	18	1.83843	98.3645	269.427
118	19	1.97737	102.275	306.997
119	24	2.14441	106.873	358.462
120	52	2.40892	112.676	483.726

---

Data Set Standard Deviation = 6.19529

Numerator = 233991

Denominator = 514637

W Statistic =  $0.454672 = 233991 / 514637$

**5% Critical value of 0.976 exceeds 0.454672**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.454672**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Chromium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 35%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 2.1

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	0.92 J
	9/8/2014	1.3 J
	3/18/2015	1.3 J
	9/8/2015	1.4 J
	3/14/2016	1.2 J
	9/20/2016	2.1 J
	3/24/2017	1.1 J
	9/20/2017	1.5 J
	3/27/2018	1.4 J
	9/18/2018	ND<0 U
	3/11/2019	1.6 J
	10/3/2019	0.77 J
	3/23/2020	1.1 J
	9/24/2020	ND<0 U
	3/23/2021	ND<0 U
	9/16/2021	1.4 J
	3/24/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	1.1	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Chromium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 36.8421%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 2.5

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	3/21/2014	0.75 J
	9/8/2014	1 J
	3/18/2015	1.5 J
	9/8/2015	1.2 J
	3/14/2016	0.94 J
	9/26/2016	2.5
	3/30/2017	1.2 J
	9/20/2017	1.3 J
	3/30/2018	1.5 J
	9/21/2018	1.1 J
	3/11/2019	1.2 J
	10/3/2019	ND<0 U
	3/23/2020	ND<0 U
	9/25/2020	ND<0 U
	3/23/2021	ND<0 U
	9/16/2021	1.4 J
	3/23/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0.84	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Chromium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 14.2857%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 4

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	3.1
	9/23/2016	4
	3/28/2017	4
	9/21/2017	2.9
	3/16/2018	1.5 J
	9/19/2018	1.7 J
	3/5/2019	1.9 J
	10/3/2019	0.96 J
	3/25/2020	2 J
	9/28/2020	ND<0 U
	3/19/2021	1 J
	9/15/2021	1.9 J
	3/22/2022	0.87 J
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	1.7	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Chromium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 42.8571%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 1.8

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	1.8 J
	9/29/2020	0.95 J
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/18/2022	1.3 J
	9/13/2022	1.8 J

---

Date	Count	Mean	Significant
3/14/2023	1	1.9	TRUE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Chromium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 2.4

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	1.3 J
	3/25/2020	2.4
	9/29/2020	1.5 J
	3/22/2021	1.8 J
	9/15/2021	1.6 J
	3/24/2022	1.5 J
	9/15/2022	2 J

---

Date	Count	Mean	Significant
3/16/2023	1	2.1	FALSE

## Shapiro-Francia Test of Normality

Parameter: Cobalt, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 120

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.97737	14.3114	0
4	0	-1.83843	17.6912	0
5	0	-1.7392	20.716	0
6	0	-1.65463	23.4538	0
7	0	-1.58047	25.9517	0
8	0	-1.50626	28.2205	0
9	0	-1.44663	30.3132	0
10	0	-1.39175	32.2502	0
11	0.62	-1.34075	34.0478	-0.831268
12	1.9	-1.28727	35.7049	-3.27708
13	2.3	-1.24264	37.249	-6.13516
14	2.6	-1.20036	38.6899	-9.2561
15	2.9	-1.16012	40.0358	-12.6204
16	3	-1.11699	41.2834	-15.9714
17	3.2	-1.08032	42.4505	-19.4284
18	3.8	-1.04505	43.5427	-23.3996
19	4	-1.00687	44.5564	-27.4271
20	4.3	-0.974114	45.5053	-31.6158
21	4.6	-0.942375	46.3934	-35.9507
22	5.4	-0.911562	47.2243	-40.8731
23	5.5	-0.877897	47.9951	-45.7016
24	6	-0.848786	48.7155	-50.7943
25	6.2	-0.820379	49.3885	-55.8806
26	6.5	-0.792618	50.0168	-61.0326
27	6.9	-0.7621	50.5975	-66.2911
28	7.4	-0.735557	51.1386	-71.7343
29	7.5	-0.709522	51.642	-77.0557
30	7.6	-0.68396	52.1098	-82.2538
31	7.8	-0.655726	52.5398	-87.3684
32	8.1	-0.631062	52.938	-92.48
33	8.2	-0.606775	53.3062	-97.4556
34	8.3	-0.582841	53.6459	-102.293
35	8.7	-0.556308	53.9554	-107.133
36	8.9	-0.533048	54.2395	-111.877
37	8.9	-0.510074	54.4997	-116.417
38	8.9	-0.484544	54.7345	-120.729
39	9.1	-0.462114	54.948	-124.935
40	9.3	-0.439913	55.1416	-129.026
41	9.4	-0.417928	55.3162	-132.954
42	9.6	-0.393433	55.471	-136.731
43	9.8	-0.371856	55.6093	-140.375
44	9.8	-0.350451	55.7321	-143.81
45	9.9	-0.329206	55.8405	-147.069
46	10	-0.305481	55.9338	-150.124
47	10	-0.284535	56.0148	-152.969

48	10	-0.263715	56.0843	-155.606
49	11	-0.243007	56.1434	-158.279
50	11	-0.219834	56.1917	-160.697
51	11	-0.199336	56.2314	-162.89
52	11	-0.17892	56.2634	-164.858
53	12	-0.156042	56.2878	-166.731
54	12	-0.135774	56.3062	-168.36
55	12	-0.115562	56.3196	-169.747
56	13	-0.0953969	56.3287	-170.987
57	14	-0.0727562	56.334	-172.006
58	15	-0.0526632	56.3367	-172.796
59	15	-0.0325917	56.3378	-173.284
60	15	-0.0125328	56.338	-173.472
61	15	0.0125328	56.3381	-173.284
62	16	0.0325917	56.3392	-172.763
63	16	0.0526632	56.342	-171.92
64	16	0.0727562	56.3472	-170.756
65	16	0.0953969	56.3563	-169.23
66	16	0.115562	56.3697	-167.381
67	16	0.135774	56.3881	-165.209
68	16	0.156042	56.4125	-162.712
69	17	0.17892	56.4445	-159.67
70	17	0.199336	56.4842	-156.281
71	18	0.219834	56.5326	-152.324
72	18	0.243007	56.5916	-147.95
73	18	0.263715	56.6612	-143.203
74	18	0.284535	56.7421	-138.082
75	18	0.305481	56.8354	-132.583
76	18	0.329206	56.9438	-126.657
77	18	0.350451	57.0666	-120.349
78	19	0.371856	57.2049	-113.284
79	19	0.393433	57.3597	-105.809
80	19	0.417928	57.5344	-97.8683
81	20	0.439913	57.7279	-89.07
82	20	0.462114	57.9414	-79.8277
83	20	0.484544	58.1762	-70.1368
84	21	0.510074	58.4364	-59.4253
85	21	0.533048	58.7205	-48.2313
86	22	0.556308	59.03	-35.9925
87	22	0.582841	59.3697	-23.17
88	23	0.606775	59.7379	-9.21416
89	25	0.631062	60.1361	6.56239
90	37	0.655726	60.5661	30.8243
91	38	0.68396	61.0339	56.8148
92	38	0.709522	61.5373	83.7766
93	38	0.735557	62.0784	111.728
94	40	0.7621	62.6592	142.212
95	40	0.792618	63.2874	173.916
96	41	0.820379	63.9604	207.552
97	42	0.848786	64.6809	243.201
98	43	0.877897	65.4516	280.951
99	43	0.911562	66.2825	320.148
100	44	0.942375	67.1706	361.612
101	46	0.974114	68.1195	406.421
102	50	1.00687	69.1333	456.765
103	50	1.04505	70.2254	509.017
104	52	1.08032	71.3925	565.194

105	56	1.11699	72.6401	627.745
106	58	1.16012	73.986	695.032
107	60	1.20036	75.4269	767.054
108	71	1.24264	76.9711	855.281
109	110	1.28727	78.6281	996.881
110	130	1.34075	80.4257	1171.18
111	140	1.39175	82.3627	1366.02
112	160	1.44663	84.4554	1597.48
113	190	1.50626	86.7243	1883.67
114	200	1.58047	89.2221	2199.77
115	230	1.65463	91.9599	2580.33
116	240	1.7392	94.9847	2997.74
117	250	1.83843	98.3645	3457.35
118	300	1.97737	102.275	4050.56
119	330	2.14441	106.873	4758.21
120	380	2.40892	112.676	5673.6

---

Data Set Standard Deviation = 68.3156

Numerator = 3.21898e+007

Denominator = 6.25774e+007

W Statistic = 0.514399 = 3.21898e+007 / 6.25774e+007

**5% Critical value of 0.976 exceeds 0.514399**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.514399**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Cobalt, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 15.7895%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 12

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	3/21/2014	7.5
	9/8/2014	7.6
	3/18/2015	7.8
	9/8/2015	8.7
	3/14/2016	8.1
	9/26/2016	8.9
	3/30/2017	9.1
	9/20/2017	9.8
	3/30/2018	11
	9/21/2018	9.4
	3/11/2019	9.9
	10/3/2019	10
	3/23/2020	ND<0 U
	9/25/2020	11
	3/23/2021	ND<0 U
	9/16/2021	11
	3/23/2022	11
	9/16/2022	12

---

Date	Count	Mean	Significant
3/17/2023	1	12	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Cobalt, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 23

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	10
	12/5/2013	10
	3/19/2014	13
	9/8/2014	14
	3/18/2015	15
	9/8/2015	20
	3/14/2016	18
	9/20/2016	16
	3/24/2017	16
	9/20/2017	18
	3/27/2018	16
	9/18/2018	18
	3/11/2019	19
	10/3/2019	18
	3/23/2020	18
	9/24/2020	19
	3/23/2021	23
	9/16/2021	20
	3/24/2022	18
	9/16/2022	20

---

Date	Count	Mean	Significant
3/17/2023	1	18	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Cobalt, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 41

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	41
	9/23/2016	21
	3/28/2017	17
	9/21/2017	16
	3/16/2018	15
	9/19/2018	16
	3/5/2019	16
	10/3/2019	15
	3/25/2020	15
	9/28/2020	16
	3/19/2021	17
	9/15/2021	19
	3/22/2022	22
	9/14/2022	22

---

Date	Count	Mean	Significant
3/16/2023	1	25	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Cobalt, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 300

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	140
	3/26/2020	160
	9/29/2020	190
	3/16/2021	230
	9/14/2021	240
	3/18/2022	250
	9/13/2022	300

---

Date	Count	Mean	Significant
3/14/2023	1	330	TRUE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Cobalt, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 9.8

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	9.8
	3/25/2020	8.3
	9/29/2020	7.4
	3/22/2021	8.2
	9/15/2021	8.9
	3/24/2022	8.9
	9/15/2022	9.6

---

Date	Count	Mean	Significant
3/16/2023	1	12	TRUE

## Shapiro-Francia Test of Normality

Parameter: Copper, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 120

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.97737	14.3114	0
4	0	-1.83843	17.6912	0
5	0	-1.7392	20.716	0
6	0	-1.65463	23.4538	0
7	0	-1.58047	25.9517	0
8	0	-1.50626	28.2205	0
9	0	-1.44663	30.3132	0
10	0	-1.39175	32.2502	0
11	0	-1.34075	34.0478	0
12	0	-1.28727	35.7049	0
13	2.3	-1.24264	37.249	-2.85808
14	2.3	-1.20036	38.6899	-5.61891
15	2.3	-1.16012	40.0358	-8.28718
16	2.3	-1.11699	41.2834	-10.8563
17	2.7	-1.08032	42.4505	-13.7731
18	2.7	-1.04505	43.5427	-16.5948
19	3.1	-1.00687	44.5564	-19.716
20	3.2	-0.974114	45.5053	-22.8332
21	3.3	-0.942375	46.3934	-25.943
22	3.4	-0.911562	47.2243	-29.0423
23	3.8	-0.877897	47.9951	-32.3784
24	3.9	-0.848786	48.7155	-35.6886
25	4.1	-0.820379	49.3885	-39.0522
26	4.2	-0.792618	50.0168	-42.3812
27	4.3	-0.7621	50.5975	-45.6582
28	4.4	-0.735557	51.1386	-48.8946
29	4.6	-0.709522	51.642	-52.1584
30	4.6	-0.68396	52.1098	-55.3047
31	4.7	-0.655726	52.5398	-58.3866
32	4.7	-0.631062	52.938	-61.3526
33	4.7	-0.606775	53.3062	-64.2044
34	4.9	-0.582841	53.6459	-67.0603
35	5.6	-0.556308	53.9554	-70.1757
36	5.7	-0.533048	54.2395	-73.214
37	6	-0.510074	54.4997	-76.2745
38	6.7	-0.484544	54.7345	-79.5209
39	7.4	-0.462114	54.948	-82.9406
40	7.5	-0.439913	55.1416	-86.2399
41	7.6	-0.417928	55.3162	-89.4162
42	9	-0.393433	55.471	-92.9571
43	9.4	-0.371856	55.6093	-96.4525
44	9.4	-0.350451	55.7321	-99.7467
45	9.8	-0.329206	55.8405	-102.973
46	10	-0.305481	55.9338	-106.028
47	10	-0.284535	56.0148	-108.873

48	11	-0.263715	56.0843	-111.774
49	11	-0.243007	56.1434	-114.447
50	11	-0.219834	56.1917	-116.865
51	12	-0.199336	56.2314	-119.257
52	13	-0.17892	56.2634	-121.583
53	13	-0.156042	56.2878	-123.612
54	13	-0.135774	56.3062	-125.377
55	14	-0.115562	56.3196	-126.995
56	14	-0.0953969	56.3287	-128.33
57	14	-0.0727562	56.334	-129.349
58	14	-0.0526632	56.3367	-130.086
59	15	-0.0325917	56.3378	-130.575
60	15	-0.0125328	56.338	-130.763
61	15	0.0125328	56.3381	-130.575
62	16	0.0325917	56.3392	-130.054
63	16	0.0526632	56.342	-129.211
64	17	0.0727562	56.3472	-127.974
65	18	0.0953969	56.3563	-126.257
66	18	0.115562	56.3697	-124.177
67	18	0.135774	56.3881	-121.733
68	19	0.156042	56.4125	-118.768
69	19	0.17892	56.4445	-115.369
70	19	0.199336	56.4842	-111.581
71	21	0.219834	56.5326	-106.965
72	21	0.243007	56.5916	-101.862
73	25	0.263715	56.6612	-95.2687
74	25	0.284535	56.7421	-88.1553
75	26	0.305481	56.8354	-80.2128
76	29	0.329206	56.9438	-70.6658
77	29	0.350451	57.0666	-60.5027
78	33	0.371856	57.2049	-48.2315
79	34	0.393433	57.3597	-34.8548
80	35	0.417928	57.5344	-20.2273
81	35	0.439913	57.7279	-4.83035
82	35	0.462114	57.9414	11.3436
83	35	0.484544	58.1762	28.3027
84	36	0.510074	58.4364	46.6653
85	37	0.533048	58.7205	66.3881
86	39	0.556308	59.03	88.0841
87	40	0.582841	59.3697	111.398
88	40	0.606775	59.7379	135.669
89	40	0.631062	60.1361	160.911
90	41	0.655726	60.5661	187.796
91	41	0.68396	61.0339	215.838
92	42	0.709522	61.5373	245.638
93	43	0.735557	62.0784	277.267
94	44	0.7621	62.6592	310.8
95	44	0.792618	63.2874	345.675
96	45	0.820379	63.9604	382.592
97	48	0.848786	64.6809	423.334
98	50	0.877897	65.4516	467.228
99	52	0.911562	66.2825	514.63
100	55	0.942375	67.1706	566.46
101	58	0.974114	68.1195	622.959
102	59	1.00687	69.1333	682.364
103	60	1.04505	70.2254	745.067
104	60	1.08032	71.3925	809.886

105	60	1.11699	72.6401	876.905
106	62	1.16012	73.986	948.833
107	63	1.20036	75.4269	1024.46
108	66	1.24264	76.9711	1106.47
109	68	1.28727	78.6281	1194
110	69	1.34075	80.4257	1286.52
111	70	1.39175	82.3627	1383.94
112	74	1.44663	84.4554	1490.99
113	79	1.50626	86.7243	1609.98
114	89	1.58047	89.2221	1750.65
115	100	1.65463	91.9599	1916.11
116	110	1.7392	94.9847	2107.42
117	150	1.83843	98.3645	2383.18
118	160	1.97737	102.275	2699.56
119	180	2.14441	106.873	3085.56
120	470	2.40892	112.676	4217.75

---

Data Set Standard Deviation = 51.8702

Numerator = 1.77894e+007

Denominator = 3.60756e+007

W Statistic = 0.493115 = 1.77894e+007 / 3.60756e+007

**5% Critical value of 0.976 exceeds 0.493115**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.493115**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Copper, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 470

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	60
	3/21/2014	62
	9/8/2014	68
	3/18/2015	41
	9/8/2015	470
	3/14/2016	110
	9/26/2016	70
	3/30/2017	69
	9/20/2017	60
	3/30/2018	59
	9/21/2018	66
	3/11/2019	89
	10/3/2019	58
	3/23/2020	ND<0 U
	9/25/2020	160
	3/23/2021	11
	9/16/2021	79
	3/23/2022	74
	9/16/2022	100

---

Date	Count	Mean	Significant
3/17/2023	1	60	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Copper, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 55

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	40
	12/5/2013	40
	3/19/2014	40
	9/8/2014	35
	3/18/2015	43
	9/8/2015	50
	3/14/2016	39
	9/20/2016	44
	3/24/2017	33
	9/20/2017	52
	3/27/2018	45
	9/18/2018	37
	3/11/2019	55
	10/3/2019	35
	3/23/2020	34
	9/24/2020	41
	3/23/2021	42
	9/16/2021	35
	3/24/2022	36
	9/16/2022	48

---

Date	Count	Mean	Significant
3/17/2023	1	35	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Copper, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 7.14286%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 4.9

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	4.4 J
	9/23/2016	4.7 J
	3/28/2017	4.9 J
	9/21/2017	4.7 J
	3/16/2018	4.1 J
	9/19/2018	3.8 J
	3/5/2019	3.2 J
	10/3/2019	3.9 J
	3/25/2020	3.1 J
	9/28/2020	2.7 J
	3/19/2021	3.3 J
	9/15/2021	2.3 J
	3/22/2022	2.3 J
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	2.3	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Copper, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	ND<0 U
	9/29/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Copper, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 21

Confidence Level = 87.5%

False Positive Rate = 12.5%

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Baseline Measurements	Date	Value
	11/14/2019	9.8
	3/25/2020	9
	9/29/2020	14
	3/22/2021	21
	9/15/2021	18
	3/24/2022	13
	9/15/2022	14

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Date	Count	Mean	Significant
3/16/2023	1	11	FALSE

## Shapiro-Francia Test of Normality

Parameter: Iron, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 120

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.97737	14.3114	0
4	0	-1.83843	17.6912	0
5	0	-1.7392	20.716	0
6	0	-1.65463	23.4538	0
7	0	-1.58047	25.9517	0
8	0	-1.50626	28.2205	0
9	0	-1.44663	30.3132	0
10	15	-1.39175	32.2502	-20.8762
11	17	-1.34075	34.0478	-43.669
12	19	-1.28727	35.7049	-68.1272
13	20	-1.24264	37.249	-92.98
14	20	-1.20036	38.6899	-116.987
15	20	-1.16012	40.0358	-140.19
16	20	-1.11699	41.2834	-162.529
17	21	-1.08032	42.4505	-185.216
18	22	-1.04505	43.5427	-208.207
19	22	-1.00687	44.5564	-230.358
20	23	-0.974114	45.5053	-252.763
21	24	-0.942375	46.3934	-275.38
22	24	-0.911562	47.2243	-297.257
23	25	-0.877897	47.9951	-319.205
24	25	-0.848786	48.7155	-340.424
25	25	-0.820379	49.3885	-360.934
26	25	-0.792618	50.0168	-380.749
27	26	-0.7621	50.5975	-400.564
28	26	-0.735557	51.1386	-419.688
29	27	-0.709522	51.642	-438.845
30	28	-0.68396	52.1098	-457.996
31	29	-0.655726	52.5398	-477.012
32	29	-0.631062	52.938	-495.313
33	29	-0.606775	53.3062	-512.91
34	30	-0.582841	53.6459	-530.395
35	31	-0.556308	53.9554	-547.64
36	31	-0.533048	54.2395	-564.165
37	31	-0.510074	54.4997	-579.977
38	32	-0.484544	54.7345	-595.483
39	32	-0.462114	54.948	-610.27
40	32	-0.439913	55.1416	-624.348
41	34	-0.417928	55.3162	-638.557
42	34	-0.393433	55.471	-651.934
43	35	-0.371856	55.6093	-664.949
44	37	-0.350451	55.7321	-677.915
45	37	-0.329206	55.8405	-690.096
46	39	-0.305481	55.9338	-702.01
47	39	-0.284535	56.0148	-713.107

48	40	-0.263715	56.0843	-723.655
49	40	-0.243007	56.1434	-733.376
50	42	-0.219834	56.1917	-742.609
51	43	-0.199336	56.2314	-751.18
52	43	-0.17892	56.2634	-758.874
53	44	-0.156042	56.2878	-765.74
54	45	-0.135774	56.3062	-771.849
55	45	-0.115562	56.3196	-777.05
56	46	-0.0953969	56.3287	-781.438
57	47	-0.0727562	56.334	-784.857
58	47	-0.0526632	56.3367	-787.333
59	49	-0.0325917	56.3378	-788.93
60	49	-0.0125328	56.338	-789.544
61	50	0.0125328	56.3381	-788.917
62	52	0.0325917	56.3392	-787.222
63	53	0.0526632	56.342	-784.431
64	55	0.0727562	56.3472	-780.43
65	56	0.0953969	56.3563	-775.087
66	58	0.115562	56.3697	-768.385
67	60	0.135774	56.3881	-760.238
68	61	0.156042	56.4125	-750.72
69	61	0.17892	56.4445	-739.806
70	62	0.199336	56.4842	-727.447
71	64	0.219834	56.5326	-713.377
72	64	0.243007	56.5916	-697.825
73	67	0.263715	56.6612	-680.156
74	69	0.284535	56.7421	-660.523
75	71	0.305481	56.8354	-638.834
76	72	0.329206	56.9438	-615.131
77	72	0.350451	57.0666	-589.899
78	74	0.371856	57.2049	-562.381
79	74	0.393433	57.3597	-533.267
80	76	0.417928	57.5344	-501.505
81	76	0.439913	57.7279	-468.071
82	78	0.462114	57.9414	-432.026
83	80	0.484544	58.1762	-393.263
84	81	0.510074	58.4364	-351.947
85	85	0.533048	58.7205	-306.638
86	85	0.556308	59.03	-259.352
87	86	0.582841	59.3697	-209.227
88	86	0.606775	59.7379	-157.045
89	91	0.631062	60.1361	-99.618
90	94	0.655726	60.5661	-37.9798
91	96	0.68396	61.0339	27.6804
92	97	0.709522	61.5373	96.5041
93	110	0.735557	62.0784	177.415
94	110	0.7621	62.6592	261.246
95	110	0.792618	63.2874	348.434
96	110	0.820379	63.9604	438.676
97	110	0.848786	64.6809	532.042
98	130	0.877897	65.4516	646.169
99	160	0.911562	66.2825	792.019
100	180	0.942375	67.1706	961.646
101	180	0.974114	68.1195	1136.99
102	180	1.00687	69.1333	1318.22
103	200	1.04505	70.2254	1527.23
104	240	1.08032	71.3925	1786.51

105	240	1.11699	72.6401	2054.59
106	250	1.16012	73.986	2344.62
107	280	1.20036	75.4269	2680.72
108	290	1.24264	76.9711	3041.08
109	290	1.28727	78.6281	3414.39
110	320	1.34075	80.4257	3843.43
111	320	1.39175	82.3627	4288.79
112	360	1.44663	84.4554	4809.58
113	420	1.50626	86.7243	5442.21
114	500	1.58047	89.2221	6232.44
115	510	1.65463	91.9599	7076.3
116	510	1.7392	94.9847	7963.29
117	530	1.83843	98.3645	8937.66
118	680	1.97737	102.275	10282.3
119	1000	2.14441	106.873	12426.7
120	1137	2.40892	112.676	15165.6

---

Data Set Standard Deviation = 176.748

Numerator = 2.29996e+008

Denominator = 4.1888e+008

W Statistic = 0.549074 = 2.29996e+008 / 4.1888e+008

**5% Critical value of 0.976 exceeds 0.549074**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.549074**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Iron, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 290

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	15
	12/5/2013	26
	3/19/2014	86
	9/8/2014	64
	3/18/2015	40 J
	9/8/2015	290
	3/14/2016	62
	9/20/2016	32 J
	3/24/2017	22 J
	9/20/2017	52 J
	3/27/2018	31 J
	9/18/2018	45 J
	3/11/2019	35 J
	10/3/2019	25 J
	3/23/2020	47 J
	9/24/2020	80
	3/23/2021	110
	9/16/2021	110
	3/24/2022	28 J
	9/16/2022	69

---

Date	Count	Mean	Significant
3/17/2023	1	39	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Iron, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 510

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	17
	3/21/2014	25 J
	9/8/2014	61
	3/18/2015	85
	9/8/2015	53 J
	3/14/2016	29 J
	9/26/2016	60
	3/30/2017	29 J
	9/20/2017	25 J
	3/30/2018	43 J
	9/21/2018	20 J
	3/11/2019	24 J
	10/3/2019	ND<0 U
	3/23/2020	180
	9/25/2020	510
	3/23/2021	20 J
	9/16/2021	200
	3/23/2022	34 J
	9/16/2022	32 J

---

Date	Count	Mean	Significant
3/17/2023	1	26	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Iron, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 510

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	510
	9/23/2016	55 J
	3/28/2017	67
	9/21/2017	49 J
	3/16/2018	46 J
	9/19/2018	43 J
	3/5/2019	160
	10/3/2019	19 J
	3/25/2020	85
	9/28/2020	78
	3/19/2021	47 J
	9/15/2021	72 J
	3/22/2022	37 J
	9/14/2022	39 J

---

Date	Count	Mean	Significant
3/16/2023	1	50	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Iron, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 180

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	180
	3/26/2020	130
	9/29/2020	76
	3/16/2021	49 J
	9/14/2021	56 J
	3/18/2022	31 J
	9/13/2022	32 J

---

Date	Count	Mean	Significant
3/14/2023	1	180	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Iron, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 42.8571%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 240

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	94
	3/25/2020	29 J
	9/29/2020	240
	3/22/2021	61
	9/15/2021	ND<0 U
	3/24/2022	ND<0
	9/15/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Shapiro-Francia Test of Normality

Parameter: Lead, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 120

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.97737	14.3114	0
4	0	-1.83843	17.6912	0
5	0	-1.7392	20.716	0
6	0	-1.65463	23.4538	0
7	0	-1.58047	25.9517	0
8	0	-1.50626	28.2205	0
9	0	-1.44663	30.3132	0
10	0	-1.39175	32.2502	0
11	0	-1.34075	34.0478	0
12	0	-1.28727	35.7049	0
13	0	-1.24264	37.249	0
14	0	-1.20036	38.6899	0
15	0	-1.16012	40.0358	0
16	0	-1.11699	41.2834	0
17	0	-1.08032	42.4505	0
18	0	-1.04505	43.5427	0
19	0	-1.00687	44.5564	0
20	0	-0.974114	45.5053	0
21	0	-0.942375	46.3934	0
22	0	-0.911562	47.2243	0
23	0	-0.877897	47.9951	0
24	0	-0.848786	48.7155	0
25	0	-0.820379	49.3885	0
26	0	-0.792618	50.0168	0
27	0	-0.7621	50.5975	0
28	0	-0.735557	51.1386	0
29	0	-0.709522	51.642	0
30	0	-0.68396	52.1098	0
31	0	-0.655726	52.5398	0
32	0	-0.631062	52.938	0
33	0	-0.606775	53.3062	0
34	0	-0.582841	53.6459	0
35	0	-0.556308	53.9554	0
36	0	-0.533048	54.2395	0
37	0	-0.510074	54.4997	0
38	0	-0.484544	54.7345	0
39	0	-0.462114	54.948	0
40	0	-0.439913	55.1416	0
41	0	-0.417928	55.3162	0
42	0	-0.393433	55.471	0
43	0	-0.371856	55.6093	0
44	0	-0.350451	55.7321	0
45	0	-0.329206	55.8405	0
46	0	-0.305481	55.9338	0
47	0	-0.284535	56.0148	0

48	0	-0.263715	56.0843	0
49	0	-0.243007	56.1434	0
50	0	-0.219834	56.1917	0
51	0	-0.199336	56.2314	0
52	0	-0.17892	56.2634	0
53	0	-0.156042	56.2878	0
54	0	-0.135774	56.3062	0
55	0	-0.115562	56.3196	0
56	0	-0.0953969	56.3287	0
57	0	-0.0727562	56.334	0
58	0	-0.0526632	56.3367	0
59	0	-0.0325917	56.3378	0
60	0	-0.0125328	56.338	0
61	0	0.0125328	56.3381	0
62	0	0.0325917	56.3392	0
63	0	0.0526632	56.342	0
64	0	0.0727562	56.3472	0
65	0	0.0953969	56.3563	0
66	0	0.115562	56.3697	0
67	0	0.135774	56.3881	0
68	0	0.156042	56.4125	0
69	0.77	0.17892	56.4445	0.137769
70	0.78	0.199336	56.4842	0.293251
71	0.79	0.219834	56.5326	0.46692
72	0.81	0.243007	56.5916	0.663755
73	0.82	0.263715	56.6612	0.880001
74	0.88	0.284535	56.7421	1.13039
75	0.9	0.305481	56.8354	1.40533
76	0.97	0.329206	56.9438	1.72466
77	0.99	0.350451	57.0666	2.0716
78	1	0.371856	57.2049	2.44346
79	1	0.393433	57.3597	2.83689
80	1.1	0.417928	57.5344	3.29661
81	1.1	0.439913	57.7279	3.78052
82	1.2	0.462114	57.9414	4.33505
83	1.2	0.484544	58.1762	4.91651
84	1.4	0.510074	58.4364	5.63061
85	1.4	0.533048	58.7205	6.37688
86	1.4	0.556308	59.03	7.15571
87	1.4	0.582841	59.3697	7.97169
88	1.6	0.606775	59.7379	8.94253
89	1.6	0.631062	60.1361	9.95222
90	1.7	0.655726	60.5661	11.067
91	1.9	0.68396	61.0339	12.3665
92	2.2	0.709522	61.5373	13.9274
93	2.3	0.735557	62.0784	15.6192
94	2.4	0.7621	62.6592	17.4483
95	2.4	0.792618	63.2874	19.3505
96	3	0.820379	63.9604	21.8117
97	6.2	0.848786	64.6809	27.0741
98	7.1	0.877897	65.4516	33.3072
99	9	0.911562	66.2825	41.5113
100	9	0.942375	67.1706	49.9926
101	9.1	0.974114	68.1195	58.8571
102	9.8	1.00687	69.1333	68.7244
103	12	1.04505	70.2254	81.265
104	13	1.08032	71.3925	95.3091

105	13	1.11699	72.6401	109.83
106	14	1.16012	73.986	126.072
107	15	1.20036	75.4269	144.077
108	15	1.24264	76.9711	162.717
109	16	1.28727	78.6281	183.313
110	16	1.34075	80.4257	204.765
111	16	1.39175	82.3627	227.033
112	17	1.44663	84.4554	251.626
113	17	1.50626	86.7243	277.232
114	18	1.58047	89.2221	305.681
115	20	1.65463	91.9599	338.773
116	20	1.7392	94.9847	373.557
117	21	1.83843	98.3645	412.164
118	25	1.97737	102.275	461.598
119	28	2.14441	106.873	521.642
120	80	2.40892	112.676	714.356

---

Data Set Standard Deviation = 9.41047  
Numerator = 510304  
Denominator = 1.18741e+006  
W Statistic = 0.429763 = 510304 / 1.18741e+006

**5% Critical value of 0.976 exceeds 0.429763**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.429763**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Lead, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 45%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 2.3

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	ND<0 U
	9/8/2014	1.1 J
	3/18/2015	0.97 J
	9/8/2015	2.3
	3/14/2016	1 J
	9/20/2016	1.2 J
	3/24/2017	0.77 J
	9/20/2017	1.4 J
	3/27/2018	1 J
	9/18/2018	0.88 J
	3/11/2019	1.6 J
	10/3/2019	ND<0 U
	3/23/2020	ND<0 U
	9/24/2020	0.9 J
	3/23/2021	ND<0 U
	9/16/2021	ND<0 U
	3/24/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Lead, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 10.5263%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 80

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	9
	3/21/2014	9.8
	9/8/2014	13
	3/18/2015	7.1
	9/8/2015	80
	3/14/2016	25
	9/26/2016	17
	3/30/2017	20
	9/20/2017	16
	3/30/2018	12
	9/21/2018	15
	3/11/2019	21
	10/3/2019	14
	3/23/2020	ND<0 U
	9/25/2020	28
	3/23/2021	ND<0 U
	9/16/2021	16
	3/23/2022	15
	9/16/2022	17

---

Date	Count	Mean	Significant
3/17/2023	1	20	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Lead, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 0

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/28/2017	ND<0 U
	9/21/2017	ND<0 U
	3/16/2018	ND<0 U
	9/19/2018	ND<0 U
	3/5/2019	ND<0 U
	10/3/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Lead, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0

Confidence Level = 87.5%

False Positive Rate = 12.5%

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Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	ND<0 U
	9/29/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Lead, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 57.1429%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 9.1

Confidence Level = 87.5%

False Positive Rate = 12.5%

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Baseline Measurements	Date	Value
	11/14/2019	9.1
	3/25/2020	ND<0 U
	9/29/2020	ND<0 U
	3/22/2021	ND<0 U
	9/15/2021	ND<0 U
	3/24/2022	1.4 J
	9/15/2022	1.4 J

---

Date	Count	Mean	Significant
3/16/2023	1	2.4	FALSE

## Shapiro-Francia Test of Normality

Parameter: Magnesium, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 120

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	1495	-2.40892	5.80292	-3601.34
2	2700	-2.14441	10.4014	-9391.24
3	2700	-1.97737	14.3114	-14730.1
4	2900	-1.83843	17.6912	-20061.6
5	3000	-1.7392	20.716	-25279.2
6	3100	-1.65463	23.4538	-30408.5
7	3200	-1.58047	25.9517	-35466
8	4000	-1.50626	28.2205	-41491
9	4000	-1.44663	30.3132	-47277.6
10	4100	-1.39175	32.2502	-52983.7
11	4400	-1.34075	34.0478	-58883
12	4500	-1.28727	35.7049	-64675.8
13	4500	-1.24264	37.249	-70267.7
14	4700	-1.20036	38.6899	-75909.3
15	4700	-1.16012	40.0358	-81361.9
16	4800	-1.11699	41.2834	-86723.4
17	4800	-1.08032	42.4505	-91909
18	4800	-1.04505	43.5427	-96925.2
19	4900	-1.00687	44.5564	-101859
20	4900	-0.974114	45.5053	-106632
21	5000	-0.942375	46.3934	-111344
22	5079	-0.911562	47.2243	-115974
23	5100	-0.877897	47.9951	-120451
24	5300	-0.848786	48.7155	-124950
25	5300	-0.820379	49.3885	-129298
26	5400	-0.792618	50.0168	-133578
27	5400	-0.7621	50.5975	-137693
28	5500	-0.735557	51.1386	-141739
29	5500	-0.709522	51.642	-145641
30	5700	-0.68396	52.1098	-149540
31	5800	-0.655726	52.5398	-153343
32	5814	-0.631062	52.938	-157012
33	5924	-0.606775	53.3062	-160606
34	6000	-0.582841	53.6459	-164103
35	6000	-0.556308	53.9554	-167441
36	6078	-0.533048	54.2395	-170681
37	6100	-0.510074	54.4997	-173793
38	6100	-0.484544	54.7345	-176748
39	6100	-0.462114	54.948	-179567
40	6200	-0.439913	55.1416	-182295
41	6200	-0.417928	55.3162	-184886
42	6300	-0.393433	55.471	-187364
43	6400	-0.371856	55.6093	-189744
44	6400	-0.350451	55.7321	-191987
45	6400	-0.329206	55.8405	-194094
46	6500	-0.305481	55.9338	-196080
47	6500	-0.284535	56.0148	-197929

48	6500	-0.263715	56.0843	-199643
49	6600	-0.243007	56.1434	-201247
50	6600	-0.219834	56.1917	-202698
51	6600	-0.199336	56.2314	-204014
52	6700	-0.17892	56.2634	-205212
53	6700	-0.156042	56.2878	-206258
54	6800	-0.135774	56.3062	-207181
55	6800	-0.115562	56.3196	-207967
56	6800	-0.0953969	56.3287	-208616
57	6900	-0.0727562	56.334	-209118
58	6900	-0.0526632	56.3367	-209481
59	7000	-0.0325917	56.3378	-209709
60	7000	-0.0125328	56.338	-209797
61	7000	0.0125328	56.3381	-209709
62	7000	0.0325917	56.3392	-209481
63	7000	0.0526632	56.342	-209112
64	7000	0.0727562	56.3472	-208603
65	7200	0.0953969	56.3563	-207916
66	7200	0.115562	56.3697	-207084
67	7200	0.135774	56.3881	-206107
68	7300	0.156042	56.4125	-204968
69	7500	0.17892	56.4445	-203626
70	7600	0.199336	56.4842	-202111
71	7700	0.219834	56.5326	-200418
72	7700	0.243007	56.5916	-198547
73	7700	0.263715	56.6612	-196516
74	7700	0.284535	56.7421	-194325
75	7700	0.305481	56.8354	-191973
76	7800	0.329206	56.9438	-189405
77	7800	0.350451	57.0666	-186672
78	7800	0.371856	57.2049	-183771
79	7800	0.393433	57.3597	-180703
80	7800	0.417928	57.5344	-177443
81	7900	0.439913	57.7279	-173967
82	7900	0.462114	57.9414	-170317
83	7900	0.484544	58.1762	-166489
84	7900	0.510074	58.4364	-162459
85	7900	0.533048	58.7205	-158248
86	8000	0.556308	59.03	-153798
87	8000	0.582841	59.3697	-149135
88	8000	0.606775	59.7379	-144281
89	8100	0.631062	60.1361	-139169
90	8100	0.655726	60.5661	-133858
91	8200	0.68396	61.0339	-128249
92	8300	0.709522	61.5373	-122360
93	8500	0.735557	62.0784	-116108
94	8500	0.7621	62.6592	-109630
95	8900	0.792618	63.2874	-102576
96	9200	0.820379	63.9604	-95028.4
97	11400	0.848786	64.6809	-85352.2
98	14200	0.877897	65.4516	-72886.1
99	14400	0.911562	66.2825	-59759.6
100	14500	0.942375	67.1706	-46095.1
101	15000	0.974114	68.1195	-31483.4
102	15200	1.00687	69.1333	-16179.1
103	17000	1.04505	70.2254	1586.77
104	17100	1.08032	71.3925	20060.3

105	17200	1.11699	72.6401	39272.4
106	17400	1.16012	73.986	59458.5
107	18300	1.20036	75.4269	81425.1
108	20000	1.24264	76.9711	106278
109	20200	1.28727	78.6281	132281
110	20300	1.34075	80.4257	159498
111	20400	1.39175	82.3627	187890
112	20400	1.44663	84.4554	217401
113	21800	1.50626	86.7243	250238
114	22700	1.58047	89.2221	286114
115	23000	1.65463	91.9599	324170
116	23600	1.7392	94.9847	365216
117	23800	1.83843	98.3645	408970
118	24000	1.97737	102.275	456427
119	24300	2.14441	106.873	508536
120	24800	2.40892	112.676	568277

---

Data Set Standard Deviation = 5633.7

Numerator = 3.22939e+011

Denominator = 4.25565e+011

W Statistic = 0.758848 = 3.22939e+011 / 4.25565e+011

**5% Critical value of 0.976 exceeds 0.758848**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.758848**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Magnesium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 8100

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	5079
	3/21/2014	4900
	9/8/2014	5400
	3/18/2015	4900
	9/8/2015	5300
	3/14/2016	5500
	9/26/2016	5800
	3/30/2017	6500
	9/20/2017	6200
	3/30/2018	6700
	9/21/2018	6800
	3/11/2019	6800
	10/3/2019	6800
	3/23/2020	5000
	9/25/2020	7000
	3/23/2021	4500
	9/16/2021	7200
	3/23/2022	7800
	9/16/2022	8100

---

Date	Count	Mean	Significant
3/17/2023	1	7800	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Magnesium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 9200

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	5924
	12/5/2013	5814
	3/19/2014	6000
	9/8/2014	6400
	3/18/2015	6100
	9/8/2015	7500
	3/14/2016	7200
	9/20/2016	6600
	3/24/2017	6500
	9/20/2017	7300
	3/27/2018	7000
	9/18/2018	7700
	3/11/2019	7800
	10/3/2019	7800
	3/23/2020	8000
	9/24/2020	7900
	3/23/2021	9200
	9/16/2021	8100
	3/24/2022	8500
	9/16/2022	8300

---

Date	Count	Mean	Significant
3/17/2023	1	7900	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Magnesium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 20400

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	17100
	9/23/2016	15200
	3/28/2017	14400
	9/21/2017	14200
	3/16/2018	14500
	9/19/2018	15000
	3/5/2019	18300
	10/3/2019	17200
	3/25/2020	17000
	9/28/2020	17400
	3/19/2021	20400
	9/15/2021	20000
	3/22/2022	20300
	9/14/2022	20200

---

Date	Count	Mean	Significant
3/16/2023	1	20400	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Magnesium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 24800

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	24300
	3/26/2020	21800
	9/29/2020	23000
	3/16/2021	24800
	9/14/2021	24000
	3/18/2022	22700
	9/13/2022	23800

---

Date	Count	Mean	Significant
3/14/2023	1	23600	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Magnesium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 5300

Confidence Level = 87.5%

False Positive Rate = 12.5%

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Baseline Measurements	Date	Value
	11/14/2019	5300
	3/25/2020	5100
	9/29/2020	4400
	3/22/2021	4500
	9/15/2021	4700
	3/24/2022	4800
	9/15/2022	4700

---

Date	Count	Mean	Significant
3/16/2023	1	4800	FALSE

## Shapiro-Francia Test of Normality

Parameter: Manganese, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 120

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.40892	5.80292	0
2	4.7	-2.14441	10.4014	-10.0787
3	16	-1.97737	14.3114	-41.7166
4	18	-1.83843	17.6912	-74.8083
5	20	-1.7392	20.716	-109.592
6	20	-1.65463	23.4538	-142.685
7	28	-1.58047	25.9517	-186.938
8	29	-1.50626	28.2205	-230.619
9	30	-1.44663	30.3132	-274.018
10	32	-1.39175	32.2502	-318.554
11	32	-1.34075	34.0478	-361.458
12	32	-1.28727	35.7049	-402.651
13	33	-1.24264	37.249	-443.658
14	34	-1.20036	38.6899	-484.47
15	35	-1.16012	40.0358	-525.075
16	35	-1.11699	41.2834	-564.169
17	35	-1.08032	42.4505	-601.98
18	36	-1.04505	43.5427	-639.602
19	36	-1.00687	44.5564	-675.849
20	36	-0.974114	45.5053	-710.917
21	36	-0.942375	46.3934	-744.843
22	36	-0.911562	47.2243	-777.659
23	37	-0.877897	47.9951	-810.141
24	38	-0.848786	48.7155	-842.395
25	39	-0.820379	49.3885	-874.39
26	39	-0.792618	50.0168	-905.302
27	40	-0.7621	50.5975	-935.786
28	40	-0.735557	51.1386	-965.208
29	41	-0.709522	51.642	-994.299
30	41	-0.68396	52.1098	-1022.34
31	41	-0.655726	52.5398	-1049.23
32	41	-0.631062	52.938	-1075.1
33	41	-0.606775	53.3062	-1099.98
34	42	-0.582841	53.6459	-1124.46
35	42	-0.556308	53.9554	-1147.82
36	42	-0.533048	54.2395	-1170.21
37	43	-0.510074	54.4997	-1192.14
38	43	-0.484544	54.7345	-1212.98
39	44	-0.462114	54.948	-1233.31
40	44	-0.439913	55.1416	-1252.67
41	45	-0.417928	55.3162	-1271.47
42	46	-0.393433	55.471	-1289.57
43	46	-0.371856	55.6093	-1306.68
44	46	-0.350451	55.7321	-1322.8
45	47	-0.329206	55.8405	-1338.27
46	48	-0.305481	55.9338	-1352.93
47	48	-0.284535	56.0148	-1366.59

48	48	-0.263715	56.0843	-1379.25
49	50	-0.243007	56.1434	-1391.4
50	51	-0.219834	56.1917	-1402.61
51	55	-0.199336	56.2314	-1413.58
52	56	-0.17892	56.2634	-1423.59
53	58	-0.156042	56.2878	-1432.65
54	60	-0.135774	56.3062	-1440.79
55	61	-0.115562	56.3196	-1447.84
56	64	-0.0953969	56.3287	-1453.95
57	64	-0.0727562	56.334	-1458.6
58	65	-0.0526632	56.3367	-1462.03
59	67	-0.0325917	56.3378	-1464.21
60	68	-0.0125328	56.338	-1465.06
61	68	0.0125328	56.3381	-1464.21
62	70	0.0325917	56.3392	-1461.93
63	70	0.0526632	56.342	-1458.24
64	71	0.0727562	56.3472	-1453.08
65	72	0.0953969	56.3563	-1446.21
66	73	0.115562	56.3697	-1437.77
67	77	0.135774	56.3881	-1427.32
68	82	0.156042	56.4125	-1414.52
69	83	0.17892	56.4445	-1399.67
70	86	0.199336	56.4842	-1382.53
71	88	0.219834	56.5326	-1363.18
72	95	0.243007	56.5916	-1340.1
73	100	0.263715	56.6612	-1313.73
74	100	0.284535	56.7421	-1285.27
75	100	0.305481	56.8354	-1254.72
76	110	0.329206	56.9438	-1218.51
77	110	0.350451	57.0666	-1179.96
78	110	0.371856	57.2049	-1139.06
79	120	0.393433	57.3597	-1091.85
80	120	0.417928	57.5344	-1041.69
81	120	0.439913	57.7279	-988.905
82	120	0.462114	57.9414	-933.451
83	120	0.484544	58.1762	-875.306
84	120	0.510074	58.4364	-814.097
85	130	0.533048	58.7205	-744.8
86	130	0.556308	59.03	-672.48
87	140	0.582841	59.3697	-590.883
88	140	0.606775	59.7379	-505.934
89	140	0.631062	60.1361	-417.585
90	140	0.655726	60.5661	-325.784
91	140	0.68396	61.0339	-230.029
92	150	0.709522	61.5373	-123.601
93	150	0.735557	62.0784	-13.2675
94	160	0.7621	62.6592	108.668
95	160	0.792618	63.2874	235.487
96	170	0.820379	63.9604	374.952
97	350	0.848786	64.6809	672.027
98	380	0.877897	65.4516	1005.63
99	380	0.911562	66.2825	1352.02
100	390	0.942375	67.1706	1719.55
101	410	0.974114	68.1195	2118.93
102	440	1.00687	69.1333	2561.95
103	500	1.04505	70.2254	3084.48
104	540	1.08032	71.3925	3667.85

105	580	1.11699	72.6401	4315.71
106	660	1.16012	73.986	5081.38
107	680	1.20036	75.4269	5897.63
108	690	1.24264	76.9711	6755.05
109	720	1.28727	78.6281	7681.89
110	910	1.34075	80.4257	8901.97
111	920	1.39175	82.3627	10182.4
112	980	1.44663	84.4554	11600.1
113	2000	1.50626	86.7243	14612.6
114	2000	1.58047	89.2221	17773.5
115	2300	1.65463	91.9599	21579.2
116	2600	1.7392	94.9847	26101.1
117	2800	1.83843	98.3645	31248.7
118	2900	1.97737	102.275	36983
119	3200	2.14441	106.873	43845.1
120	3400	2.40892	112.676	52035.5

---

Data Set Standard Deviation = 670.422

Numerator = 2.70769e+009

Denominator = 6.02664e+009

W Statistic = 0.449287 = 2.70769e+009 / 6.02664e+009

**5% Critical value of 0.976 exceeds 0.449287**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.449287**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Manganese, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 100

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	40
	12/5/2013	40
	3/19/2014	44
	9/8/2014	42
	3/18/2015	44
	9/8/2015	83
	3/14/2016	64
	9/20/2016	48
	3/24/2017	55
	9/20/2017	61
	3/27/2018	56
	9/18/2018	64
	3/11/2019	70
	10/3/2019	60
	3/23/2020	73
	9/24/2020	71
	3/23/2021	100
	9/16/2021	70
	3/24/2022	67
	9/16/2022	88

---

Date	Count	Mean	Significant
3/17/2023	1	68	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Manganese, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 5.26316%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 51

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	20
	3/21/2014	28
	9/8/2014	29
	3/18/2015	30
	9/8/2015	35
	3/14/2016	33
	9/26/2016	35
	3/30/2017	36
	9/20/2017	36
	3/30/2018	41
	9/21/2018	36
	3/11/2019	36
	10/3/2019	41
	3/23/2020	4.7 J
	9/25/2020	48
	3/23/2021	ND<0 U
	9/16/2021	42
	3/23/2022	51
	9/16/2022	46

---

Date	Count	Mean	Significant
3/17/2023	1	46	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Manganese, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 920

Confidence Level = 93.3%

False Positive Rate = 6.7%

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Baseline Measurements	Date	Value
	3/21/2016	690
	9/23/2016	390
	3/28/2017	380
	9/21/2017	350
	3/16/2018	380
	9/19/2018	440
	3/5/2019	500
	10/3/2019	540
	3/25/2020	580
	9/28/2020	660
	3/19/2021	680
	9/15/2021	720
	3/22/2022	910
	9/14/2022	920

---

Date	Count	Mean	Significant
3/16/2023	1	980	TRUE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Manganese, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 3200

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	2000
	3/26/2020	2000
	9/29/2020	2300
	3/16/2021	2600
	9/14/2021	2800
	3/18/2022	2900
	9/13/2022	3200

---

Date	Count	Mean	Significant
3/14/2023	1	3400	TRUE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Manganese, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 50

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	48
	3/25/2020	43
	9/29/2020	41
	3/22/2021	39
	9/15/2021	41
	3/24/2022	47
	9/15/2022	50

---

Date	Count	Mean	Significant
3/16/2023	1	58	TRUE

## Shapiro-Francia Test of Normality

Parameter: Mercury, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 120

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.97737	14.3114	0
4	0	-1.83843	17.6912	0
5	0	-1.7392	20.716	0
6	0	-1.65463	23.4538	0
7	0	-1.58047	25.9517	0
8	0	-1.50626	28.2205	0
9	0	-1.44663	30.3132	0
10	0	-1.39175	32.2502	0
11	0	-1.34075	34.0478	0
12	0	-1.28727	35.7049	0
13	0	-1.24264	37.249	0
14	0	-1.20036	38.6899	0
15	0	-1.16012	40.0358	0
16	0	-1.11699	41.2834	0
17	0	-1.08032	42.4505	0
18	0	-1.04505	43.5427	0
19	0	-1.00687	44.5564	0
20	0	-0.974114	45.5053	0
21	0	-0.942375	46.3934	0
22	0	-0.911562	47.2243	0
23	0	-0.877897	47.9951	0
24	0	-0.848786	48.7155	0
25	0	-0.820379	49.3885	0
26	0	-0.792618	50.0168	0
27	0	-0.7621	50.5975	0
28	0	-0.735557	51.1386	0
29	0	-0.709522	51.642	0
30	0	-0.68396	52.1098	0
31	0	-0.655726	52.5398	0
32	0	-0.631062	52.938	0
33	0	-0.606775	53.3062	0
34	0	-0.582841	53.6459	0
35	0	-0.556308	53.9554	0
36	0	-0.533048	54.2395	0
37	0	-0.510074	54.4997	0
38	0	-0.484544	54.7345	0
39	0	-0.462114	54.948	0
40	0	-0.439913	55.1416	0
41	0	-0.417928	55.3162	0
42	0	-0.393433	55.471	0
43	0	-0.371856	55.6093	0
44	0	-0.350451	55.7321	0
45	0	-0.329206	55.8405	0
46	0	-0.305481	55.9338	0
47	0	-0.284535	56.0148	0

48	0	-0.263715	56.0843	0
49	0	-0.243007	56.1434	0
50	0	-0.219834	56.1917	0
51	0	-0.199336	56.2314	0
52	0	-0.17892	56.2634	0
53	0.24	-0.156042	56.2878	-0.0374501
54	0.24	-0.135774	56.3062	-0.0700358
55	0.24	-0.115562	56.3196	-0.0977706
56	0.25	-0.0953969	56.3287	-0.12162
57	0.26	-0.0727562	56.334	-0.140536
58	0.27	-0.0526632	56.3367	-0.154755
59	0.29	-0.0325917	56.3378	-0.164207
60	0.31	-0.0125328	56.338	-0.168092
61	0.35	0.0125328	56.3381	-0.163706
62	0.38	0.0325917	56.3392	-0.151321
63	0.39	0.0526632	56.342	-0.130782
64	0.39	0.0727562	56.3472	-0.102407
65	0.45	0.0953969	56.3563	-0.0594788
66	0.49	0.115562	56.3697	-0.00285361
67	0.85	0.135774	56.3881	0.112554
68	0.9	0.156042	56.4125	0.252992
69	0.92	0.17892	56.4445	0.417599
70	0.94	0.199336	56.4842	0.604975
71	0.99	0.219834	56.5326	0.82261
72	1	0.243007	56.5916	1.06562
73	1.1	0.263715	56.6612	1.3557
74	1.1	0.284535	56.7421	1.66869
75	1.4	0.305481	56.8354	2.09637
76	1.5	0.329206	56.9438	2.59018
77	1.6	0.350451	57.0666	3.1509
78	1.6	0.371856	57.2049	3.74587
79	1.7	0.393433	57.3597	4.4147
80	1.7	0.417928	57.5344	5.12518
81	1.7	0.439913	57.7279	5.87303
82	1.8	0.462114	57.9414	6.70484
83	1.8	0.484544	58.1762	7.57702
84	1.9	0.510074	58.4364	8.54616
85	1.9	0.533048	58.7205	9.55895
86	1.9	0.556308	59.03	10.6159
87	2	0.582841	59.3697	11.7816
88	2	0.606775	59.7379	12.9952
89	2	0.631062	60.1361	14.2573
90	2.02	0.655726	60.5661	15.5819
91	2.1	0.68396	61.0339	17.0182
92	2.2	0.709522	61.5373	18.5791
93	2.3	0.735557	62.0784	20.2709
94	2.3	0.7621	62.6592	22.0237
95	2.3	0.792618	63.2874	23.8468
96	2.3	0.820379	63.9604	25.7336
97	2.3	0.848786	64.6809	27.6858
98	2.3	0.877897	65.4516	29.705
99	2.4	0.911562	66.2825	31.8927
100	2.5	0.942375	67.1706	34.2487
101	2.6	0.974114	68.1195	36.7814
102	2.7	1.00687	69.1333	39.4999
103	2.7	1.04505	70.2254	42.3216
104	2.7	1.08032	71.3925	45.2384

105	2.8	1.11699	72.6401	48.366
106	2.8	1.16012	73.986	51.6143
107	2.8	1.20036	75.4269	54.9753
108	3	1.24264	76.9711	58.7032
109	3	1.28727	78.6281	62.5651
110	3	1.34075	80.4257	66.5873
111	3.1	1.39175	82.3627	70.9017
112	3.1	1.44663	84.4554	75.3863
113	3.1	1.50626	86.7243	80.0557
114	3.2	1.58047	89.2221	85.1132
115	3.2	1.65463	91.9599	90.408
116	3.2	1.7392	94.9847	95.9734
117	3.3	1.83843	98.3645	102.04
118	3.3	1.97737	102.275	108.566
119	3.3	2.14441	106.873	115.642
120	3.4	2.40892	112.676	123.832

---

Data Set Standard Deviation = 1.18842

Numerator = 15334.5

Denominator = 18937.2

W Statistic = 0.809754 = 15334.5 / 18937.2

**5% Critical value of 0.976 exceeds 0.809754**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.809754**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Mercury, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 3.3

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	2.02
	12/5/2013	1.9
	3/19/2014	2.6
	9/8/2014	3.2
	3/18/2015	3.3
	9/8/2015	2.7
	3/14/2016	3.1
	9/20/2016	3
	3/24/2017	3.1
	9/20/2017	3.1
	3/27/2018	3.2
	9/18/2018	2.8
	3/11/2019	2.8
	10/3/2019	3.3
	3/23/2020	3
	9/24/2020	3.3
	3/23/2021	2.7
	9/16/2021	3.2
	3/24/2022	3
	9/16/2022	2.3

---

Date	Count	Mean	Significant
3/17/2023	1	3.4	TRUE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Mercury, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 2.8

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	0.92
	3/21/2014	0.94
	9/8/2014	1.4
	3/18/2015	1.7
	9/8/2015	1.1
	3/14/2016	2.3
	9/26/2016	2.4
	3/30/2017	2.8
	9/20/2017	2.7
	3/30/2018	2.5
	9/21/2018	2.3
	3/11/2019	2.3
	10/3/2019	2.1
	3/23/2020	2
	9/25/2020	1.5
	3/23/2021	1.1
	9/16/2021	1.6
	3/23/2022	1.7
	9/16/2022	1.7

---

Date	Count	Mean	Significant
3/17/2023	1	1.8	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Mercury, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 0

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/28/2017	ND<0 U
	9/21/2017	ND<0 U
	3/16/2018	ND<0 U
	9/19/2018	ND<0 U
	3/5/2019	ND<0 U
	10/3/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Mercury, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 1

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	0.45 J
	3/26/2020	0.38 J
	9/29/2020	0.29 J
	3/16/2021	0.49 J
	9/14/2021	0.85
	3/18/2022	1
	9/13/2022	0.9

---

Date	Count	Mean	Significant
3/14/2023	1	0.39	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Mercury, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 2.3

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	1.9
	3/25/2020	1.9
	9/29/2020	2
	3/22/2021	2.3
	9/15/2021	2.2
	3/24/2022	1.8
	9/15/2022	2

---

Date	Count	Mean	Significant
3/16/2023	1	2.3	FALSE

## Shapiro-Francia Test of Normality

Parameter: Nickel, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 120

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.97737	14.3114	0
4	0	-1.83843	17.6912	0
5	0	-1.7392	20.716	0
6	1.1	-1.65463	23.4538	-1.82009
7	2.9	-1.58047	25.9517	-6.40344
8	3.3	-1.50626	28.2205	-11.3741
9	5	-1.44663	30.3132	-18.6073
10	6.4	-1.39175	32.2502	-27.5144
11	6.7	-1.34075	34.0478	-36.4975
12	7.7	-1.28727	35.7049	-46.4095
13	7.7	-1.24264	37.249	-55.9778
14	9	-1.20036	38.6899	-66.7811
15	9	-1.16012	40.0358	-77.2221
16	9.2	-1.11699	41.2834	-87.4984
17	9.2	-1.08032	42.4505	-97.4374
18	9.2	-1.04505	43.5427	-107.052
19	9.4	-1.00687	44.5564	-116.516
20	9.7	-0.974114	45.5053	-125.965
21	9.8	-0.942375	46.3934	-135.201
22	9.9	-0.911562	47.2243	-144.225
23	9.9	-0.877897	47.9951	-152.916
24	10	-0.848786	48.7155	-161.404
25	10	-0.820379	49.3885	-169.608
26	10	-0.792618	50.0168	-177.534
27	10	-0.7621	50.5975	-185.155
28	10	-0.735557	51.1386	-192.511
29	11	-0.709522	51.642	-200.315
30	11	-0.68396	52.1098	-207.839
31	11	-0.655726	52.5398	-215.052
32	11	-0.631062	52.938	-221.994
33	12	-0.606775	53.3062	-229.275
34	13	-0.582841	53.6459	-236.852
35	13	-0.556308	53.9554	-244.084
36	14	-0.533048	54.2395	-251.546
37	16	-0.510074	54.4997	-259.708
38	16	-0.484544	54.7345	-267.46
39	18	-0.462114	54.948	-275.778
40	19	-0.439913	55.1416	-284.137
41	20	-0.417928	55.3162	-292.495
42	21	-0.393433	55.471	-300.757
43	21	-0.371856	55.6093	-308.566
44	22	-0.350451	55.7321	-316.276
45	23	-0.329206	55.8405	-323.848
46	23	-0.305481	55.9338	-330.874
47	25	-0.284535	56.0148	-337.987

48	25	-0.263715	56.0843	-344.58
49	25	-0.243007	56.1434	-350.656
50	26	-0.219834	56.1917	-356.371
51	26	-0.199336	56.2314	-361.554
52	26	-0.17892	56.2634	-366.206
53	29	-0.156042	56.2878	-370.731
54	29	-0.135774	56.3062	-374.669
55	31	-0.115562	56.3196	-378.251
56	32	-0.0953969	56.3287	-381.304
57	33	-0.0727562	56.334	-383.705
58	34	-0.0526632	56.3367	-385.495
59	37	-0.0325917	56.3378	-386.701
60	40	-0.0125328	56.338	-387.202
61	41	0.0125328	56.3381	-386.689
62	41	0.0325917	56.3392	-385.352
63	41	0.0526632	56.342	-383.193
64	43	0.0727562	56.3472	-380.065
65	45	0.0953969	56.3563	-375.772
66	45	0.115562	56.3697	-370.571
67	46	0.135774	56.3881	-364.326
68	48	0.156042	56.4125	-356.836
69	49	0.17892	56.4445	-348.069
70	49	0.199336	56.4842	-338.301
71	50	0.219834	56.5326	-327.31
72	51	0.243007	56.5916	-314.916
73	51	0.263715	56.6612	-301.467
74	51	0.284535	56.7421	-286.955
75	52	0.305481	56.8354	-271.07
76	52	0.329206	56.9438	-253.952
77	54	0.350451	57.0666	-235.027
78	55	0.371856	57.2049	-214.575
79	55	0.393433	57.3597	-192.936
80	56	0.417928	57.5344	-169.533
81	56	0.439913	57.7279	-144.897
82	56	0.462114	57.9414	-119.019
83	57	0.484544	58.1762	-91.4
84	59	0.510074	58.4364	-61.3056
85	59	0.533048	58.7205	-29.8558
86	60	0.556308	59.03	3.52274
87	60	0.582841	59.3697	38.4932
88	61	0.606775	59.7379	75.5064
89	62	0.631062	60.1361	114.632
90	62	0.655726	60.5661	155.287
91	63	0.68396	61.0339	198.377
92	63	0.709522	61.5373	243.077
93	63	0.735557	62.0784	289.417
94	64	0.7621	62.6592	338.191
95	64	0.792618	63.2874	388.919
96	64	0.820379	63.9604	441.423
97	65	0.848786	64.6809	496.594
98	67	0.877897	65.4516	555.413
99	68	0.911562	66.2825	617.399
100	69	0.942375	67.1706	682.423
101	70	0.974114	68.1195	750.611
102	77	1.00687	69.1333	828.14
103	78	1.04505	70.2254	909.654
104	78	1.08032	71.3925	993.919

105	79	1.11699	72.6401	1082.16
106	79	1.16012	73.986	1173.81
107	80	1.20036	75.4269	1269.84
108	82	1.24264	76.9711	1371.74
109	83	1.28727	78.6281	1478.58
110	84	1.34075	80.4257	1591.2
111	85	1.39175	82.3627	1709.5
112	87	1.44663	84.4554	1835.36
113	87	1.50626	86.7243	1966.4
114	88	1.58047	89.2221	2105.48
115	88	1.65463	91.9599	2251.09
116	90	1.7392	94.9847	2407.62
117	91	1.83843	98.3645	2574.92
118	100	1.97737	102.275	2772.65
119	100	2.14441	106.873	2987.09
120	110	2.40892	112.676	3252.07

---

Data Set Standard Deviation = 28.8948

Numerator = 1.0576e+007

Denominator = 1.11948e+007

W Statistic = 0.94472 = 1.0576e+007 / 1.11948e+007

**5% Critical value of 0.976 exceeds 0.94472**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.94472**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Nickel, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 10.5263%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 52

Confidence Level = 95%

False Positive Rate = 5%

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Baseline Measurements	Date	Value
	9/23/2013	29
	3/21/2014	33
	9/8/2014	32
	3/18/2015	34
	9/8/2015	51
	3/14/2016	37
	9/26/2016	40
	3/30/2017	41
	9/20/2017	41
	3/30/2018	45
	9/21/2018	41
	3/11/2019	43
	10/3/2019	45
	3/23/2020	ND<0 U
	9/25/2020	49
	3/23/2021	ND<0 U
	9/16/2021	48
	3/23/2022	52
	9/16/2022	51

---

Date	Count	Mean	Significant
3/17/2023	1	51	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Nickel, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 69

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	46
	12/5/2013	50
	3/19/2014	49
	9/8/2014	52
	3/18/2015	54
	9/8/2015	57
	3/14/2016	56
	9/20/2016	59
	3/24/2017	59
	9/20/2017	60
	3/27/2018	55
	9/18/2018	60
	3/11/2019	61
	10/3/2019	64
	3/23/2020	64
	9/24/2020	62
	3/23/2021	63
	9/16/2021	62
	3/24/2022	68
	9/16/2022	69

---

Date	Count	Mean	Significant
3/17/2023	1	70	TRUE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Nickel, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 16

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	16
	9/23/2016	14
	3/28/2017	13
	9/21/2017	11
	3/16/2018	10
	9/19/2018	11
	3/5/2019	1.1
	10/3/2019	10
	3/25/2020	9.8
	9/28/2020	11
	3/19/2021	9.9
	9/15/2021	10
	3/22/2022	10
	9/14/2022	9

---

Date	Count	Mean	Significant
3/16/2023	1	9.7	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Nickel, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 67

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	56
	3/26/2020	56
	9/29/2020	55
	3/16/2021	64
	9/14/2021	63
	3/18/2022	63
	9/13/2022	67

---

Date	Count	Mean	Significant
3/14/2023	1	65	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Nickel, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 29

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	29
	3/25/2020	26
	9/29/2020	21
	3/22/2021	23
	9/15/2021	25
	3/24/2022	25
	9/15/2022	26

---

Date	Count	Mean	Significant
3/16/2023	1	26	FALSE

## Shapiro-Francia Test of Normality

Parameter: Potassium, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 120

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	190	-2.40892	5.80292	-457.696
2	940	-2.14441	10.4014	-2473.44
3	1390	-1.97737	14.3114	-5221.98
4	1400	-1.83843	17.6912	-7795.78
5	1700	-1.7392	20.716	-10752.4
6	1710	-1.65463	23.4538	-13581.8
7	1780	-1.58047	25.9517	-16395.1
8	1800	-1.50626	28.2205	-19106.3
9	1800	-1.44663	30.3132	-21710.3
10	1800	-1.39175	32.2502	-24215.4
11	1800	-1.34075	34.0478	-26628.8
12	1900	-1.28727	35.7049	-29074.6
13	1900	-1.24264	37.249	-31435.6
14	1900	-1.20036	38.6899	-33716.3
15	1900	-1.16012	40.0358	-35920.5
16	1940	-1.11699	41.2834	-38087.5
17	2000	-1.08032	42.4505	-40248.1
18	2000	-1.04505	43.5427	-42338.2
19	2000	-1.00687	44.5564	-44351.9
20	2000	-0.974114	45.5053	-46300.2
21	2000	-0.942375	46.3934	-48184.9
22	2000	-0.911562	47.2243	-50008
23	2000	-0.877897	47.9951	-51763.8
24	2100	-0.848786	48.7155	-53546.3
25	2100	-0.820379	49.3885	-55269.1
26	2100	-0.792618	50.0168	-56933.6
27	2100	-0.7621	50.5975	-58534
28	2100	-0.735557	51.1386	-60078.7
29	2100	-0.709522	51.642	-61568.6
30	2100	-0.68396	52.1098	-63005
31	2200	-0.655726	52.5398	-64447.6
32	2200	-0.631062	52.938	-65835.9
33	2200	-0.606775	53.3062	-67170.8
34	2200	-0.582841	53.6459	-68453.1
35	2200	-0.556308	53.9554	-69676.9
36	2300	-0.533048	54.2395	-70902.9
37	2300	-0.510074	54.4997	-72076.1
38	2300	-0.484544	54.7345	-73190.6
39	2300	-0.462114	54.948	-74253.4
40	2300	-0.439913	55.1416	-75265.2
41	2300	-0.417928	55.3162	-76226.5
42	2300	-0.393433	55.471	-77131.4
43	2300	-0.371856	55.6093	-77986.6
44	2300	-0.350451	55.7321	-78792.7
45	2300	-0.329206	55.8405	-79549.8
46	2300	-0.305481	55.9338	-80252.4
47	2300	-0.284535	56.0148	-80906.9

48	2300	-0.263715	56.0843	-81513.4
49	2300	-0.243007	56.1434	-82072.3
50	2400	-0.219834	56.1917	-82599.9
51	2400	-0.199336	56.2314	-83078.3
52	2400	-0.17892	56.2634	-83507.8
53	2400	-0.156042	56.2878	-83882.3
54	2400	-0.135774	56.3062	-84208.1
55	2400	-0.115562	56.3196	-84485.5
56	2400	-0.0953969	56.3287	-84714.4
57	2500	-0.0727562	56.334	-84896.3
58	2500	-0.0526632	56.3367	-85028
59	2500	-0.0325917	56.3378	-85109.4
60	2500	-0.0125328	56.338	-85140.8
61	2500	0.0125328	56.3381	-85109.4
62	2500	0.0325917	56.3392	-85028
63	2500	0.0526632	56.342	-84896.3
64	2600	0.0727562	56.3472	-84707.1
65	2600	0.0953969	56.3563	-84459.1
66	2600	0.115562	56.3697	-84158.6
67	2700	0.135774	56.3881	-83792.1
68	2700	0.156042	56.4125	-83370.7
69	2700	0.17892	56.4445	-82887.7
70	2700	0.199336	56.4842	-82349.4
71	2700	0.219834	56.5326	-81755.9
72	2700	0.243007	56.5916	-81099.8
73	2700	0.263715	56.6612	-80387.7
74	2700	0.284535	56.7421	-79619.5
75	2700	0.305481	56.8354	-78794.7
76	2700	0.329206	56.9438	-77905.8
77	2750	0.350451	57.0666	-76942.1
78	2800	0.371856	57.2049	-75900.9
79	2800	0.393433	57.3597	-74799.3
80	2800	0.417928	57.5344	-73629.1
81	2800	0.439913	57.7279	-72397.3
82	2800	0.462114	57.9414	-71103.4
83	2800	0.484544	58.1762	-69746.7
84	2800	0.510074	58.4364	-68318.5
85	2800	0.533048	58.7205	-66826
86	2900	0.556308	59.03	-65212.7
87	2900	0.582841	59.3697	-63522.4
88	2900	0.606775	59.7379	-61762.8
89	2900	0.631062	60.1361	-59932.7
90	2900	0.655726	60.5661	-58031.1
91	2900	0.68396	61.0339	-56047.6
92	2900	0.709522	61.5373	-53990
93	3000	0.735557	62.0784	-51783.3
94	3100	0.7621	62.6592	-49420.8
95	3200	0.792618	63.2874	-46884.4
96	3200	0.820379	63.9604	-44259.2
97	3300	0.848786	64.6809	-41458.2
98	3400	0.877897	65.4516	-38473.4
99	3400	0.911562	66.2825	-35374.1
100	3400	0.942375	67.1706	-32170
101	3700	0.974114	68.1195	-28565.8
102	4000	1.00687	69.1333	-24538.3
103	4000	1.04505	70.2254	-20358.1
104	4100	1.08032	71.3925	-15928.8

105	4100	1.11699	72.6401	-11349.2
106	4200	1.16012	73.986	-6476.65
107	4200	1.20036	75.4269	-1435.14
108	4400	1.24264	76.9711	4032.49
109	4400	1.28727	78.6281	9696.49
110	4400	1.34075	80.4257	15595.8
111	4500	1.39175	82.3627	21858.7
112	5000	1.44663	84.4554	29091.8
113	5200	1.50626	86.7243	36924.4
114	5300	1.58047	89.2221	45300.8
115	5400	1.65463	91.9599	54235.8
116	5400	1.7392	94.9847	63627.5
117	5600	1.83843	98.3645	73922.7
118	6300	1.97737	102.275	86380.1
119	8100	2.14441	106.873	103750
120	9100	2.40892	112.676	125671

---

Data Set Standard Deviation = 1237.9

Numerator = 1.57932e+010

Denominator = 2.05472e+010

W Statistic = 0.768632 = 1.57932e+010 / 2.05472e+010

**5% Critical value of 0.976 exceeds 0.768632  
Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.768632  
Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Potassium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 2300

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	1710
	3/21/2014	1700
	9/8/2014	1800
	3/18/2015	1800
	9/8/2015	1800
	3/14/2016	1800
	9/26/2016	1900
	3/30/2017	1900
	9/20/2017	1900
	3/30/2018	2000
	9/21/2018	2000
	3/11/2019	2000
	10/3/2019	2000
	3/23/2020	940
	9/25/2020	2100
	3/23/2021	190
	9/16/2021	2300
	3/23/2022	2200
	9/16/2022	2200

---

Date	Count	Mean	Significant
3/17/2023	1	2300	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Potassium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 2900

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	1940
	12/5/2013	1780
	3/19/2014	2000
	9/8/2014	2100
	3/18/2015	2100
	9/8/2015	2400
	3/14/2016	2300
	9/20/2016	2200
	3/24/2017	2200
	9/20/2017	2300
	3/27/2018	2300
	9/18/2018	2300
	3/11/2019	2400
	10/3/2019	2400
	3/23/2020	2400
	9/24/2020	2500
	3/23/2021	2900
	9/16/2021	2600
	3/24/2022	2600
	9/16/2022	2700

---

Date	Count	Mean	Significant
3/17/2023	1	2500	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Potassium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 2800

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	2400
	9/23/2016	2300
	3/28/2017	2300
	9/21/2017	2000
	3/16/2018	2100
	9/19/2018	2100
	3/5/2019	2300
	10/3/2019	2300
	3/25/2020	2300
	9/28/2020	2400
	3/19/2021	2500
	9/15/2021	2600
	3/22/2022	2700
	9/14/2022	2800

---

Date	Count	Mean	Significant
3/16/2023	1	2800	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Potassium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 5400

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	4200
	3/26/2020	5300
	9/29/2020	5000
	3/16/2021	4200
	9/14/2021	4000
	3/18/2022	4500
	9/13/2022	5400

---

Date	Count	Mean	Significant
3/14/2023	1	4100	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Potassium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 9100

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	9100
	3/25/2020	5600
	9/29/2020	2700
	3/22/2021	2700
	9/15/2021	2800
	3/24/2022	2200
	9/15/2022	2300

---

Date	Count	Mean	Significant
3/16/2023	1	2100	FALSE

# Shapiro-Francia Test of Normality

Parameter: Selenium, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 120

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.97737	14.3114	0
4	0	-1.83843	17.6912	0
5	0	-1.7392	20.716	0
6	0	-1.65463	23.4538	0
7	0	-1.58047	25.9517	0
8	0	-1.50626	28.2205	0
9	0	-1.44663	30.3132	0
10	0	-1.39175	32.2502	0
11	0	-1.34075	34.0478	0
12	0	-1.28727	35.7049	0
13	0	-1.24264	37.249	0
14	0	-1.20036	38.6899	0
15	0	-1.16012	40.0358	0
16	0	-1.11699	41.2834	0
17	0	-1.08032	42.4505	0
18	0	-1.04505	43.5427	0
19	0	-1.00687	44.5564	0
20	0	-0.974114	45.5053	0
21	0	-0.942375	46.3934	0
22	0	-0.911562	47.2243	0
23	0	-0.877897	47.9951	0
24	0	-0.848786	48.7155	0
25	0	-0.820379	49.3885	0
26	0	-0.792618	50.0168	0
27	0	-0.7621	50.5975	0
28	0	-0.735557	51.1386	0
29	0	-0.709522	51.642	0
30	0	-0.68396	52.1098	0
31	0	-0.655726	52.5398	0
32	0	-0.631062	52.938	0
33	0	-0.606775	53.3062	0
34	0	-0.582841	53.6459	0
35	0	-0.556308	53.9554	0
36	0	-0.533048	54.2395	0
37	0	-0.510074	54.4997	0
38	0	-0.484544	54.7345	0
39	0	-0.462114	54.948	0
40	0	-0.439913	55.1416	0
41	0	-0.417928	55.3162	0
42	0	-0.393433	55.471	0
43	0	-0.371856	55.6093	0
44	0	-0.350451	55.7321	0
45	0	-0.329206	55.8405	0
46	0	-0.305481	55.9338	0
47	0	-0.284535	56.0148	0

48	0	-0.263715	56.0843	0
49	0	-0.243007	56.1434	0
50	0	-0.219834	56.1917	0
51	0	-0.199336	56.2314	0
52	0	-0.17892	56.2634	0
53	0	-0.156042	56.2878	0
54	0	-0.135774	56.3062	0
55	0	-0.115562	56.3196	0
56	0	-0.0953969	56.3287	0
57	0	-0.0727562	56.334	0
58	0	-0.0526632	56.3367	0
59	0	-0.0325917	56.3378	0
60	0	-0.0125328	56.338	0
61	0	0.0125328	56.3381	0
62	0	0.0325917	56.3392	0
63	0	0.0526632	56.342	0
64	0	0.0727562	56.3472	0
65	0	0.0953969	56.3563	0
66	0	0.115562	56.3697	0
67	0	0.135774	56.3881	0
68	0	0.156042	56.4125	0
69	0	0.17892	56.4445	0
70	0	0.199336	56.4842	0
71	0	0.219834	56.5326	0
72	0	0.243007	56.5916	0
73	0	0.263715	56.6612	0
74	0	0.284535	56.7421	0
75	0	0.305481	56.8354	0
76	0	0.329206	56.9438	0
77	0	0.350451	57.0666	0
78	0	0.371856	57.2049	0
79	0	0.393433	57.3597	0
80	0	0.417928	57.5344	0
81	0	0.439913	57.7279	0
82	0	0.462114	57.9414	0
83	0	0.484544	58.1762	0
84	0	0.510074	58.4364	0
85	0	0.533048	58.7205	0
86	0	0.556308	59.03	0
87	0	0.582841	59.3697	0
88	0	0.606775	59.7379	0
89	0	0.631062	60.1361	0
90	0	0.655726	60.5661	0
91	0	0.68396	61.0339	0
92	0	0.709522	61.5373	0
93	0	0.735557	62.0784	0
94	0	0.7621	62.6592	0
95	0	0.792618	63.2874	0
96	0	0.820379	63.9604	0
97	0	0.848786	64.6809	0
98	0	0.877897	65.4516	0
99	0	0.911562	66.2825	0
100	0	0.942375	67.1706	0
101	0	0.974114	68.1195	0
102	0	1.00687	69.1333	0
103	0	1.04505	70.2254	0
104	0	1.08032	71.3925	0

105	0	1.11699	72.6401	0
106	0	1.16012	73.986	0
107	0	1.20036	75.4269	0
108	0	1.24264	76.9711	0
109	0	1.28727	78.6281	0
110	0	1.34075	80.4257	0
111	0	1.39175	82.3627	0
112	0	1.44663	84.4554	0
113	0.85	1.50626	86.7243	1.28032
114	1.1	1.58047	89.2221	3.01883
115	1.2	1.65463	91.9599	5.00438
116	1.4	1.7392	94.9847	7.43926
117	1.5	1.83843	98.3645	10.1969
118	1.9	1.97737	102.275	13.9539
119	2.1	2.14441	106.873	18.4572
120	2.2	2.40892	112.676	23.7568

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Data Set Standard Deviation = 0.401593

Numerator = 564.385

Denominator = 2162.47

W Statistic = 0.26099 = 564.385 / 2162.47

**5% Critical value of 0.976 exceeds 0.26099**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.26099**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Selenium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 94.7368%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 1.1

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/18/2015	ND<0 U
	9/8/2015	ND<0 U
	3/14/2016	ND<0 U
	9/26/2016	ND<0 U
	3/30/2017	ND<0 U
	9/20/2017	ND<0 U
	3/30/2018	ND<0 U
	9/21/2018	ND<0 U
	3/11/2019	ND<0 U
	10/3/2019	ND<0 U
	3/23/2020	ND<0 U
	9/25/2020	ND<0 U
	3/23/2021	ND<0 U
	9/16/2021	1.1 J
	3/23/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Selenium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 95%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 1.4

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	ND<0 U
	9/8/2014	ND<0 U
	3/18/2015	ND<0 U
	9/8/2015	ND<0 U
	3/14/2016	ND<0 U
	9/20/2016	ND<0 U
	3/24/2017	ND<0 U
	9/20/2017	ND<0 U
	3/27/2018	ND<0 U
	9/18/2018	ND<0 U
	3/11/2019	ND<0 U
	10/3/2019	ND<0 U
	3/23/2020	ND<0 U
	9/24/2020	ND<0 U
	3/23/2021	ND<0 U
	9/16/2021	1.4 J
	3/24/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Selenium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 0

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/28/2017	ND<0 U
	9/21/2017	ND<0 U
	3/16/2018	ND<0 U
	9/19/2018	ND<0 U
	3/5/2019	ND<0 U
	10/3/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Selenium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 85.7143%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0.85

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	ND<0 U
	9/29/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	0.85 J
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Selenium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 71.4286%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 2.1

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/25/2020	ND<0 U
	9/29/2020	ND<0 U
	3/22/2021	2.1 J
	9/15/2021	1.5 J
	3/24/2022	ND<0
	9/15/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Shapiro-Francia Test of Normality

Parameter: Silver, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 119

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.95996	14.2428	0
4	0	-1.83843	17.6226	0
5	0	-1.7392	20.6475	0
6	0	-1.64485	23.353	0
7	0	-1.57179	25.8235	0
8	0	-1.50626	28.0923	0
9	0	-1.43953	30.1646	0
10	0	-1.38517	32.0833	0
11	0	-1.33462	33.8645	0
12	0	-1.28155	35.5069	0
13	0	-1.23724	37.0376	0
14	0	-1.19522	38.4662	0
15	0	-1.15035	39.7895	0
16	0	-1.11232	41.0268	0
17	0	-1.07584	42.1842	0
18	0	-1.03643	43.2584	0
19	0	-1.00271	44.2638	0
20	0	-0.970094	45.2049	0
21	0	-0.93459	46.0783	0
22	0	-0.903992	46.8955	0
23	0	-0.874218	47.6598	0
24	0	-0.841621	48.3681	0
25	0	-0.813379	49.0297	0
26	0	-0.785774	49.6472	0
27	0	-0.755415	50.2178	0
28	0	-0.729003	50.7493	0
29	0	-0.703089	51.2436	0
30	0	-0.67449	51.6985	0
31	0	-0.649522	52.1204	0
32	0	-0.624956	52.511	0
33	0	-0.597761	52.8683	0
34	0	-0.573953	53.1977	0
35	0	-0.550465	53.5007	0
36	0	-0.524401	53.7757	0
37	0	-0.501527	54.0273	0
38	0	-0.478914	54.2566	0
39	0	-0.453763	54.4625	0
40	0	-0.431644	54.6488	0
41	0	-0.409735	54.8167	0
42	0	-0.385321	54.9652	0
43	0	-0.363809	55.0975	0
44	0	-0.342466	55.2148	0
45	0	-0.318639	55.3164	0
46	0	-0.297612	55.4049	0
47	0	-0.276714	55.4815	0

48	0	-0.253347	55.5457	0
49	0	-0.232693	55.5998	0
50	0	-0.212137	55.6448	0
51	0	-0.189118	55.6806	0
52	0	-0.168741	55.7091	0
53	0	-0.148434	55.7311	0
54	0	-0.125661	55.7469	0
55	0	-0.105474	55.758	0
56	0	-0.0853288	55.7653	0
57	0	-0.0627062	55.7692	0
58	0	-0.0426257	55.771	0
59	0	-0.0225612	55.7716	0
60	0	0	55.7716	0
61	0	0.0225612	55.7721	0
62	0	0.0426257	55.7739	0
63	0	0.0627062	55.7778	0
64	0	0.0853288	55.7851	0
65	0	0.105474	55.7962	0
66	0	0.125661	55.812	0
67	0	0.148434	55.834	0
68	0	0.168741	55.8625	0
69	0	0.189118	55.8983	0
70	0	0.212137	55.9433	0
71	0	0.232693	55.9974	0
72	0	0.253347	56.0616	0
73	0	0.276714	56.1382	0
74	0	0.297612	56.2268	0
75	0	0.318639	56.3283	0
76	0	0.342466	56.4456	0
77	0	0.363809	56.5779	0
78	0	0.385321	56.7264	0
79	0	0.409735	56.8943	0
80	0	0.431644	57.0806	0
81	0	0.453763	57.2865	0
82	0	0.478914	57.5159	0
83	0	0.501527	57.7674	0
84	0	0.524401	58.0424	0
85	0	0.550465	58.3454	0
86	0	0.573953	58.6748	0
87	0	0.597761	59.0321	0
88	0	0.624956	59.4227	0
89	0	0.649522	59.8446	0
90	0	0.67449	60.2995	0
91	0	0.703089	60.7939	0
92	0	0.729003	61.3253	0
93	0	0.755415	61.896	0
94	0	0.785774	62.5134	0
95	0	0.813379	63.175	0
96	0	0.841621	63.8833	0
97	0	0.874218	64.6476	0
98	0	0.903992	65.4648	0
99	0	0.93459	66.3382	0
100	0	0.970094	67.2793	0
101	0	1.00271	68.2847	0
102	0	1.03643	69.3589	0
103	0	1.07584	70.5164	0
104	0	1.11232	71.7536	0

105	0	1.15035	73.0769	0
106	0	1.19522	74.5055	0
107	0	1.23724	76.0362	0
108	0	1.28155	77.6786	0
109	0	1.33462	79.4598	0
110	0	1.38517	81.3785	0
111	0	1.43953	83.4508	0
112	0	1.50626	85.7196	0
113	0	1.57179	88.1901	0
114	0	1.64485	90.8956	0
115	0	1.7392	93.9205	0
116	0	1.83843	97.3003	0
117	0	1.95996	101.142	0
118	0	2.14441	105.74	0
119	0	2.40892	111.543	0

---

Data Set Standard Deviation = 0

**Divide by Zero Error**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Silver, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/18/2015	ND<0 U
	9/8/2015	ND<0 U
	3/14/2016	ND<0 U
	9/26/2016	ND<0 U
	3/30/2017	ND<0 U
	9/20/2017	ND<0 U
	3/30/2018	ND<0 U
	9/21/2018	ND<0 U
	3/11/2019	ND<0 U
	10/3/2019	ND<0 U
	3/23/2020	ND<0 U
	9/25/2020	ND<0 U
	3/23/2021	ND<0 U
	9/16/2021	ND<0 U
	3/23/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Silver, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	3/19/2014	ND<0 U
	9/8/2014	ND<0 U
	3/18/2015	ND<0 U
	9/8/2015	ND<0 U
	3/14/2016	ND<0 U
	9/20/2016	ND<0 U
	3/24/2017	ND<0 U
	9/20/2017	ND<0 U
	3/27/2018	ND<0 U
	9/18/2018	ND<0 U
	3/11/2019	ND<0 U
	10/3/2019	ND<0 U
	3/23/2020	ND<0 U
	9/24/2020	ND<0 U
	3/23/2021	ND<0 U
	9/16/2021	ND<0 U
	3/24/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Silver, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 0

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/28/2017	ND<0 U
	9/21/2017	ND<0 U
	3/16/2018	ND<0 U
	9/19/2018	ND<0 U
	3/5/2019	ND<0 U
	10/3/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Silver, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	ND<0 U
	9/29/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Silver, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/25/2020	ND<0 U
	9/29/2020	ND<0 U
	3/22/2021	ND<0 U
	9/15/2021	ND<0 U
	3/24/2022	ND<0
	9/15/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Shapiro-Francia Test of Normality

Parameter: Sodium, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 120

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	970	-2.40892	5.80292	-2336.66
2	2100	-2.14441	10.4014	-6839.91
3	11800	-1.97737	14.3114	-30172.9
4	13900	-1.83843	17.6912	-55727
5	14100	-1.7392	20.716	-80249.7
6	14400	-1.65463	23.4538	-104076
7	15000	-1.58047	25.9517	-127783
8	15000	-1.50626	28.2205	-150377
9	15100	-1.44663	30.3132	-172221
10	15710	-1.39175	32.2502	-194086
11	18500	-1.34075	34.0478	-218890
12	20400	-1.28727	35.7049	-245150
13	20510	-1.24264	37.249	-270637
14	21000	-1.20036	38.6899	-295844
15	21200	-1.16012	40.0358	-320439
16	21240	-1.11699	41.2834	-344163
17	22400	-1.08032	42.4505	-368363
18	23200	-1.04505	43.5427	-392608
19	23400	-1.00687	44.5564	-416168
20	23410	-0.974114	45.5053	-438972
21	23700	-0.942375	46.3934	-461307
22	23900	-0.911562	47.2243	-483093
23	24000	-0.877897	47.9951	-504163
24	24700	-0.848786	48.7155	-525128
25	24900	-0.820379	49.3885	-545555
26	25400	-0.792618	50.0168	-565688
27	26000	-0.7621	50.5975	-585502
28	26100	-0.735557	51.1386	-604700
29	26400	-0.709522	51.642	-623432
30	26800	-0.68396	52.1098	-641762
31	26900	-0.655726	52.5398	-659401
32	27400	-0.631062	52.938	-676692
33	28000	-0.606775	53.3062	-693682
34	28000	-0.582841	53.6459	-710001
35	28200	-0.556308	53.9554	-725689
36	28600	-0.533048	54.2395	-740934
37	28600	-0.510074	54.4997	-755522
38	29700	-0.484544	54.7345	-769913
39	30400	-0.462114	54.948	-783961
40	30500	-0.439913	55.1416	-797379
41	30600	-0.417928	55.3162	-810167
42	30700	-0.393433	55.471	-822246
43	30900	-0.371856	55.6093	-833736
44	31600	-0.350451	55.7321	-844810
45	32000	-0.329206	55.8405	-855345
46	32200	-0.305481	55.9338	-865181
47	32200	-0.284535	56.0148	-874344

48	32600	-0.263715	56.0843	-882941
49	32600	-0.243007	56.1434	-890863
50	32800	-0.219834	56.1917	-898073
51	33000	-0.199336	56.2314	-904651
52	33500	-0.17892	56.2634	-910645
53	33500	-0.156042	56.2878	-915873
54	33800	-0.135774	56.3062	-920462
55	33900	-0.115562	56.3196	-924379
56	34400	-0.0953969	56.3287	-927661
57	34400	-0.0727562	56.334	-930164
58	34900	-0.0526632	56.3367	-932002
59	34900	-0.0325917	56.3378	-933139
60	35000	-0.0125328	56.338	-933578
61	35000	0.0125328	56.3381	-933139
62	35100	0.0325917	56.3392	-931995
63	35200	0.0526632	56.342	-930141
64	35300	0.0727562	56.3472	-927573
65	35400	0.0953969	56.3563	-924196
66	35400	0.115562	56.3697	-920105
67	35600	0.135774	56.3881	-915272
68	35600	0.156042	56.4125	-909717
69	35700	0.17892	56.4445	-903329
70	35800	0.199336	56.4842	-896193
71	36000	0.219834	56.5326	-888279
72	36000	0.243007	56.5916	-879531
73	36400	0.263715	56.6612	-869931
74	36500	0.284535	56.7421	-859546
75	36700	0.305481	56.8354	-848335
76	36800	0.329206	56.9438	-836220
77	37200	0.350451	57.0666	-823183
78	37200	0.371856	57.2049	-809350
79	37300	0.393433	57.3597	-794675
80	37300	0.417928	57.5344	-779086
81	37600	0.439913	57.7279	-762546
82	38000	0.462114	57.9414	-744985
83	38000	0.484544	58.1762	-726573
84	38100	0.510074	58.4364	-707139
85	38300	0.533048	58.7205	-686723
86	38600	0.556308	59.03	-665249
87	38600	0.582841	59.3697	-642752
88	39000	0.606775	59.7379	-619088
89	39100	0.631062	60.1361	-594413
90	39600	0.655726	60.5661	-568446
91	40000	0.68396	61.0339	-541088
92	40200	0.709522	61.5373	-512565
93	40400	0.735557	62.0784	-482849
94	40900	0.7621	62.6592	-451679
95	41400	0.792618	63.2874	-418864
96	41400	0.820379	63.9604	-384901
97	41700	0.848786	64.6809	-349506
98	42100	0.877897	65.4516	-312547
99	42700	0.911562	66.2825	-273623
100	43200	0.942375	67.1706	-232913
101	43300	0.974114	68.1195	-190733
102	45000	1.00687	69.1333	-145424
103	45400	1.04505	70.2254	-97979.2
104	45700	1.08032	71.3925	-48608.5

105	47500	1.11699	72.6401	4448.34
106	51800	1.16012	73.986	64542.5
107	53300	1.20036	75.4269	128522
108	58800	1.24264	76.9711	201589
109	59400	1.28727	78.6281	278053
110	59600	1.34075	80.4257	357962
111	60800	1.39175	82.3627	442580
112	62800	1.44663	84.4554	533429
113	76500	1.50626	86.7243	648658
114	80100	1.58047	89.2221	775253
115	88400	1.65463	91.9599	921522
116	99000	1.7392	94.9847	1.0937e+006
117	120000	1.83843	98.3645	1.31431e+006
118	139000	1.97737	102.275	1.58917e+006
119	154000	2.14441	106.873	1.91941e+006
120	171000	2.40892	112.676	2.33133e+006

---

Data Set Standard Deviation = 24925.9

Numerator = 5.43511e+012

Denominator = 8.33066e+012

W Statistic = 0.652423 = 5.43511e+012 / 8.33066e+012

**5% Critical value of 0.976 exceeds 0.652423**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.652423**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Sodium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 42700

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	20510
	3/21/2014	21000
	9/8/2014	22400
	3/18/2015	21200
	9/8/2015	23200
	3/14/2016	23700
	9/26/2016	25400
	3/30/2017	26000
	9/20/2017	28200
	3/30/2018	33000
	9/21/2018	31600
	3/11/2019	33500
	10/3/2019	32200
	3/23/2020	11800
	9/25/2020	35600
	3/23/2021	2100
	9/16/2021	36000
	3/23/2022	42700
	9/16/2022	41400

---

Date	Count	Mean	Significant
3/17/2023	1	43200	TRUE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Sodium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 45400

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	21240
	12/5/2013	20400
	3/19/2014	23400
	9/8/2014	24000
	3/18/2015	24700
	9/8/2015	26900
	3/14/2016	28000
	9/20/2016	28600
	3/24/2017	28000
	9/20/2017	29700
	3/27/2018	32000
	9/18/2018	33500
	3/11/2019	36400
	10/3/2019	35300
	3/23/2020	38000
	9/24/2020	38100
	3/23/2021	43300
	9/16/2021	40000
	3/24/2022	45400
	9/16/2022	39600

---

Date	Count	Mean	Significant
3/17/2023	1	41700	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Sodium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 35800

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	28600
	9/23/2016	27400
	3/28/2017	26100
	9/21/2017	24900
	3/16/2018	26400
	9/19/2018	26800
	3/5/2019	30600
	10/3/2019	30400
	3/25/2020	30900
	9/28/2020	30700
	3/19/2021	35200
	9/15/2021	35000
	3/22/2022	35800
	9/14/2022	35600

---

Date	Count	Mean	Significant
3/16/2023	1	35100	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Sodium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 42100

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	34400
	3/26/2020	33900
	9/29/2020	35400
	3/16/2021	37600
	9/14/2021	38000
	3/18/2022	39100
	9/13/2022	42100

---

Date	Count	Mean	Significant
3/14/2023	1	41400	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Sodium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 23900

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	23900
	3/25/2020	18500
	9/29/2020	14100
	3/22/2021	15000
	9/15/2021	15000
	3/24/2022	15100
	9/15/2022	13900

---

Date	Count	Mean	Significant
3/16/2023	1	14400	FALSE

## Shapiro-Francia Test of Normality

Parameter: Thallium, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 120

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.97737	14.3114	0
4	0	-1.83843	17.6912	0
5	0	-1.7392	20.716	0
6	0	-1.65463	23.4538	0
7	0	-1.58047	25.9517	0
8	0	-1.50626	28.2205	0
9	0	-1.44663	30.3132	0
10	0	-1.39175	32.2502	0
11	0	-1.34075	34.0478	0
12	0	-1.28727	35.7049	0
13	0	-1.24264	37.249	0
14	0	-1.20036	38.6899	0
15	0	-1.16012	40.0358	0
16	0	-1.11699	41.2834	0
17	0	-1.08032	42.4505	0
18	0	-1.04505	43.5427	0
19	0	-1.00687	44.5564	0
20	0	-0.974114	45.5053	0
21	0	-0.942375	46.3934	0
22	0	-0.911562	47.2243	0
23	0	-0.877897	47.9951	0
24	0	-0.848786	48.7155	0
25	0	-0.820379	49.3885	0
26	0	-0.792618	50.0168	0
27	0	-0.7621	50.5975	0
28	0	-0.735557	51.1386	0
29	0	-0.709522	51.642	0
30	0	-0.68396	52.1098	0
31	0	-0.655726	52.5398	0
32	0	-0.631062	52.938	0
33	0	-0.606775	53.3062	0
34	0	-0.582841	53.6459	0
35	0	-0.556308	53.9554	0
36	0	-0.533048	54.2395	0
37	0	-0.510074	54.4997	0
38	0	-0.484544	54.7345	0
39	0	-0.462114	54.948	0
40	0	-0.439913	55.1416	0
41	0	-0.417928	55.3162	0
42	0	-0.393433	55.471	0
43	0	-0.371856	55.6093	0
44	0	-0.350451	55.7321	0
45	0	-0.329206	55.8405	0
46	0	-0.305481	55.9338	0
47	0	-0.284535	56.0148	0

48	0	-0.263715	56.0843	0
49	0	-0.243007	56.1434	0
50	0	-0.219834	56.1917	0
51	0	-0.199336	56.2314	0
52	0	-0.17892	56.2634	0
53	0	-0.156042	56.2878	0
54	0	-0.135774	56.3062	0
55	0	-0.115562	56.3196	0
56	0	-0.0953969	56.3287	0
57	0	-0.0727562	56.334	0
58	0	-0.0526632	56.3367	0
59	0	-0.0325917	56.3378	0
60	0	-0.0125328	56.338	0
61	0	0.0125328	56.3381	0
62	0	0.0325917	56.3392	0
63	0	0.0526632	56.342	0
64	0	0.0727562	56.3472	0
65	0	0.0953969	56.3563	0
66	0	0.115562	56.3697	0
67	0	0.135774	56.3881	0
68	0	0.156042	56.4125	0
69	0	0.17892	56.4445	0
70	0	0.199336	56.4842	0
71	0	0.219834	56.5326	0
72	0	0.243007	56.5916	0
73	0	0.263715	56.6612	0
74	0	0.284535	56.7421	0
75	0	0.305481	56.8354	0
76	0	0.329206	56.9438	0
77	0	0.350451	57.0666	0
78	0	0.371856	57.2049	0
79	0	0.393433	57.3597	0
80	0	0.417928	57.5344	0
81	0	0.439913	57.7279	0
82	0	0.462114	57.9414	0
83	0	0.484544	58.1762	0
84	0	0.510074	58.4364	0
85	0	0.533048	58.7205	0
86	0	0.556308	59.03	0
87	0	0.582841	59.3697	0
88	0	0.606775	59.7379	0
89	0	0.631062	60.1361	0
90	0	0.655726	60.5661	0
91	0	0.68396	61.0339	0
92	0	0.709522	61.5373	0
93	0	0.735557	62.0784	0
94	0	0.7621	62.6592	0
95	0	0.792618	63.2874	0
96	0	0.820379	63.9604	0
97	0	0.848786	64.6809	0
98	0	0.877897	65.4516	0
99	0	0.911562	66.2825	0
100	0	0.942375	67.1706	0
101	0	0.974114	68.1195	0
102	0	1.00687	69.1333	0
103	0	1.04505	70.2254	0
104	0	1.08032	71.3925	0

105	0	1.11699	72.6401	0
106	0	1.16012	73.986	0
107	0	1.20036	75.4269	0
108	0	1.24264	76.9711	0
109	0	1.28727	78.6281	0
110	0	1.34075	80.4257	0
111	0	1.39175	82.3627	0
112	0	1.44663	84.4554	0
113	0	1.50626	86.7243	0
114	0	1.58047	89.2221	0
115	0	1.65463	91.9599	0
116	0	1.7392	94.9847	0
117	0	1.83843	98.3645	0
118	0	1.97737	102.275	0
119	0	2.14441	106.873	0
120	0.2	2.40892	112.676	0.481785

---

Data Set Standard Deviation = 0.0182574  
 Numerator = 0.232117  
 Denominator = 4.46948  
 W Statistic = 0.0519337 = 0.232117 / 4.46948

**5% Critical value of 0.976 exceeds 0.0519337**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.0519337**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Thallium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/18/2015	ND<0 U
	9/8/2015	ND<0 U
	3/14/2016	ND<0 U
	9/26/2016	ND<0 U
	3/30/2017	ND<0 U
	9/20/2017	ND<0 U
	3/30/2018	ND<0 U
	9/21/2018	ND<0 U
	3/11/2019	ND<0 U
	10/3/2019	ND<0 U
	3/23/2020	ND<0 U
	9/25/2020	ND<0 U
	3/23/2021	ND<0 U
	9/16/2021	ND<0 U
	3/23/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Thallium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 0

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	ND<0 U
	9/8/2014	ND<0 U
	3/18/2015	ND<0 U
	9/8/2015	ND<0 U
	3/14/2016	ND<0 U
	9/20/2016	ND<0 U
	3/24/2017	ND<0 U
	9/20/2017	ND<0 U
	3/27/2018	ND<0 U
	9/18/2018	ND<0 U
	3/11/2019	ND<0 U
	10/3/2019	ND<0 U
	3/23/2020	ND<0 U
	9/24/2020	ND<0 U
	3/23/2021	ND<0 U
	9/16/2021	ND<0 U
	3/24/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Thallium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 0

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	ND<0 U
	9/23/2016	ND<0 U
	3/28/2017	ND<0 U
	9/21/2017	ND<0 U
	3/16/2018	ND<0 U
	9/19/2018	ND<0 U
	3/5/2019	ND<0 U
	10/3/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	ND<0 U
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Thallium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/26/2020	ND<0 U
	9/29/2020	ND<0 U
	3/16/2021	ND<0 U
	9/14/2021	ND<0 U
	3/18/2022	ND<0
	9/13/2022	ND<0

---

Date	Count	Mean	Significant
3/14/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Thallium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 0

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	ND<0 U
	3/25/2020	ND<0 U
	9/29/2020	ND<0 U
	3/22/2021	ND<0 U
	9/15/2021	ND<0 U
	3/24/2022	ND<0
	9/15/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Shapiro-Francia Test of Normality

Parameter: Vanadium, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 120

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.97737	14.3114	0
4	0	-1.83843	17.6912	0
5	0	-1.7392	20.716	0
6	0	-1.65463	23.4538	0
7	0	-1.58047	25.9517	0
8	0	-1.50626	28.2205	0
9	0	-1.44663	30.3132	0
10	0	-1.39175	32.2502	0
11	0	-1.34075	34.0478	0
12	0	-1.28727	35.7049	0
13	0	-1.24264	37.249	0
14	0	-1.20036	38.6899	0
15	0	-1.16012	40.0358	0
16	0	-1.11699	41.2834	0
17	0	-1.08032	42.4505	0
18	0	-1.04505	43.5427	0
19	0	-1.00687	44.5564	0
20	0	-0.974114	45.5053	0
21	0	-0.942375	46.3934	0
22	0	-0.911562	47.2243	0
23	0	-0.877897	47.9951	0
24	0	-0.848786	48.7155	0
25	0	-0.820379	49.3885	0
26	0	-0.792618	50.0168	0
27	0	-0.7621	50.5975	0
28	0	-0.735557	51.1386	0
29	0	-0.709522	51.642	0
30	0	-0.68396	52.1098	0
31	0	-0.655726	52.5398	0
32	0	-0.631062	52.938	0
33	0	-0.606775	53.3062	0
34	0	-0.582841	53.6459	0
35	0	-0.556308	53.9554	0
36	0	-0.533048	54.2395	0
37	0	-0.510074	54.4997	0
38	0	-0.484544	54.7345	0
39	0	-0.462114	54.948	0
40	0	-0.439913	55.1416	0
41	0	-0.417928	55.3162	0
42	0	-0.393433	55.471	0
43	0	-0.371856	55.6093	0
44	0	-0.350451	55.7321	0
45	0	-0.329206	55.8405	0
46	0	-0.305481	55.9338	0
47	0	-0.284535	56.0148	0

48	0	-0.263715	56.0843	0
49	0	-0.243007	56.1434	0
50	0	-0.219834	56.1917	0
51	0	-0.199336	56.2314	0
52	0	-0.17892	56.2634	0
53	0	-0.156042	56.2878	0
54	0	-0.135774	56.3062	0
55	0	-0.115562	56.3196	0
56	0	-0.0953969	56.3287	0
57	0	-0.0727562	56.334	0
58	0	-0.0526632	56.3367	0
59	0	-0.0325917	56.3378	0
60	0	-0.0125328	56.338	0
61	0	0.0125328	56.3381	0
62	0	0.0325917	56.3392	0
63	0	0.0526632	56.342	0
64	0	0.0727562	56.3472	0
65	0	0.0953969	56.3563	0
66	0	0.115562	56.3697	0
67	0	0.135774	56.3881	0
68	0	0.156042	56.4125	0
69	0	0.17892	56.4445	0
70	0	0.199336	56.4842	0
71	0	0.219834	56.5326	0
72	0	0.243007	56.5916	0
73	0	0.263715	56.6612	0
74	0	0.284535	56.7421	0
75	0	0.305481	56.8354	0
76	0	0.329206	56.9438	0
77	0	0.350451	57.0666	0
78	0	0.371856	57.2049	0
79	0	0.393433	57.3597	0
80	0	0.417928	57.5344	0
81	0	0.439913	57.7279	0
82	0	0.462114	57.9414	0
83	0	0.484544	58.1762	0
84	0	0.510074	58.4364	0
85	0	0.533048	58.7205	0
86	0	0.556308	59.03	0
87	0	0.582841	59.3697	0
88	0	0.606775	59.7379	0
89	0	0.631062	60.1361	0
90	0	0.655726	60.5661	0
91	0	0.68396	61.0339	0
92	0	0.709522	61.5373	0
93	0	0.735557	62.0784	0
94	0	0.7621	62.6592	0
95	0	0.792618	63.2874	0
96	0	0.820379	63.9604	0
97	0	0.848786	64.6809	0
98	0	0.877897	65.4516	0
99	0	0.911562	66.2825	0
100	0	0.942375	67.1706	0
101	0	0.974114	68.1195	0
102	0	1.00687	69.1333	0
103	0	1.04505	70.2254	0
104	0	1.08032	71.3925	0

105	0	1.11699	72.6401	0
106	0	1.16012	73.986	0
107	0	1.20036	75.4269	0
108	0	1.24264	76.9711	0
109	0	1.28727	78.6281	0
110	0.83	1.34075	80.4257	1.11283
111	1.1	1.39175	82.3627	2.64375
112	1.1	1.44663	84.4554	4.23504
113	1.1	1.50626	86.7243	5.89193
114	1.1	1.58047	89.2221	7.63044
115	1.2	1.65463	91.9599	9.61599
116	1.3	1.7392	94.9847	11.8769
117	1.3	1.83843	98.3645	14.2669
118	1.5	1.97737	102.275	17.233
119	1.5	2.14441	106.873	20.4496
120	1.7	2.40892	112.676	24.5447

---

Data Set Standard Deviation = 0.368599

Numerator = 602.444

Denominator = 1821.74

W Statistic = 0.330697 = 602.444 / 1821.74

**5% Critical value of 0.976 exceeds 0.330697  
Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.330697  
Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Vanadium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 94.7368%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 0.83

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	3/21/2014	ND<0 U
	9/8/2014	ND<0 U
	3/18/2015	ND<0 U
	9/8/2015	ND<0 U
	3/14/2016	ND<0 U
	9/26/2016	ND<0 U
	3/30/2017	ND<0 U
	9/20/2017	ND<0 U
	3/30/2018	ND<0 U
	9/21/2018	ND<0 U
	3/11/2019	ND<0 U
	10/3/2019	ND<0 U
	3/23/2020	0.83 J
	9/25/2020	ND<0 U
	3/23/2021	ND<0 U
	9/16/2021	ND<0 U
	3/23/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Vanadium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 100%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 0

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	ND<0
	12/5/2013	ND<0
	3/19/2014	ND<0 U
	9/8/2014	ND<0 U
	3/18/2015	ND<0 U
	9/8/2015	ND<0 U
	3/14/2016	ND<0 U
	9/20/2016	ND<0 U
	3/24/2017	ND<0 U
	9/20/2017	ND<0 U
	3/27/2018	ND<0 U
	9/18/2018	ND<0 U
	3/11/2019	ND<0 U
	10/3/2019	ND<0 U
	3/23/2020	ND<0 U
	9/24/2020	ND<0 U
	3/23/2021	ND<0 U
	9/16/2021	ND<0 U
	3/24/2022	ND<0
	9/16/2022	ND<0

---

Date	Count	Mean	Significant
3/17/2023	1	0	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Vanadium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 85.7143%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 1.5

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	1.5 J
	9/23/2016	ND<0 U
	3/28/2017	ND<0 U
	9/21/2017	ND<0 U
	3/16/2018	ND<0 U
	9/19/2018	ND<0 U
	3/5/2019	ND<0 U
	10/3/2019	ND<0 U
	3/25/2020	ND<0 U
	9/28/2020	ND<0 U
	3/19/2021	ND<0 U
	9/15/2021	1.1 J
	3/22/2022	ND<0
	9/14/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Vanadium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 14.2857%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 1.5

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	1.2 J
	3/26/2020	ND<0 U
	9/29/2020	1.3 J
	3/16/2021	1.1 J
	9/14/2021	1.5 J
	3/18/2022	1.1 J
	9/13/2022	1.1 J

---

Date	Count	Mean	Significant
3/14/2023	1	1.3	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Vanadium, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 85.7143%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 1.7

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	1.7 J
	3/25/2020	ND<0 U
	9/29/2020	ND<0 U
	3/22/2021	ND<0 U
	9/15/2021	ND<0 U
	3/24/2022	ND<0
	9/15/2022	ND<0

---

Date	Count	Mean	Significant
3/16/2023	1	0	FALSE

## Shapiro-Francia Test of Normality

Parameter: Zinc, Total

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Number of Measurements = 120

<b>i</b>	<b>x(i)</b>	<b>m(i)</b>	<b>sum(m^2)</b>	<b>sum(mx)</b>
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	2.5	-1.97737	14.3114	-4.94342
4	6	-1.83843	17.6912	-15.974
5	6.8	-1.7392	20.716	-27.8005
6	7.8	-1.65463	23.4538	-40.7066
7	8.3	-1.58047	25.9517	-53.8245
8	8.8	-1.50626	28.2205	-67.0796
9	9	-1.44663	30.3132	-80.0993
10	9.2	-1.39175	32.2502	-92.9033
11	9.2	-1.34075	34.0478	-105.238
12	9.3	-1.28727	35.7049	-117.21
13	9.6	-1.24264	37.249	-129.139
14	9.6	-1.20036	38.6899	-140.663
15	9.9	-1.16012	40.0358	-152.148
16	10	-1.11699	41.2834	-163.318
17	10	-1.08032	42.4505	-174.121
18	11	-1.04505	43.5427	-185.617
19	11	-1.00687	44.5564	-196.692
20	12	-0.974114	45.5053	-208.381
21	12	-0.942375	46.3934	-219.69
22	15	-0.911562	47.2243	-233.363
23	15	-0.877897	47.9951	-246.532
24	16	-0.848786	48.7155	-260.112
25	16	-0.820379	49.3885	-273.238
26	17	-0.792618	50.0168	-286.713
27	18	-0.7621	50.5975	-300.431
28	19	-0.735557	51.1386	-314.406
29	19	-0.709522	51.642	-327.887
30	21	-0.68396	52.1098	-342.25
31	23	-0.655726	52.5398	-357.332
32	23	-0.631062	52.938	-371.847
33	23	-0.606775	53.3062	-385.802
34	25	-0.582841	53.6459	-400.373
35	26	-0.556308	53.9554	-414.837
36	28	-0.533048	54.2395	-429.763
37	28	-0.510074	54.4997	-444.045
38	28	-0.484544	54.7345	-457.612
39	28	-0.462114	54.948	-470.551
40	28	-0.439913	55.1416	-482.869
41	31	-0.417928	55.3162	-495.825
42	31	-0.393433	55.471	-508.021
43	31	-0.371856	55.6093	-519.548
44	32	-0.350451	55.7321	-530.763
45	32	-0.329206	55.8405	-541.298
46	32	-0.305481	55.9338	-551.073
47	32	-0.284535	56.0148	-560.178

48	34	-0.263715	56.0843	-569.144
49	34	-0.243007	56.1434	-577.407
50	34	-0.219834	56.1917	-584.881
51	34	-0.199336	56.2314	-591.658
52	35	-0.17892	56.2634	-597.921
53	36	-0.156042	56.2878	-603.538
54	36	-0.135774	56.3062	-608.426
55	36	-0.115562	56.3196	-612.586
56	36	-0.0953969	56.3287	-616.02
57	38	-0.0727562	56.334	-618.785
58	39	-0.0526632	56.3367	-620.839
59	40	-0.0325917	56.3378	-622.143
60	44	-0.0125328	56.338	-622.694
61	44	0.0125328	56.3381	-622.143
62	46	0.0325917	56.3392	-620.644
63	60	0.0526632	56.342	-617.484
64	62	0.0727562	56.3472	-612.973
65	63	0.0953969	56.3563	-606.963
66	63	0.115562	56.3697	-599.682
67	63	0.135774	56.3881	-591.129
68	65	0.156042	56.4125	-580.986
69	67	0.17892	56.4445	-568.998
70	67	0.199336	56.4842	-555.643
71	68	0.219834	56.5326	-540.694
72	68	0.243007	56.5916	-524.17
73	68	0.263715	56.6612	-506.237
74	69	0.284535	56.7421	-486.604
75	69	0.305481	56.8354	-465.526
76	72	0.329206	56.9438	-441.823
77	72	0.350451	57.0666	-416.591
78	72	0.371856	57.2049	-389.817
79	75	0.393433	57.3597	-360.309
80	76	0.417928	57.5344	-328.547
81	78	0.439913	57.7279	-294.234
82	80	0.462114	57.9414	-257.265
83	87	0.484544	58.1762	-215.109
84	90	0.510074	58.4364	-169.203
85	95	0.533048	58.7205	-118.563
86	110	0.556308	59.03	-57.3691
87	140	0.582841	59.3697	24.2286
88	140	0.606775	59.7379	109.177
89	140	0.631062	60.1361	197.526
90	140	0.655726	60.5661	289.327
91	150	0.68396	61.0339	391.922
92	150	0.709522	61.5373	498.35
93	180	0.735557	62.0784	630.75
94	220	0.7621	62.6592	798.412
95	230	0.792618	63.2874	980.714
96	230	0.820379	63.9604	1169.4
97	250	0.848786	64.6809	1381.6
98	260	0.877897	65.4516	1609.85
99	270	0.911562	66.2825	1855.97
100	280	0.942375	67.1706	2119.84
101	290	0.974114	68.1195	2402.33
102	300	1.00687	69.1333	2704.39
103	300	1.04505	70.2254	3017.91
104	310	1.08032	71.3925	3352.8

105	310	1.11699	72.6401	3699.07
106	320	1.16012	73.986	4070.31
107	320	1.20036	75.4269	4454.42
108	350	1.24264	76.9711	4889.35
109	360	1.28727	78.6281	5352.77
110	380	1.34075	80.4257	5862.25
111	390	1.39175	82.3627	6405.03
112	420	1.44663	84.4554	7012.62
113	450	1.50626	86.7243	7690.44
114	480	1.58047	89.2221	8449.06
115	500	1.65463	91.9599	9276.37
116	550	1.7392	94.9847	10232.9
117	620	1.83843	98.3645	11372.8
118	630	1.97737	102.275	12618.5
119	650	2.14441	106.873	14012.4
120	2800	2.40892	112.676	20757.4

---

Data Set Standard Deviation = 287.997

Numerator = 4.30868e+008

Denominator = 1.11212e+009

W Statistic = 0.387428 = 4.30868e+008 / 1.11212e+009

**5% Critical value of 0.976 exceeds 0.387428**  
**Evidence of non-normality at 95% level of significance**

**1% Critical value of 0.967 exceeds 0.387428**  
**Evidence of non-normality at 99% level of significance**

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-13

Parameter: Zinc, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 19

Maximum Baseline Concentration = 2800

Confidence Level = 95%

False Positive Rate = 5%

---

Baseline Measurements	Date	Value
	9/23/2013	90
	3/21/2014	110
	9/8/2014	140
	3/18/2015	87
	9/8/2015	2800
	3/14/2016	250
	9/26/2016	75
	3/30/2017	180
	9/20/2017	150
	3/30/2018	95
	9/21/2018	140
	3/11/2019	300
	10/3/2019	220
	3/23/2020	2.5 J
	9/25/2020	650
	3/23/2021	34
	9/16/2021	150
	3/23/2022	350
	9/16/2022	230

---

Date	Count	Mean	Significant
3/17/2023	1	140	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for SMW-32

Parameter: Zinc, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 20

Maximum Baseline Concentration = 630

Confidence Level = 95.2%

False Positive Rate = 4.8%

---

Baseline Measurements	Date	Value
	9/23/2013	630
	12/5/2013	620
	3/19/2014	390
	9/8/2014	270
	3/18/2015	320
	9/8/2015	550
	3/14/2016	450
	9/20/2016	480
	3/24/2017	380
	9/20/2017	310
	3/27/2018	420
	9/18/2018	310
	3/11/2019	500
	10/3/2019	300
	3/23/2020	230
	9/24/2020	360
	3/23/2021	290
	9/16/2021	280
	3/24/2022	260
	9/16/2022	320

---

Date	Count	Mean	Significant
3/17/2023	1	140	FALSE



## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-15D

Parameter: Zinc, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 14

Maximum Baseline Concentration = 23

Confidence Level = 93.3%

False Positive Rate = 6.7%

---

Baseline Measurements	Date	Value
	3/21/2016	23
	9/23/2016	11
	3/28/2017	10
	9/21/2017	9.2
	3/16/2018	9.3
	9/19/2018	9.6
	3/5/2019	9
	10/3/2019	9.6
	3/25/2020	8.8
	9/28/2020	15
	3/19/2021	10
	9/15/2021	11
	3/22/2022	9.9
	9/14/2022	8.3

---

Date	Count	Mean	Significant
3/16/2023	1	9.2	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-17D

Parameter: Zinc, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 36

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	31
	3/26/2020	28
	9/29/2020	36
	3/16/2021	36
	9/14/2021	36
	3/18/2022	35
	9/13/2022	28

---

Date	Count	Mean	Significant
3/14/2023	1	32	FALSE

## Non-Parametric Prediction Interval

### Intra-Well Comparison for GWM-19D

Parameter: Zinc, Total

Original Data (Not Transformed)

Non-Detects Replaced with 0

Total Percent Non-Detects = 0%

Future Samples (k) = 1

Recent Dates = 1

Baseline Measurements (n) = 7

Maximum Baseline Concentration = 44

Confidence Level = 87.5%

False Positive Rate = 12.5%

---

Baseline Measurements	Date	Value
	11/14/2019	44
	3/25/2020	28
	9/29/2020	26
	3/22/2021	32
	9/15/2021	34
	3/24/2022	34
	9/15/2022	31

---

Date	Count	Mean	Significant
3/16/2023	1	32	FALSE