

2024 Annual Monitoring Report

Lee Crawford Quarry Company
IDNR ID #57-BUD-23-97
5707 F Avenue NW
Cedar Rapids, IA

Prepared For

Lee Crawford Quarry

Project EB93012021
January 15, 2025



January 15, 2025

Project EB93012021

Chad Stobbe
Iowa Department of Natural Resources
502 East 9th Street
Des Moines, IA 50319

Re: 2024 Annual Monitoring Report
Lee Crawford Quarry
IDNR ID#57-BUD-23-97
5707 F Avenue NW
Cedar Rapids, IA

Dear Mr. Stobbe:

EB Solutions, Inc., on behalf of Lee Crawford Quarry, is pleased to submit a copy of the 2024 annual monitoring report for the above referenced site. The objective of the annual monitoring was to summarize information concerning groundwater concentrations and site observations.

If we can be of further assistance or you have any questions, please call us at (319) 249-3293.

Sincerely,
EB Solutions, Inc.

Prepared by:

Edward D. Bertch

Ed D. Bertch, PG, REM
Senior Geologist

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2024 ANNUAL MONITORING REPORT

LEE CRAWFORD QUARRY

IDNR ID #57-BUD-23-97

5707 F AVENUE NW

CEDAR RAPIDS, IOWA

Project EB93012021

January 15, 2025

1.0 INTRODUCTION

Lee Crawford Quarry started to accept beneficial use material on September 29, 1997. Currently, Lee Crawford Quarry Beneficial Use Determination was approved on January 1, 2018. Lee Crawford Quarry uses the solid by products as fill material in the mine reclamation project on Site.

The facility is currently accepting coal combustion residual from Archer Daniels Midland Company, Cedar Rapids Water Department treatment lime residual, and Cedar Rapids Water Pollution Control Facilities sewage sludge incinerator ash.

Lee Crawford Quarry is in the sixth year of the groundwater monitoring program for the facility. Lee Crawford Quarry has one up-gradient (background) monitoring well (MW3) and four down-gradient monitoring points (MW1, MW2, MW4, and MW5). The first and second years (2019 and 2020) Crawford Quarry completed sampling every quarter. The third and fourth years (2021 and 2022) Crawford Quarry completed sampling in the first and fourth quarters. The fifth and sixth years (2023 and 2024) Crawford Quarry completed sampling in the first quarter and the end of the third quarter.

1.1 Scope of Work

EB Solutions, Inc. conducted quarterly groundwater monitoring at Lee Crawford Quarry in 2024 in accordance with Special Conditions section 10 of the Beneficial Use Determination for the Site and Iowa Department of Natural Resources (IDNR) 2021 accepted recommendations. The samples were analyzed with the acceptance by the IDNR to reduce analytical analysis for chemicals that were not detected in the 2019, 2020, 2021, and 2022 sampling events. The sampling was completed on a bi-annual basis.

1.2 Standard of Care

EB Solutions, Inc.'s services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period. EB Solutions, Inc. makes no warranties, either express or implied, regarding the findings, conclusions, or recommendations. Please note that EB Solutions, Inc. does not warrant the work of laboratories, regulatory

agencies or other third parties supplying information used in the preparation of the report.

1.3 Additional Scope Limitations

Findings, conclusions, and recommendations resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, non-detectable, or not present during these services, and we cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during these monitoring activities. Subsurface conditions may vary from those encountered at specific borings or wells or during other surveys, tests, assessments, investigations, or exploratory services; the data, interpretations, findings, and our recommendations are based solely upon data obtained at the time and within the scope of these services.

1.4 Reliance

This report has been prepared for the exclusive use of the Lee Crawford Quarry, and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the site) is prohibited without the express written authorization of the Lee Crawford Quarry and EB Solutions, Inc. Any unauthorized distribution or reuse is at the client's sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions and limitations stated in the proposal, monitoring report, and EB Solutions, Inc.'s Terms and Conditions. The limitation of liability defined in the terms and conditions is the aggregate limit of EB Solutions, Inc.'s liability to the client and all relying parties unless otherwise agreed in writing.

1.5 Site Description

Table A: Site Description

Site Name	Lee Crawford Quarry (Site)
Site Location/Address	5707 F Avenue NW, Cedar Rapids, Linn County, Iowa
General Site Description	The Site consisted of 267.47-acres. Crawford Quarry was started in 1943. The Site has been an open pit mine for 79 years. Crawford Quarry started using solid by-products as fill material on September 29, 1997. They currently have three areas where solid by-products are being used for fill.

A site location map is included as Figure 1, and a site plan is included as Figure 2.

1.6 Site Location and Description

The approximate center of the Site is located at Latitude 41.976231 North and Longitude 91.665250 West. The Site is located within the northwest quarter of the northeast quarter of Section 28, Township 83 North, Range 7 West, in the City of Cedar Rapids, in Linn County, Iowa.

2.0 MONITORING ACTIVITIES

Figure 2 illustrates the location of the monitoring well locations. The following subsections discuss the groundwater sampling in further detail.

2.1 Well Purging

The groundwater in the monitoring wells at the Site was purged using a submersible stainless-steel Geotech portable bladder pump. A one and half foot stainless-steel Geotech portable bladder pump with two new Teflon disposable tubing was installed in each well. The tubing extends to the surface. The airline is connected to a controller and air compressor. The controller regulates the compressed air and timing of the stainless-steel Geotech portable bladder pump. The second Teflon tubing is extended to the surface as a discharge line for purged groundwater from the pump. Each monitoring well was low flow pumped for a minimum of three days. The monitoring wells purge rates were 0.05 to 0.11 gallon per minute.

2.2 Groundwater Sampling

The groundwater in the monitoring wells at the Site was sampled in the first and third quarters of 2024. Each well was pumped at a slow pumping rate with a one and half foot stainless-steel Geotech portable bladder pump or Waterra pump with new Teflon disposable tubing was installed in each well to the surface. The well was slow pumped for a minimum of 24 hours prior to sampling. The monitoring wells rates from 0.05 to 0.11 gallon per minute. Each monitoring well was sampled when the conductivity, temperature, and pH readings were stabilized.

2.1.1 Groundwater Sample Collection and Handling

Groundwater and blank water samples were collected and handled consistent with standard industry practice and applicable Environmental Protection Agency (EPA) analytical methods. Sample containers were labeled with sample-specific identifiers (e.g., sample ID, date, time, etc.) prior to sample collection, sealed, and immediately placed in designated sample coolers for laboratory submission. Groundwater samples were non-filtered.

Signed chain-of-custody documentation accompanied the sample coolers at all times.

Table B outlines the sample containers specific to each laboratory method and summarizes associated preservation and storage parameters used for this assessment.

Table B: Groundwater Analytical Method and Sample Storage

Analysis	Analytical Method	Container/Storage	Preservative	Holding Time
VOCs (Methyl Ethyl Ketone (2-Butanone))	EPA-8260C	3 x 40 ml glass VOA; fill to zero headspace; cool to 4° Celsius	HCl	14 days
Total Metals (Aluminum, Antimony, Arsenic, Barium, Boron, Cadmium, Cobalt, Iron, Manganese, and Zinc)	EPA-6020A	1 x 250 ml HPDE plastic; cool to 4° Celsius 1 x 250 ml HPDE plastic; cool to 4° Celsius	HNO3 None	180 days
Total Inorganics (Chloride, Fluoride, and Sulfate)	EPA-9056A	1 x 250 ml HPDE plastic; cool to 4° Celsius	None	28 days
Formaldehyde	EPA-8315A	1 x 250 ml amber glass; cool to 4° Celsius	None	30 days
Chemical Oxygen Demand	EPA-5220D	1 x 250 ml HPDE plastic; cool to 4° Celsius	H2SO4	28 days
Ammonia Nitrogen	EPA-350.1	1 x 250 ml HPDE plastic; cool to 4° Celsius	H2SO4	28 days
Total Organic Halogen	EPA-9020B	1 x 500 ml amber glass; cool to 4° Celsius	H2SO4	None
Phenols	EPA-9066	1 x 500 ml amber glass; cool to 4° Celsius	H2SO4	28 days
Total Suspended Solids	I_3765_85	1 x liter HPDE plastic; cool to 4° Celsius	None	7 days

2.1.2 Groundwater Samples

Prior to purging and sampling of the monitoring wells, the wells were gauged to measure depth to groundwater relative to the well top of casing.

Groundwater samples were collected using low-flow sampling methods. Groundwater was brought to the surface using dedicated Teflon tubing in connection with a Geotech portable bladder pump (second and third Quarters). Prior to sampling, each casing was purged at a flow rate of 0.05 to 0.11 gallon per minute with appropriate water parameter measurements recorded generally following removal of each PVC casing volume. The monitoring well volume was maintained at 80 percent of the original observed groundwater horizon prior to sampling.

Groundwater samples were collected after three consecutive field readings generally within the following ranges:

- ± 0.1 for pH,
- ± 5% for conductivity, and
- ± 10% for temperature

Following stabilization of parameters (or volumetric approach), groundwater samples were collected. Sample containers included appropriate preservatives and were placed on ice in the designated sample cooler immediately following collection.

2.1.2 Trip Blank Water Samples

We prepared trip blanks during sampling in the field. The trip blanks were shipped to the laboratory with each quarter sampling event for volatile constituent analysis.

There was no identified detection of volatile constituents above laboratory detection limits in the trip blanks.

2.3 Hydrogeology

Based on the 2023 groundwater level measurements for the Site in second and third quarters, the localized groundwater flow direction is toward to the quarry holding ponds. The area groundwater flows to the northwest. This is toward Morgan Creek and the Cedar River. Groundwater flow direction maps are included as Figure 3a and b.

3.0 DATA EVALUATION

3.1 Groundwater Samples

Groundwater concentrations above laboratory method detection limits are reported in Table I through V. Constituents that have been detected in groundwater samples from 2019, 2020, 2021, 2022, and 2023 above laboratory method detection limits are aluminum, ammonia, antimony, arsenic, barium, boron, cadmium, chloride, cobalt, fluoride, formaldehyde, iron, manganese, methyl ethyl ketone, molybdenum, phenols, sulfate, and zinc.

3.1 Summary of Analytical Data

Groundwater protection standards are listed in Table I below.

Table I: Groundwater Protection Standards

Constituent	Groundwater Protection Standard (mg/L)	Source
Aluminum	0.2	SMCL ¹
Ammonia	30	SWS ²
Antimony	0.006	MCL ³
Arsenic	0.01	MCL
Barium	2	MCL
Boron	6	SWS
Cadmium	0.005	MCL
Chloride	250	SMCL
Cobalt	0.0021	SWS
Fluoride	2	SMCL
Formaldehyde	1	SWS
Iron	0.3	SMCL
Manganese	0.3	SWS
MEK⁴	4	SWS
Molybdenum	0.04	SWS
Phenols	2	SWS
Sulfate	250	SMCL
Zinc	2	SWS

There were no groundwater concentrations above MCLs, SMCL, and SWS, except for sulfate in monitoring well-MW1 is above the SMCL.

Concentrations of aluminum in monitoring well MW1, MW3, MW4, and MW5 were not detected above method detection limits in 2021, 2022, 2023, and 2024.

1 - Secondary Maximum Contaminant Level
 2 - Iowa Statewide Standard
 3 - Maximum Contaminant Level
 4 - Methyl Ethyl Ketone

Identified concentration of aluminum in monitoring well MW2 from 2021 was below SMCL for groundwater (40 CFR Part 141).

The concentrations of ammonia nitrogen in monitoring wells MW1, MW2, MW3, and MW4 were not detected above method detection limits in 2021, 2022, 2023, and 2024.

Identified concentrations of ammonia nitrogen in monitoring well MW5 were below IDNR statewide standards for groundwater (567 IAC 137).

The concentrations of antimony in monitoring wells MW1, MW2, MW3, MW4, and MW5 were not detected above method detection limits in 2021, 2022, 2023, and 2024.

The concentrations of arsenic in monitoring wells MW1, MW2, MW3, MW4, and MW5 were not detected above method detection limits in 2021, 2022, 2023, and 2024.

Identified concentrations of barium in monitoring well MW1, MW2, MW3, MW4, and MW5 were below the 40 CFR Part 141 MCL.

Identified concentrations of boron in monitoring wells MW1, MW2, MW3, MW4, and MW5 were below IDNR statewide standards for groundwater (567 IAC 137).

The concentration of cadmium in monitoring wells MW1, MW2, MW3, MW4, and MW5 were not detected above method detection limits in 2021, 2022, 2023, and 2024.

Identified concentrations of chloride in monitoring wells MW1, MW2, MW3, MW4, and MW5 were below the 40 CFR Part 141 SMCL.

Identified concentrations of cobalt in monitoring wells MW1, MW2, MW3, and MW4 were below IDNR statewide standards for groundwater (567 IAC 137) in 2021, 2022, 2023, and 2024.

Identified concentrations of cobalt in monitoring well MW5 was below IDNR statewide standards for groundwater (567 IAC 137) in 2021, 2022, and 2023.

Identified concentrations of cobalt in monitoring well MW 5 was above IDNR statewide standards for groundwater (567 IAC 137) in the spring of 2024, but returned to below IDNR statewide standards for groundwater (567 IAC 137) in the fall of 2024.

Identified concentrations of fluoride in monitoring wells MW1, MW2, MW3, MW4, and MW5 were below the 40 CFR Part 141 SMCL.

Concentrations of formaldehyde in monitoring wells MW2, MW4, and MW5 were not detected above method detection limits.

Identified concentrations of formaldehyde in monitoring wells MW1 and MW3 were below IDNR statewide standards for groundwater (567 IAC 137).

Concentrations of iron in monitoring wells MW1, MW2, MW3, MW4, MW5 were not detected above method detection limits in 2021, 2022, 2023, and 2024.

Identified concentrations of manganese in monitoring wells MW1, MW2, MW3, MW4, and MW5 were below IDNR statewide standards for groundwater (567 IAC 137) since 2021.

Concentrations of methyl ethyl ketone in monitoring well MW1, MW2, MW3, MW4, and MW5 were not detected above method detection limits in 2021, 2022, 2023, and 2024.

Identified concentrations of molybdenum in monitoring wells MW1, MW2, MW3, MW4, and MW5 were below IDNR statewide standards for groundwater (567 IAC 137) in 2021, 2022, 2023, and 2024.

The concentration of phenols (total) in monitoring wells MW1, MW2, MW3, MW4, and MW5 were below method detection limits in 2021, 2022, 2023, and 2024.

Identified concentrations of sulfate in monitoring wells MW2, MW3, MW4, and MW5 were below the 40 CFR Part 141 SMCL.

Identified concentrations of sulfate in monitoring well-MW1 were above the 40 CFR Part 141 SMCL in 2021,

2022, 2023, and 2024.

Identified concentrations of zinc in monitoring wells MW1, MW2, MW3, MW4, and MW5 were below IDNR statewide standards for groundwater (567 IAC 137) in 2021, 2022, 2023, and 2024.

4.0 STATISTICAL ANALYSIS

Groundwater samples were collected and analysis in 2021, 2022, 2023, and 2024. We use the 2021 and 2022 analytical results to establish background concentrations in accordance with Special Condition #10df. We use the 2024 analytical results to evaluate the groundwater results in accordance with Special Condition #10df.

The monitoring statistical programs include diagnostic and exploratory evaluations and statistical tests of assumptions, as appropriate, including the following:

- a. Time Series Plots
- b. Shapiro-Wilk test for normality
- c. Dixon's Test for Outliers
- d. Rosner's Test for Outliers
- e. Discordance Outlier Test
- f. Mann-Kendall Test for Trend
- g. Sen's Slope Analysis for Trend

Management of Non-Detect Data

Non-detection values in the dataset were managed using simple substitution or the Kaplan-Meier estimator. If less than 15% of the data have non-detection values, simple substitution was used, where non-detection values will be assigned a concentration of one-half of the potential quantification limit (PQL). If greater than 15% but less than 50% of the data have non-detection values, the Kaplan-Meier estimator was used to define the distribution of the dataset. If non-detection values comprised greater than 50% of the available data, non-parametric statistical methods were used.

Table II: Non-Detection Percentages

Constituent	MW1 ND Percent	MW2 ND Percent	MW3 ND Percent	MW4 ND Percent	MW5 ND Percent	PQL mg/L
Aluminum	100	87.5	100	100	100	0.3
Ammonia	100	100	100	100	75	3.0
Antimony	100	100	100	100	100	0.006
Arsenic	100	100	100	100	100	0.012
Barium	0	0	0	0	0	0.012
Boron	0	100	100	87.5	0	1.2
Cadmium	100	100	100	100	100	0.0006
Chloride	12.5	62.5	0	87.5	100	30
Cobalt	75	50	87.5	50	87.5	0.003
Fluoride	87.5	75	75	87.5	62.5	3.0
Formaldehyde	87.5	100	75	100	100	60
Iron	100	100	100	100	100	0.6
Manganese	0	0	87.5	0	0	0.06
MEK	100	100	100	100	100	60
Molybdenum	37.5	12.5	0	25	87.5	0.012
Phenols	100	100	100	100	100	0.12
Sulfate	0	0	0	0	0	60
Halogens	75	75	62.5	75	87.5	0.18
Zinc	87.5	87.5	100	87.5	100	0.12

Management of Outliers

Background datasets were evaluated for outliers using Dixon's or Rosner's, as appropriate based on the diagnostic tests, for the datasets containing less than 75% of the measured concentrations below the PQL. Outliers were not confirmed unless a physical cause or explanation for the outlier was determined.

Management of Data (ND data < 75%)

If less than 75% of the background dataset was below the PQL, outliers were statistically evaluated using the following guidelines.

- A parametric dataset with $n < 20$ will be evaluated with the Dixon's outlier test.
- A parametric dataset with n greater or equal to 20 will be evaluated with the Rosner's outlier test.

Management of Data (ND data \geq 75%)

If greater than or equal to 75% of the background dataset was less than the PQL, outliers were statistically evaluated using the following guidelines.

- Single detection greater than or equal to the PQL.
 - If greater than or equal to 50% of the background dataset has detections greater than or equal to the method detection limit (MDL), any value greater than or equal to two times the PQL of background was considered an outlier.
 - If less than 50% of the background dataset has detections greater than or equal to the MDL, any value greater than or equal to the PQL of the background was considered an outlier.
- Two or more detections greater than or equal the PQL.
 - If greater than 50% of the background dataset has detections greater than or equal to the MDL, any value greater than or equal to three times the PQL of the background was considered an outlier.
 - If less than 50% of the background dataset had detections greater than or equal to the MDL, any value greater than or equal to two times the PQL of the background was considered an outlier.

Below in Table III is a summary for each detected constituent in each well for outliers by the criteria above.

Table III: Outliers

Constituent	MW1	MW2	MW3	MW4	MW5
Aluminum	None	None	None	None	None
Ammonia	None	None	None	None	None
Antimony	None	None	None	None	None
Arsenic	None	None	None	None	None
Barium	None	None	None	9/27/21-0.188 mg/L	None
Boron	None	None	None	None	None
Cadmium	None	None	None	None	None
Chloride	None	None	None	None	None
Cobalt	None	None	None	None	None
Fluoride	None	None	None	None	None
Formaldehyde	None	None	None	None	None
Iron	None	None	None	None	None
Manganese	None	None	None	None	None
MEK	None	None	None	None	None
Molybdenum	None	None	None	None	None
Phenols	None	None	None	None	None
Sulfate	None	None	None	None	None
Halogens	None	None	None	None	9/30/22-0.757mg/L
Zinc	None	3/1/21-0.571mg/L	None	None	None

Identified concentrations of barium in monitoring well MW4 in the third quarter of 2021 was determined to be an outlier.

Identified concentration of halogens in monitoring wells MW5 in the third quarter of 2022 was determined to be an outlier.

Identified concentration of zinc in monitoring wells MW2 in the first quarter of 2021 was determined to be an outlier.

Shapiro-Wilk Test for Normality

The Shapiro-Wilk test was used to investigate the null hypothesis for each well results to examine if the results are normally distributed. The Shapiro-Wilk test results at a 99 percent level of significance for each identified constituent at each monitoring wells that had detects was used to determine if the results are parametric (normal) or non-parametric. The results are summarized in Table IV below.

Table IV: Shapiro-Wilk Test Results

Constituent	MW1	MW2	MW3	MW4	MW5
Aluminum		Non-parametric			
Ammonia					Non-parametric
Antimony					
Arsenic					
Barium	Parametric	Parametric	Parametric	Non-Parametric	Parametric
Boron	Parametric			Non-parametric	Parametric
Cadmium					
Chloride	Parametric	Non-parametric	Parametric	Non-parametric	
Cobalt	Non-parametric	Non-parametric	Non-parametric	Parametric	Non-parametric
Fluoride	Non-parametric	Parametric	Parametric	Non-parametric	Parametric
Formaldehyde	Non-parametric		Non-parametric		
Iron					
Manganese	Parametric	Parametric	Non-parametric	Parametric	Parametric
MEK					
Molybdenum	Parametric	Parametric	Parametric	Parametric	Non-parametric
Phenols					
Sulfate	Parametric	Parametric	Parametric	Parametric	Parametric
Halogens	Non-parametric	Non-parametric	Non-parametric	Non-parametric	Non-parametric
Zinc	Non-parametric	Non-parametric		Non-parametric	

Mann-Kendall Test for Trend

The Mann-Kendall test was used to investigate trends in the monitoring wells data for increasing, decreasing, or no trends. The Mann-Kendall test for each identified constituent at each monitoring well that had detects are summarized in Table V below.

Table V: Mann-Kendall Test Trends

Constituent	MW1	MW2	MW3	MW4	MW5
Aluminum		No Trend			
Ammonia					No Trend
Antimony					
Arsenic					
Barium	Decreasing	No Trend	No Trend	No Trend	No Trend
Boron	No Trend			No Trend	No Trend
Cadmium					
Chloride	No Trend	No Trend	Increasing	No Trend	
Cobalt	No Trend	No Trend	No Trend	No Trend	No Trend
Fluoride	No Trend	No Trend	No Trend	No Trend	No Trend
Formaldehyde	No Trend		No Trend		
Iron					
Manganese	No Trend	No Trend	No Trend	No Trend	No Trend
MEK					
Molybdenum	No Trend	No Trend	No Trend	No Trend	No Trend
Phenols					
Sulfate	No Trend	No Trend	No Trend	Increasing	No Trend
Halogens	No Trend	No Trend	No Trend	No Trend	No Trend
Zinc	No Trend	No Trend		No Trend	

There is a decreasing trend for barium in monitoring wells MW1.

There is an increasing trend for chloride in monitoring wells MW3.

There is an increasing trend for sulfate in monitoring well MW4.

Statistically Significant Trends

Based on the above Shapiro-Wilk test results, the following intra-well comparison was used to determine if there is a statistically significant trend for each constituent at each well.

- Parametric (normal distribution) data were evaluated for statistically significant trends by United States Environmental Protection Agency (EPA) Unified Guidance formula one-sided intra-well comparison at a 99 percent confidence level.
- Non-parametric data were evaluated for statistically significant trends by United States EPA 1992 Guidance by Wilcoxon Rank individual well test at a 99 percent confidence level. Background monitoring well MW3 was evaluated using intra-well Poisson prediction limit if the data was non-parametric.

Below in Table VI are the results to see if there is statistically significant trend for each constituent at a monitoring well.

Table VI: Statistically Significant Trends

Constituent	MW1	MW2	MW3	MW4	MW5
Aluminum		No Significant			
Ammonia					No Significant
Antimony					
Arsenic					
Barium	No Significant	No Significant	No Significant	No Significant	No Significant
Boron	No Significant			No Significant	No Significant
Cadmium	No Significant				
Chloride	No Significant	No Significant	No Significant	No Significant	
Cobalt	No Significant	No Significant	No Significant	No Significant	No Significant
Fluoride	No Significant	No Significant	No Significant	No Significant	No Significant
Formaldehyde	No Significant		No Significant		
Iron					
Manganese	No Significant	No Significant	No Significant	No Significant	No Significant
MEK					
Molybdenum	No Significant	No Significant	No Significant	No Significant	No Significant
Phenols					

Table VI: Statistically Significant Trends-Continued

Constituent	MW1	MW2	MW3	MW4	MW5
Sulfate	No Significant	No Significant	No Significant	Significant	No Significant
Halogens	No Significant	No Significant	No Significant	No Significant	No Significant
Zinc	No Significant	No Significant		No Significant	

Based on the results, there are no identifiable statistically significant trends for the constituents in the monitoring wells at the Site, except for sulfate in monitoring well MW4. It should be noted that the recent concentration of 234 mg/L is below SMCL (250 mg/L).

5.0 FINDINGS

The findings of this investigation are as follows:

- There were no groundwater concentrations above MCLs, SMCL, and SWS, except for sulfate in monitoring well-MW1 is above the SMCL.

Based on the results, there are no identifiable statistically significant trends for the constituents in the monitoring wells at the Site, except for sulfate in monitoring well MW4. It should be noted that the recent concentration of 234 mg/L is below SMCL (250 mg/L).

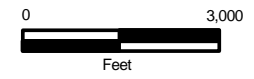
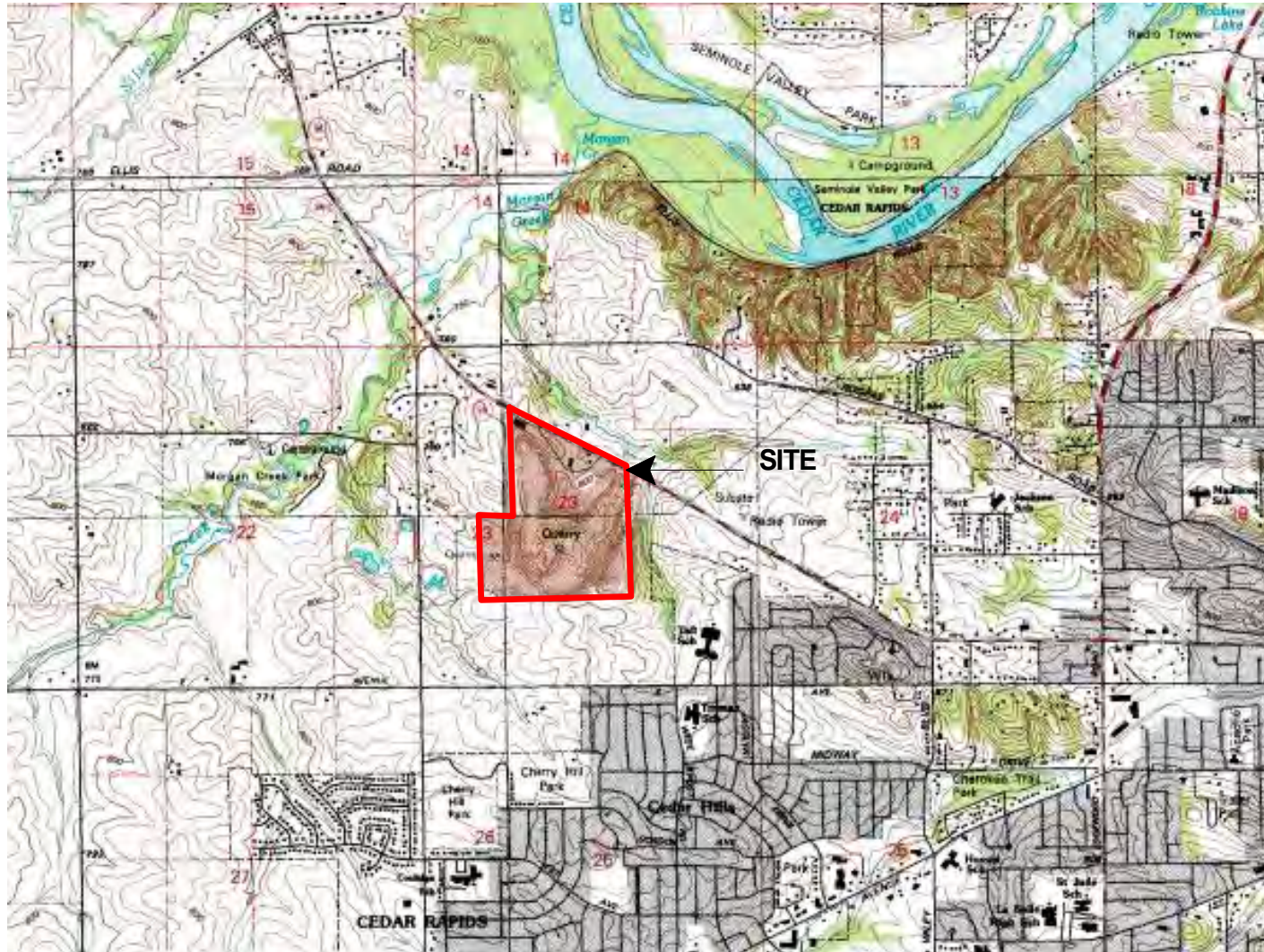
6.0 RECOMMENDATIONS

Based on the analytical data, we have the following recommendations.

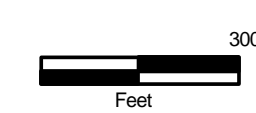
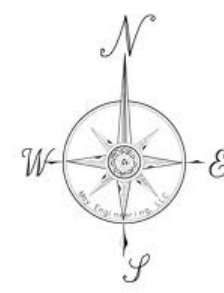
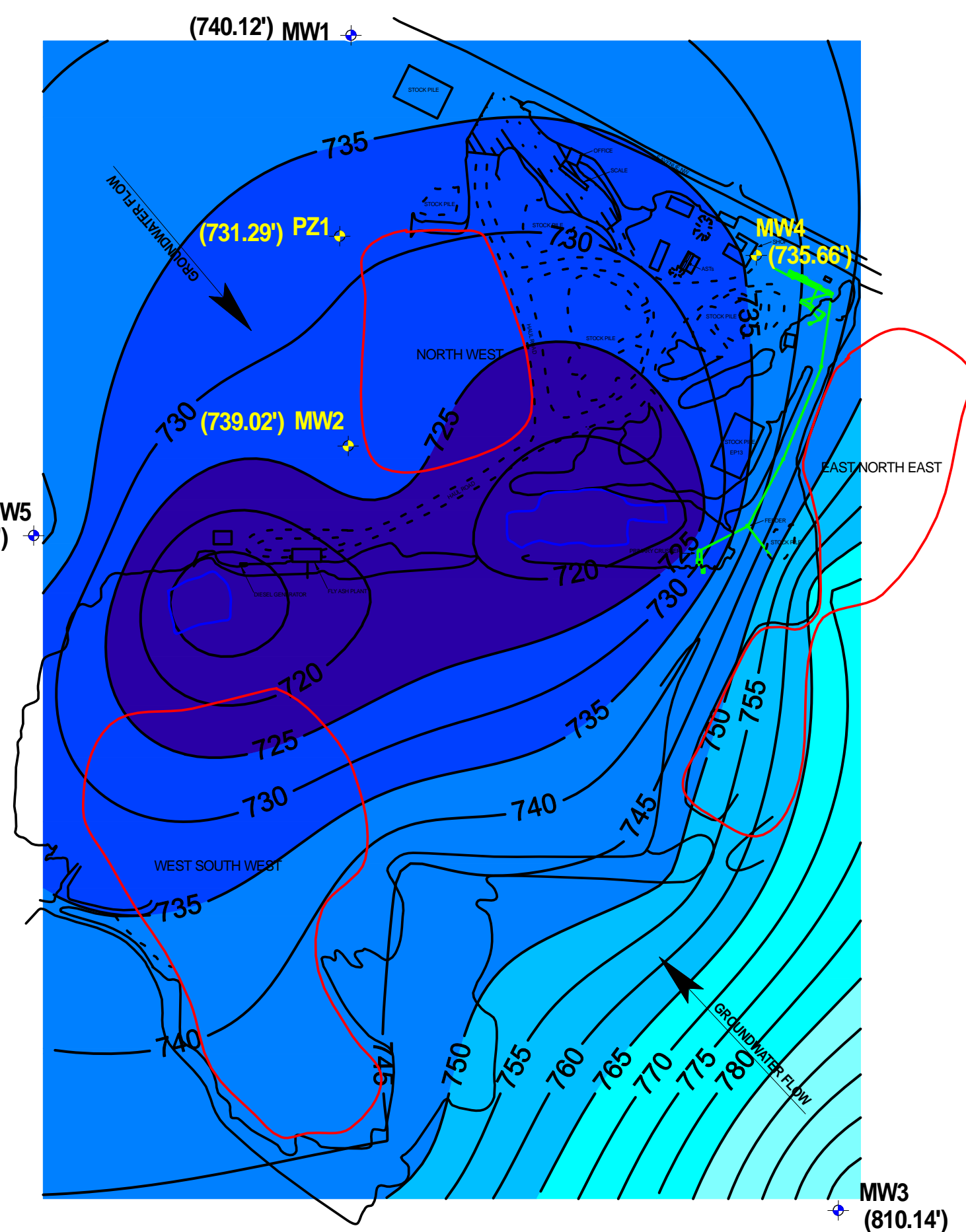
- Since analytical concentrations are below MCLs, statewide standards, and there are no statistically significant trends of regulated contaminants (except for sulfate in MW4, but concentrations are below SMCL), we recommend continuing bi-annual sampling for future sampling events.

Figures

- Figure 1: Site Location Map**
- Figure 2: Site Plan Map**
- Figure 3: Groundwater Flow Direction Map 2024 First Quarter & 2024 Third Quarter**

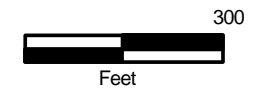
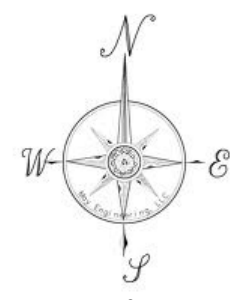
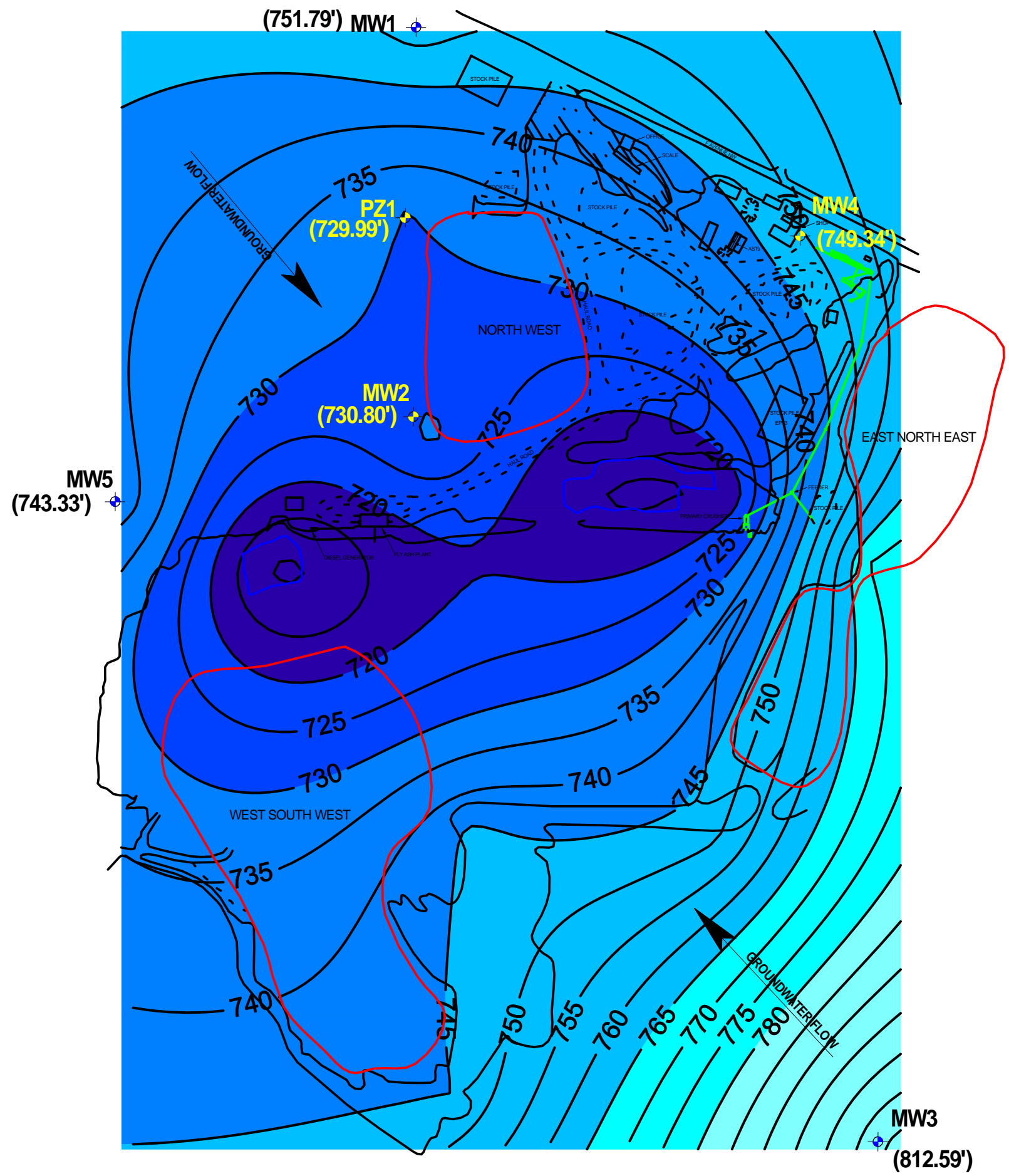






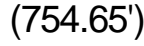
Title: FIGURE 1- SITE LOCATION MAP	
 EB Solutions, Inc.	1931E Avenue NW Cedar Rapids, IA 52405 Phone: (319) 531-8487
	Project: CRAWFORD QUARRY 5707 F AVENUE NW CEDAR RAPIDS, IA
Scale: 1 inch = 3,000 feet	Date: 3/7/2023
Drawn By: EDB	EB93012021



- Legend**
- UNPAVED ROADWAY
 - PAVED ROADWAY
 - MONITORING WELL
 - BUD DISPOSAL AREAS
 - (754.65') GROUNDWATER ELEVATION

Title: Groundwater Flow First Quarter of 2024	
EB Solutions, Inc.	5060 4TH STREET SW CEDAR RAPIDS, IA 52404 Phone: (319) 249-3293
Project: CRAWFORD QUARRY 5707 F AVENUE NW CEDAR RAPIDS, IA	
Scale: 1 INCH = 300 FEET	Date: 1/15/2025
Drawn By: EDB	Project No.: EB93012021



- Legend**
-  UNPAVED ROADWAY
 -  PAVED ROADWAY
 -  MONITORING WELL
 -  BUD DISPOSAL AREAS
 -  (754.65') GROUNDWATER ELEVATION

Title: Groundwater Flow Third Quarter of 2024	
	5060 4TH STREET SW CEDAR RAPIDS, IA 52404 Phone: (319) 249-3293
Project: CRAWFORD QUARRY 5707 F AVENUE NW CEDAR RAPIDS, IA	
Scale: 1 INCH = 300 FEET	Date: 1/15/2025
Drawn By: EDB	Project No.: EB93012021

Tables

Table I-V: Monitoring Results for Each Well

Crawford-MW1

Location ID: MW1		Number of Sampling Dates: 12												
Parameter Name	Replicate Code	Units	3/12/2020	5/29/2020	9/8/2020	12/11/2020	2/26/2021	9/17/2021	3/11/2022	9/12/2022	4/11/2023	9/29/2023	3/4/2024	7/29/2024
Aluminum, total		mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia Nitrogen		mg/l	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Antimony		mg/l	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Arsenic		mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Barium		mg/l	0.0374	0.0365	0.0294	0.0294	0.0268	0.0252	0.0236	0.0231	0.0233	0.0207	0.021	0.0203
Boron		mg/l	<0.2	0.166	0.152	0.144	0.134	0.129	0.168	0.135	0.117	0.17	0.127	0.12
Cadmium		mg/l	<0.0001	<0.0001	0.000111	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002
Chemical Oxygen Demand		mg/l	26.6	<25	37.7	<25	<25	32.2	<25	<25	403	<25	<25	39.8
Chloride		mg/l	5.75	7.37	7.3	8.59	10.1	7.45	6.25	6.86	<5	6.38	6.53	5.97
Cobalt		mg/l	<0.0005	<0.0005	<0.0005	<0.0005	0.00117	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.000752
Dissolved Oxygen		mg/l	6.27	3.9	4.56	4.42	20.29	14.01	14.28	11.65	1.9	0.39	14.74	5.83
Fluoride		mg/l	<0.5	<0.5	<0.5	<0.5	0.709	<0.5	<0.5	<0.5	<1	<1	<1	<1
Formaldehyde		ug/l	28.7	<10	<10	<10	<10	<10	<10	12	<10	<10	<10	<10
Iron		mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Manganese		mg/l	0.0699	0.0713	0.0685	0.073	0.0605	0.0766	0.0829	0.085	0.0821	0.0753	0.0808	0.0757
Methyl Ethyl Ketone (MEK) (2-Butanone)		ug/l	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Molybdenum		mg/l	<0.002	<0.002	<0.002	<0.002	0.0029	<0.002	<0.002	0.0021	0.00203	0.00264	<0.002	0.00233
Oxidation Reduction Potential		mV	130.5	120	76.6	98.8	224.1	42.2	40.3	85.6	231.5	284.3	115.6	21.6
pH (field)		S.U.	8.59	8.97	9.06	9.9	8.94	9.18	6.58	6.75	7.1	6.64	7.46	8.37
Phenols, total		mg/l	<0.0196	<0.02	0.0376	<0.02	<0.02	<0.0184	<0.02	<0.02	<0.0204	<0.0216	<0.02	<0.02
Specific Conductivity, Field		uS/cm	2.148	2.554	2.357	2.257	1.977	2.939	1.504	1.745	1.403	1.348	1.44	1.657
Sulfate		mg/l	811	880	796	885	828	903	976	928	924	927	1050	1010
Temperature		deg C	2.6	6.52	3.45	0.42	4.63	4.61	8.65	13.99	12.56	14.54	11.13	15.72
Total Organic Halogens, Halides		mg/l	<0.15	<0.06	<0.06	<0.06	<0.04	<0.04	<0.04	0.0492	<0.04	<0.04	<0.04	0.0458
Total Suspended Solids		mg/l	46	5.75	<1.88	<1.88	3	<1.88	<5	<1.88	9.38	<1.88	<5	<1.88
Water		ft	59.02	52.34	55.9	61.71	63.33	65.63	62.55	78.15	61.16	68.95	63.58	51.91
Zinc		mg/l	<0.02	<0.02	0.0679	0.0611	0.0633	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Crawford-MW2

Location ID: MW2		Number of Sampling Dates: 12												
Parameter Name	Replicate Code	Units	3/11/2020	6/1/2020	9/16/2020	12/18/2020	3/1/2021	9/20/2021	3/18/2022	9/16/2022	4/25/2023	9/25/2023	3/18/2024	8/5/2024
Aluminum, total		mg/l	<0.05	0.0612	0.0698	<0.05	0.165	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia Nitrogen		mg/l	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Antimony		mg/l	<0.001	0.0013	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Arsenic		mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Barium		mg/l	0.0617	0.0872	0.0556	0.0958	0.0808	0.0882	0.072	0.0582	0.0727	0.118	0.11	0.118
Boron		mg/l	<0.2	0.119	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium		mg/l	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002
Chemical Oxygen Demand		mg/l	37.6	40.9	34.6	<25	<25	32.2	<25	<25	33.3	<25	<25	<25
Chloride		mg/l	71	<5	<5	34.4	5.66	<5	<5	<5	<5	5.99	<5	7.68
Cobalt		mg/l	0.00141	0.0275	<0.0005	0.000725	<0.0005	0.00404	0.00254	0.000769	0.00109	<0.0005	<0.0005	<0.0005
Dissolved Oxygen		mg/l	11.54	7.89	5.77	13.57	8.03	8.59	7.72	7.37	2.4	0.76	11.64	7.04
Fluoride		mg/l	0.884	0.71	0.504	0.64	0.636	<0.5	<0.5	0.713	<1	<1	<1	<1
Formaldehyde		ug/l	<10	<10	<10	<10	<10	<10	<10	<10	<10	<20	<10	<10
Iron		mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Manganese		mg/l	0.383	0.563	0.0139	0.0636	0.021	0.354	0.205	0.0601	0.088	0.0237	0.0115	0.0692
Methyl Ethyl Ketone (MEK) (2-Butanone)		ug/l	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Molybdenum		mg/l	0.00478	0.00435	0.00215	0.0033	0.00254	0.00268	0.0024	0.00318	0.00458	0.00225	<0.002	0.00202
Oxidation Reduction Potential		mV	143.9	127.6	99	30.6	243.4	83.2	222.3	74.9	80.2	269.7	108.5	66.4
pH (field)		S.U.	8.77	8.93	8.72	9.01	9.13	8.47	6.43	7.65	7.89	7.09	6.95	8.04
Phenols, total		mg/l	<0.0204	<0.0196	<0.0192	<0.02	<0.0196	<0.0188	<0.0184	<0.02	<0.02	<0.02	<0.02	<0.02
Specific Conductivity Field		uS/cm	1.129	0.916	0.913	0.984	0.891	1.046	0.565	0.526	0.409	<0	0.395	0.517
Sulfate		mg/l	18.2	20	13.2	21.9	13.7	19.2	20.1	14.4	16.5	14.3	14.4	19
Temperature		deg C	4.42	8.95	9.38	3.88	5.54	9.23	10.54	15.82	11.16	18.31	9.09	18.31
Total Organic Halogens, Halides		mg/l	<0.06	<0.06	<0.06	<0.06	<0.04	<0.04	<0.04	0.119	<0.04	<0.04	<0.04	0.0411
Total Suspended Solids		mg/l	3	<5	<5	<1.88	31.2	61.2	<1.88	3.13	5.63	<1.88	2.25	<1.88
Water		ft	108.91	108.45	109.05	108.68	110.31	110.15	110.11	110.25	109.44	115.09	110.21	108.66
Zinc		mg/l	0.258	<0.02	0.227	2.49	0.571	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Crawford-MW3

Location ID: MW3		Number of Sampling Dates: 12												
Parameter Name	Replicate Code	Units	3/3/2020	6/13/2020	10/2/2020	12/29/2020	3/8/2021	10/5/2021	4/8/2022	9/26/2022	5/9/2023	9/1/2023	2/27/2024	8/12/2024
Aluminum, total		mg/l	<0.05	<0.05	0.0844	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia Nitrogen		mg/l	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Antimony		mg/l	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Arsenic		mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Barium		mg/l	0.384	0.499	0.215	0.228	0.264	0.229	0.295	0.282	0.32	0.325	0.267	0.32
Boron		mg/l	<0.2	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium		mg/l	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0005	<0.0002
Chemical Oxygen Demand		mg/l	<25	31.4	31.2	45.3	<25	25.8	<25	<25	29.1	<25	99.2	<25
Chloride		mg/l	<5	<5	24.9	21.6	23.5	48.3	60.4	61.4	136	107	141	114
Cobalt		mg/l	<0.0005	0.00159	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.000731	<0.0005	<0.0005	<0.0005
Dissolved Oxygen		mg/l	8.52	11.77	4.56	5.72	4.61	14.49	8.67	4.5	1.29	1.3	9.53	9.75
Fluoride		mg/l	<0.5	<0.5	<0.5	<0.5	1	<0.5	<0.5	<0.5	<1	<1	<1	0.279
Formaldehyde		ug/l	<10	<10	<10	<10	<10	55.4	13.8	<10	<10	<10	<10	<10
Iron		mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Manganese		mg/l	0.133	0.579	0.0262	0.0114	<0.01	<0.01	<0.01	<0.01	0.0303	<0.01	<0.01	<0.01
Methyl Ethyl Ketone (MEK) (2-Butanone)		ug/l	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Molybdenum		mg/l	<0.002	<0.002	0.00364	0.00407	0.00315	0.0032	0.00284	0.00397	0.00557	0.0035	0.00296	0.00213
Oxidation Reduction Potential		mV	123.2	91.7	86.8	94.7	86.7	114.9	194.2	-248.5	101.5	114	253	16.9
pH (field)		S.U.	8.42	8.98	9.11	8.97	8.64	8.9	6.71	6.36	6.88	7.48	6.08	8.77
Phenols, total		mg/l	<0.0188	<0.02	<0.0184	<0.02	<0.02	<0.02	<0.0196	<0.02	<0.0184	<0.0204	<0.02	<0.02
Specific Conductivity, Field		uS/cm	1.197	0.937	0.931	0.856	0.859	0.974	0.82	0.7	0.74	0.741	0.768	0.702
Sulfate		mg/l	7.08	<5	29.6	27	49.9	29.2	28.5	30.6	32.6	34.7	39.7	44.4
Temperature		deg C	7.04	13.31	2.33	2.31	3.61	3.44	9.01	11.69	13.54	14.19	11.65	11.34
Total Organic Halogens, Halides		mg/l	<0.06	<0.15	<0.06	<0.06	<0.04	<0.04	<0.04	0.0667	<0.04	0.0861	<0.04	0.138
Total Suspended Solids		mg/l	<1.88	<5	34	4.63	<1.88	<1.88	<1.88	<1.88	8.13	<1.88	<1.88	<1.88
Water		ft	123.44	125.81	124.6	126.81	125.92	101.93	62.68	64.62	63.02	65.33	62.81	60.36
Zinc		mg/l	<0.02	<0.02	<0.02	0.0759	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Crawford-MW4

Location ID: MW4														
Number of Sampling Dates: 12														
Parameter Name	Replicate Code	Units	3/6/2020	5/26/2020	9/4/2020	12/15/2020	3/4/2021	9/27/2021	3/25/2022	9/21/2022	4/17/2023	9/11/2023	3/25/2024	7/23/2024
Aluminum, total		mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia Nitrogen		mg/l	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Antimony		mg/l	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Arsenic		mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Barium		mg/l	0.0942	0.112	0.125	0.133	0.12	0.188	0.125	0.129	0.125	0.135	0.112	0.118
Boron		mg/l	<0.2	<0.1	<0.1	<0.1	0.106	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium		mg/l	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002
Chemical Oxygen Demand		mg/l	<25	32.3	40.5	38.3	26.7	56.3	<25	<25	42	<25	<25	<25
Chloride		mg/l	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5.92
Cobalt		mg/l	<0.0005	0.00145	0.00572	0.00728	0.00102	0.000795	<0.0005	0.00209	<0.0005	0.00121	<0.0005	<0.0005
Dissolved Oxygen		mg/l	7.34	5.92	3.97	13.25	7.83	10.19	9.49	5.27	3.76	0.91	17.57	6.25
Fluoride		mg/l	<0.5	<0.5	<0.5	<0.5	1.04	<0.5	<0.5	<0.5	<1	<1	<1	<1
Formaldehyde		ug/l	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Iron		mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Manganese		mg/l	0.529	0.227	0.0969	0.127	0.11	0.111	0.0923	0.14	0.0739	0.0608	0.0764	0.0912
Methyl Ethyl Ketone (MEK) (2-Butanone)		ug/l	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Molybdenum		mg/l	0.00203	0.00527	<0.002	0.00245	0.0035	<0.002	<0.002	0.00229	0.00291	0.00242	0.00222	0.00234
Oxidation Reduction Potential		mV	136.6	122.5	112.9	49.1	135.8	80.9	90.3	-286.6	141.9	210.4	39.4	58.3
pH (field)		S.U.	8.25	9.07	8.88	9.23	8.96	8.35	6.84	7.46	7.82	6.74	8.84	7.82
Phenols, total		mg/l	<0.0192	<0.0192	<0.0196	<0.02	<0.02	<0.0188	<0.02	<0.0208	<0.02	<0.0204	<0.02	<0.02
Specific Conductivity Field		uS/cm	0.846	1.184	1.348	1.015	1.061	0.999	0.63	0.551	0.471	0.51	0.522	1.035
Sulfate		mg/l	119	136	136	183	143	143	158	161	174	160	177	234
Temperature		deg C	2.24	12.38	7.39	3.37	2.57	3.31	10.29	9.25	10.52	12.98	9.43	16.73
Total Organic Halogens, Halides		mg/l	<0.15	<0.06	<0.06	<0.06	<0.04	<0.04	<0.04	0.0688	<0.04	<0.04	0.0808	<0.04
Total Suspended Solids		mg/l	3.38	<1.88	<1.88	<5	<1.88	<1.88	<5	6.63	<1.88	<1.88	<5	<1.88
Water		ft	31.48	31.86	32.09	32.02	36.47	37.25	36.03	34.9	32.53	37.59	54.64	40.96
Zinc		mg/l	<0.02	<0.02	0.0787	0.346	0.0218	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

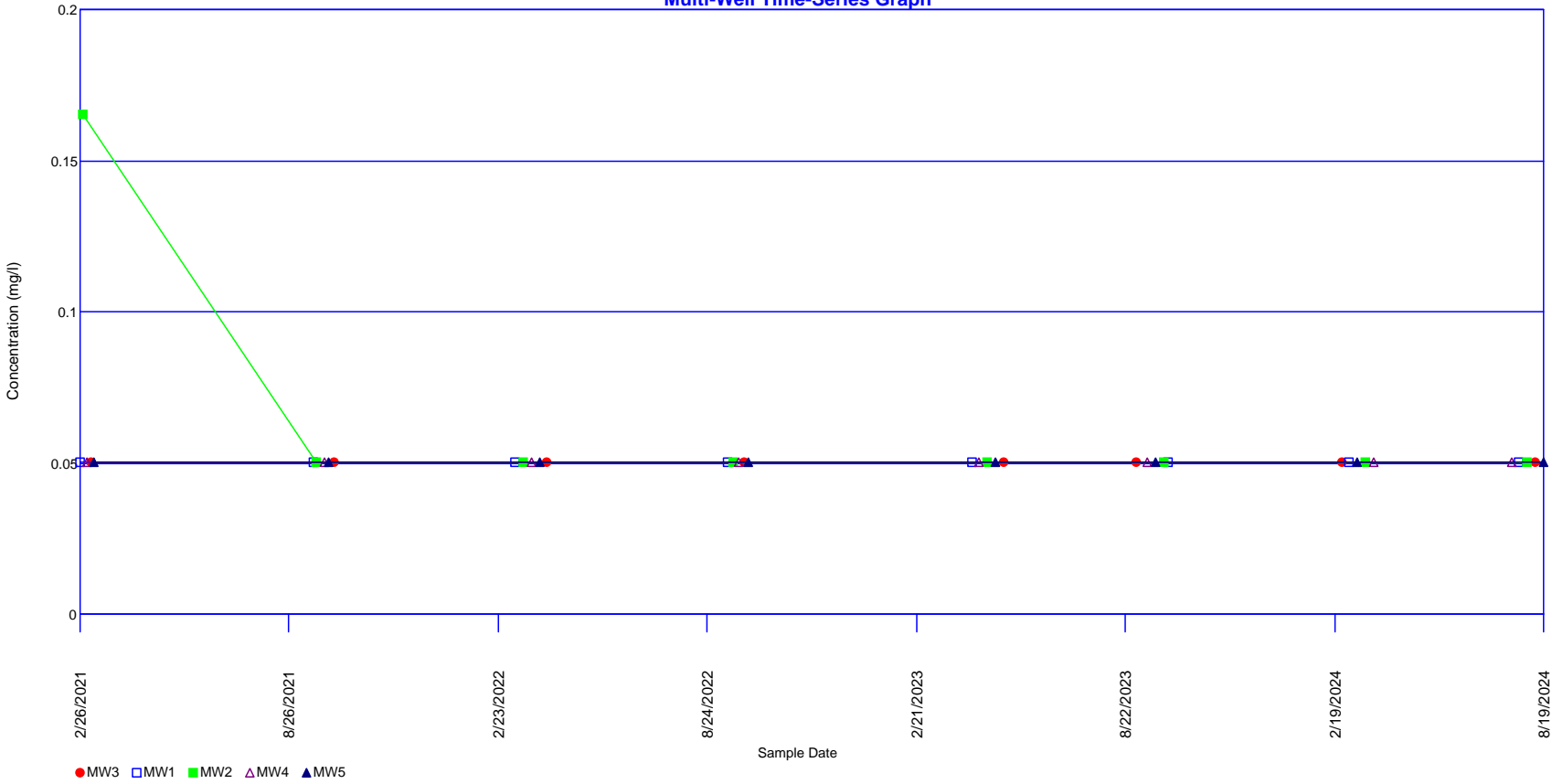
Crawford-MW5

Location ID: MW5		Number of Sampling Dates: 12												
Parameter Name	Replicate Code	Units	3/5/2020	6/4/2020	9/23/2020	12/23/2020	3/11/2021	9/30/2021	4/1/2022	9/30/2022	5/2/2023	9/18/2023	3/11/2024	8/19/2024
Aluminum, total		mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia Nitrogen		mg/l	<0.5	0.546	<0.5	9.79	<0.5	<0.5	<0.5	0.529	<0.5	<0.5	<0.5	0.508
Antimony		mg/l	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Arsenic		mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Barium		mg/l	0.103	0.0902	0.152	0.144	0.0972	0.0877	0.126	0.0965	0.0775	0.0955	0.0801	0.0941
Boron		mg/l	<0.2	0.179	0.2	0.181	0.177	0.182	0.23	0.191	0.188	0.213	0.16	0.176
Cadmium		mg/l	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002
Chemical Oxygen Demand		mg/l	44.1	<25	41.9	<25	47.2	36.9	<25	55.3	43.7	32.1	<25	<25
Chloride		mg/l	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<1
Cobalt		mg/l	<0.0005	0.000735	0.00212	0.00103	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00211	<0.0005
Dissolved Oxygen		mg/l	10.21	6.54	3.98	10.35	6.71	12.36	10.12	4.36	2.46	0.52	17.68	4.71
Fluoride		mg/l	0.677	0.675	0.63	0.647	1.45	<0.5	0.721	<0.5	<1	<1	<1	0.771
Formaldehyde		ug/l	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Iron		mg/l	<0.1	<0.1	0.894	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Manganese		mg/l	0.0759	0.0706	0.164	0.113	0.0613	0.0584	0.12	0.0595	0.0538	0.0806	0.0695	0.0754
Methyl Ethyl Ketone (MEK) (2-Butanone)		ug/l	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Molybdenum		mg/l	<0.002	<0.002	0.00256	<0.002	<0.002	<0.002	<0.002	<0.002	0.00266	<0.002	<0.002	<0.002
Oxidation Reduction Potential		mV	138.5	121	98.7	102.3	112.3	78	57.1	-254	88.4	253.4	22.4	56.8
pH (field)		S.U.	8.58	8.7	9.3	8.91	9.06	8.99	6.67	6.44	8.17	7.44	8.09	8.17
Phenols, total		mg/l	<0.02	<0.02	<0.0204	<0.02	<0.02	<0.0184	<0.02	<0.02	<0.02	<0.0204	<0.02	<0.02
Specific Conductivity, Field		uS/cm	0.829	0.977	0.923	0.956	0.95	1.021	0.654	0.529	0.446	0.451	0.44	0.55
Sulfate		mg/l	16	19.1	14.9	17.2	19.7	20.2	18.1	18.5	24.7	20.8	22	23.3
Temperature		deg C	1.68	10.72	4.12	5.47	5.35	5.08	10.83	11.73	11.42	13.76	9.58	16.82
Total Organic Halogens, Halides		mg/l	<0.06	<0.06	<0.06	<0.06	<0.04	<0.04	<0.04	0.757	<0.04	<0.04	<0.04	<0.04
Total Suspended Solids		mg/l	<1.88	1.88	8.5	29	1.88	<1.88	<5	<1.88	<1.88	2.25	<1.88	<1.88
Water		ft	90.02	90.58	91.35	90.65	92.79	96.63	91.57	94.18	96.35	96.61	92.19	90.92
Zinc		mg/l	<0.02	<0.02	0.177	0.286	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

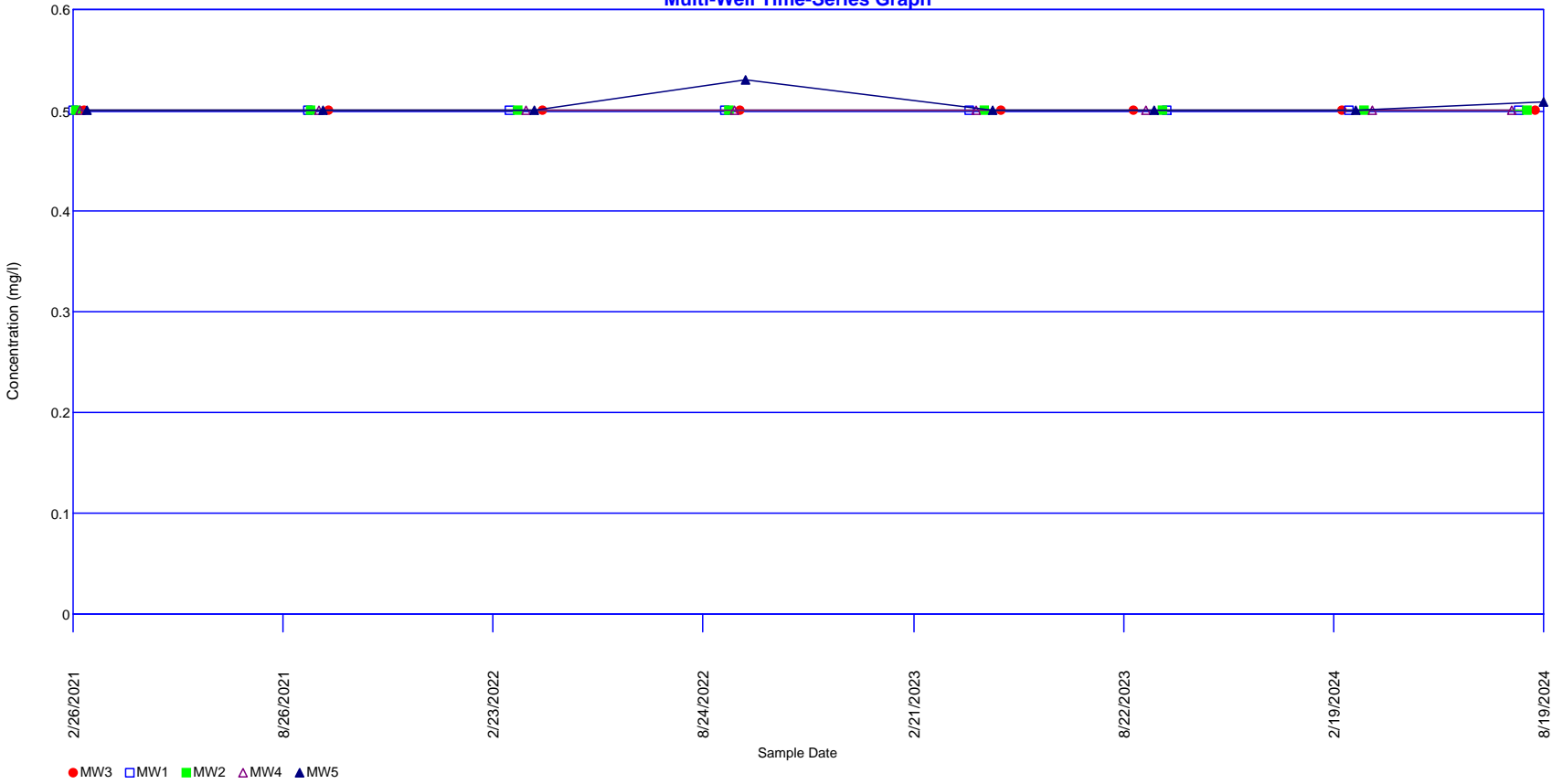
APPENDIX A

Time Series Plots

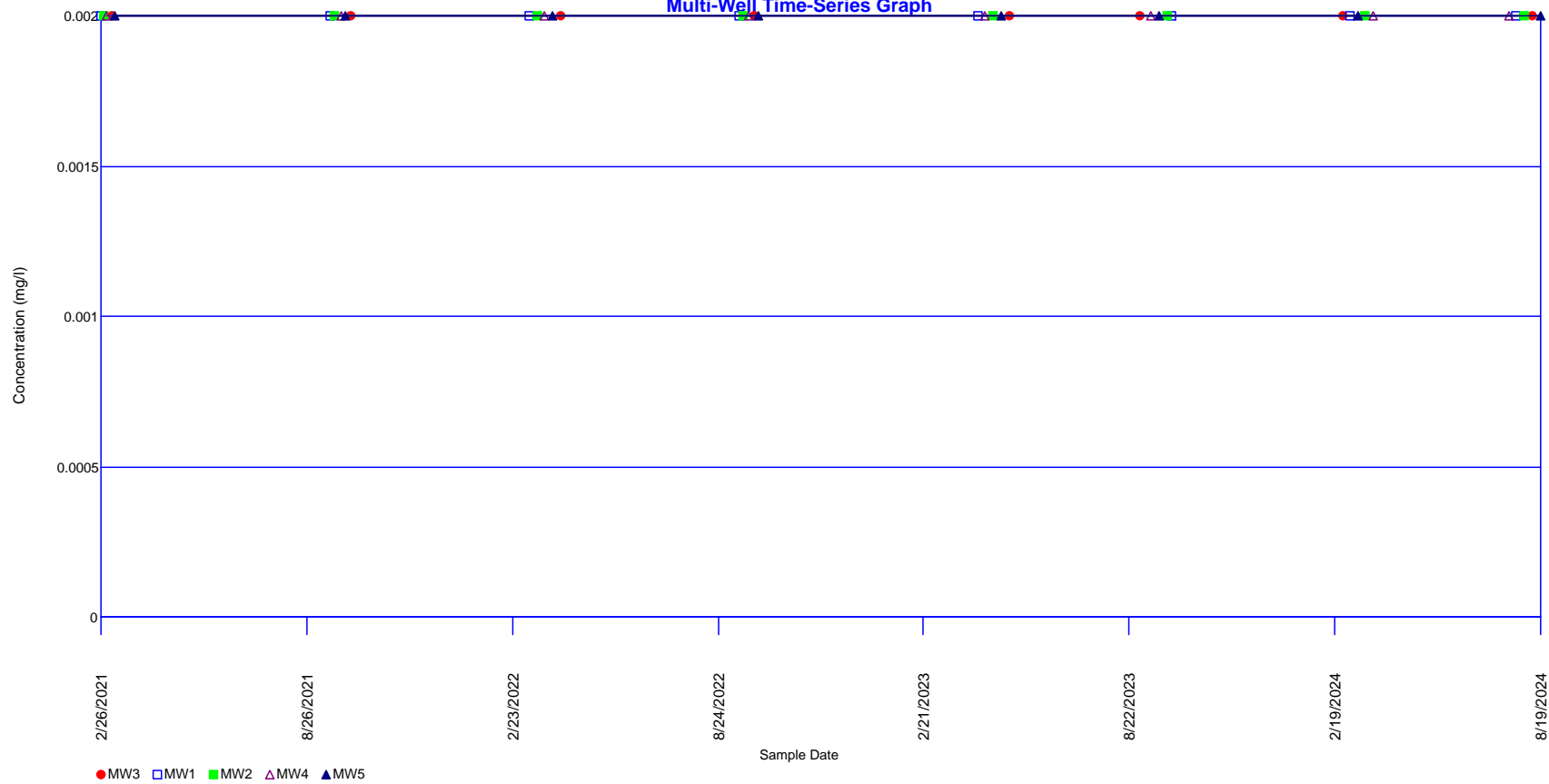
Aluminum, total
Multi-Well Time-Series Graph



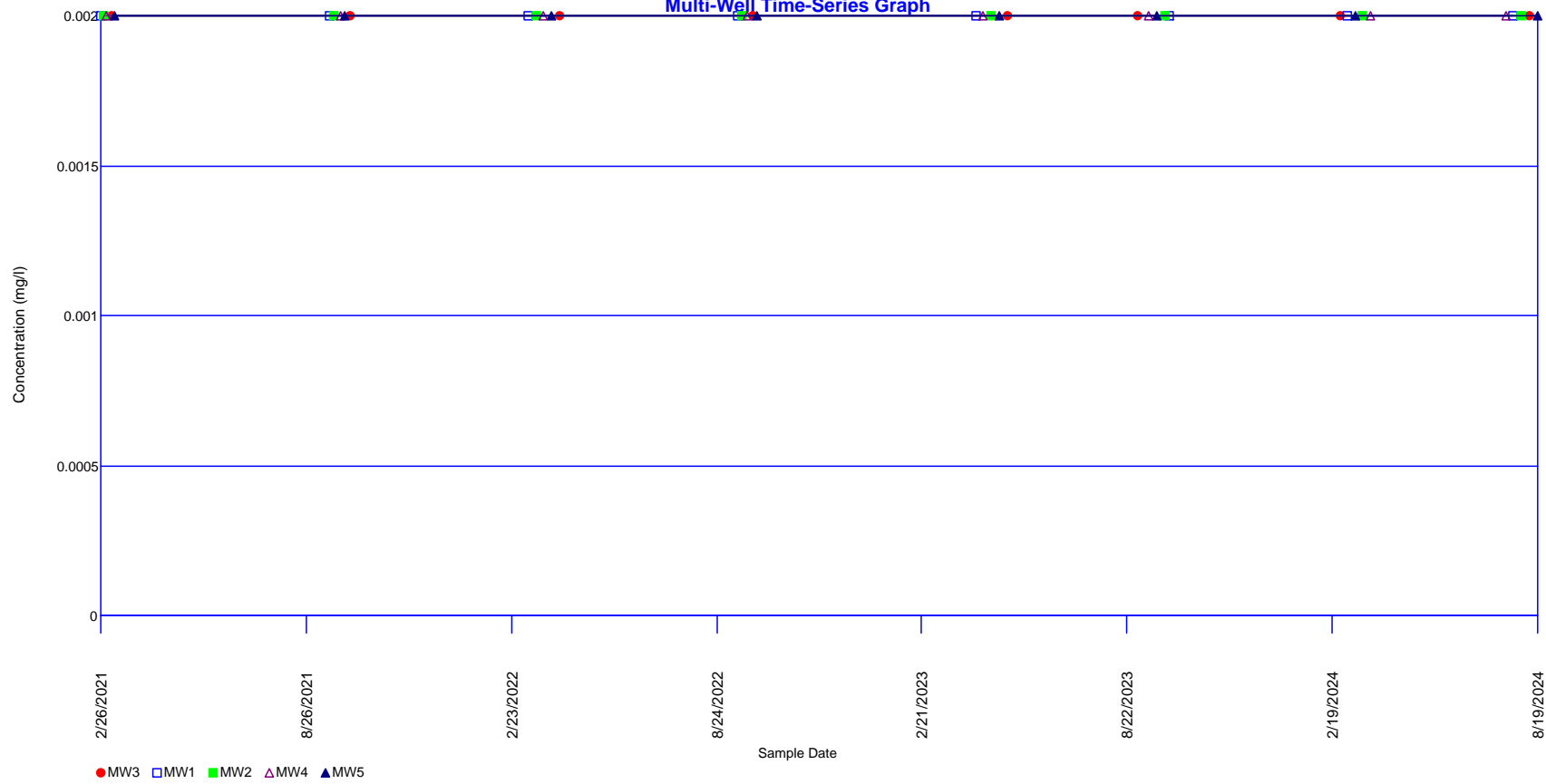
Ammonia Nitrogen Multi-Well Time-Series Graph



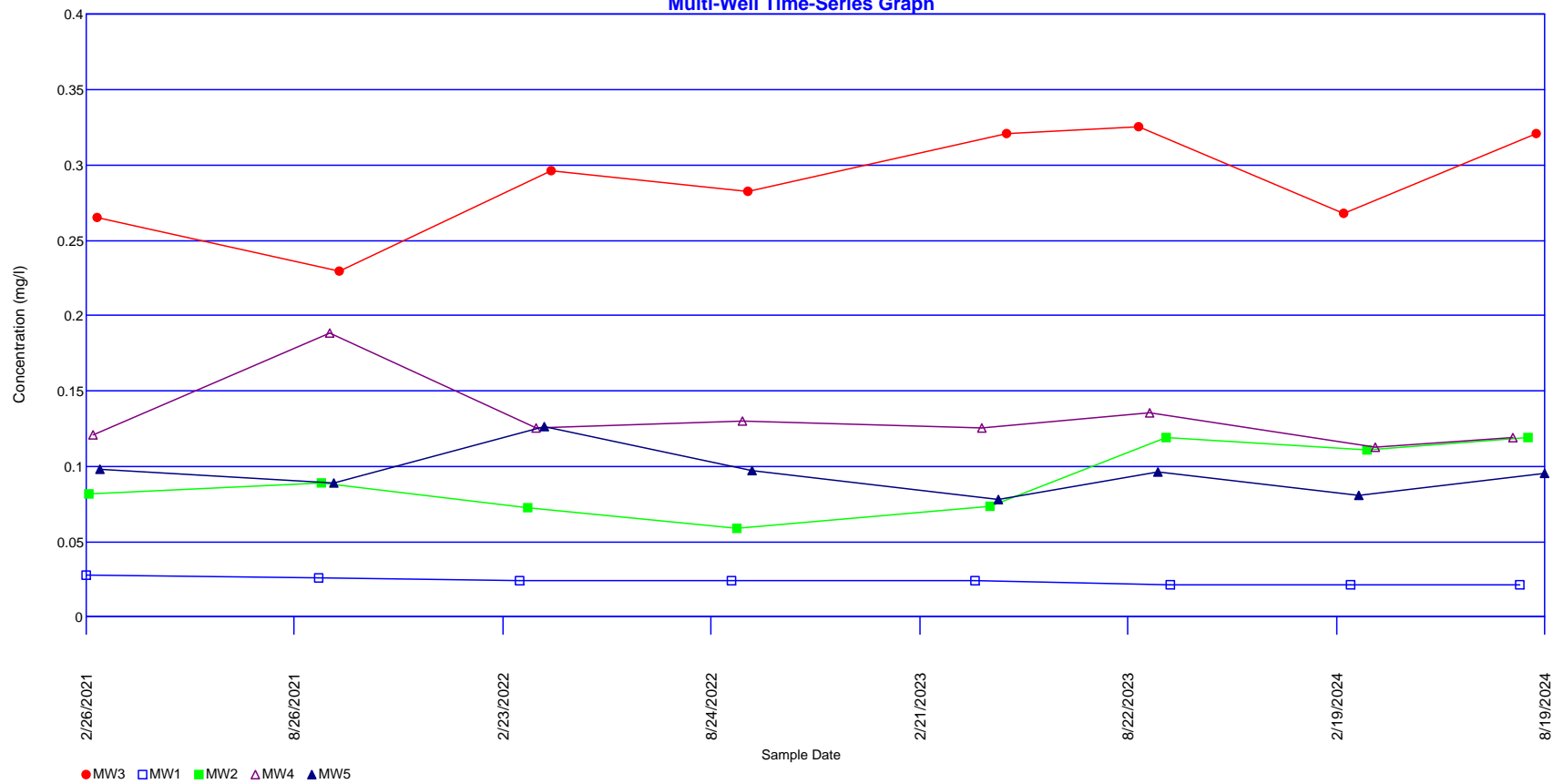
Antimony Multi-Well Time-Series Graph



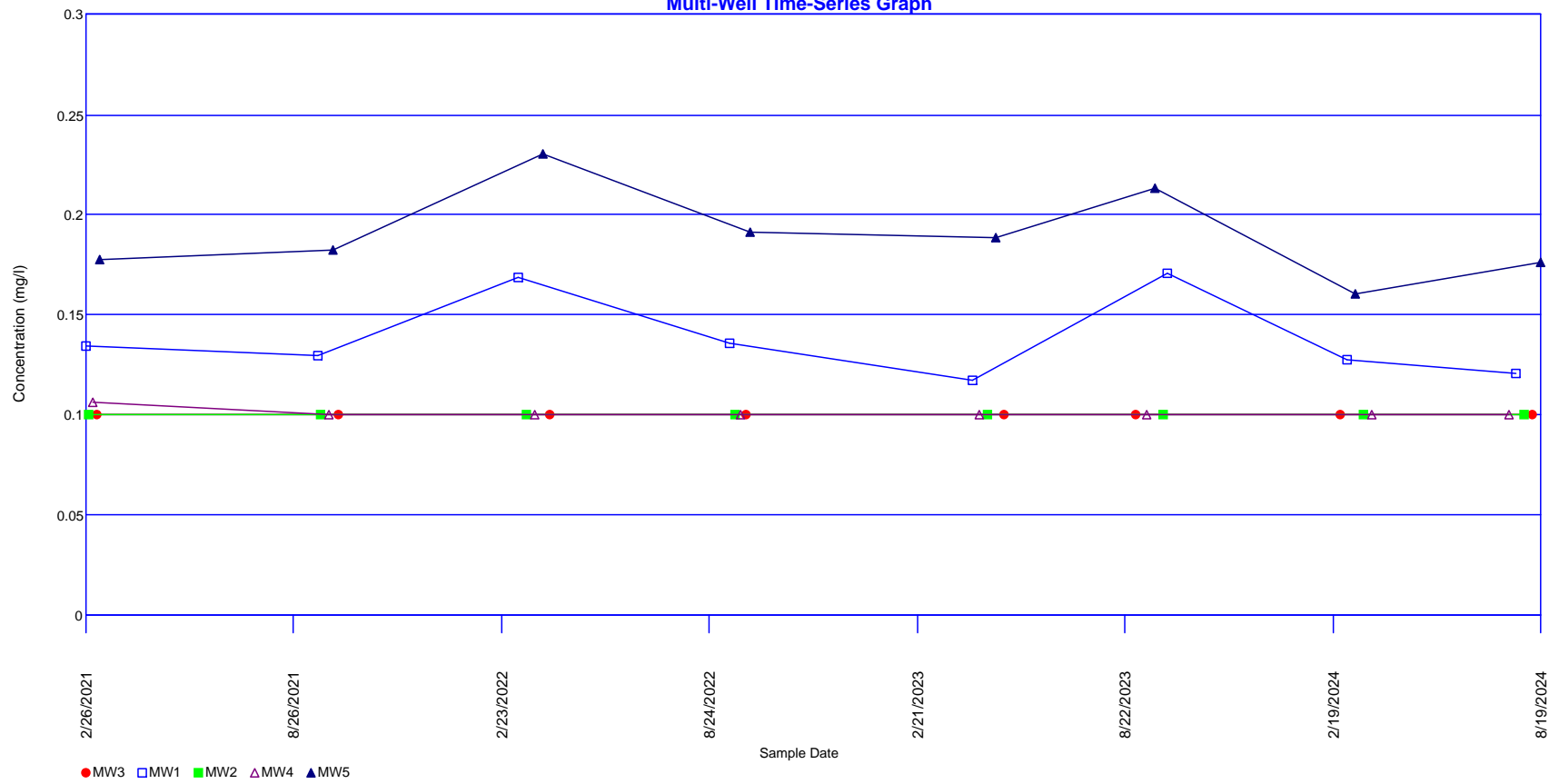
Arsenic Multi-Well Time-Series Graph



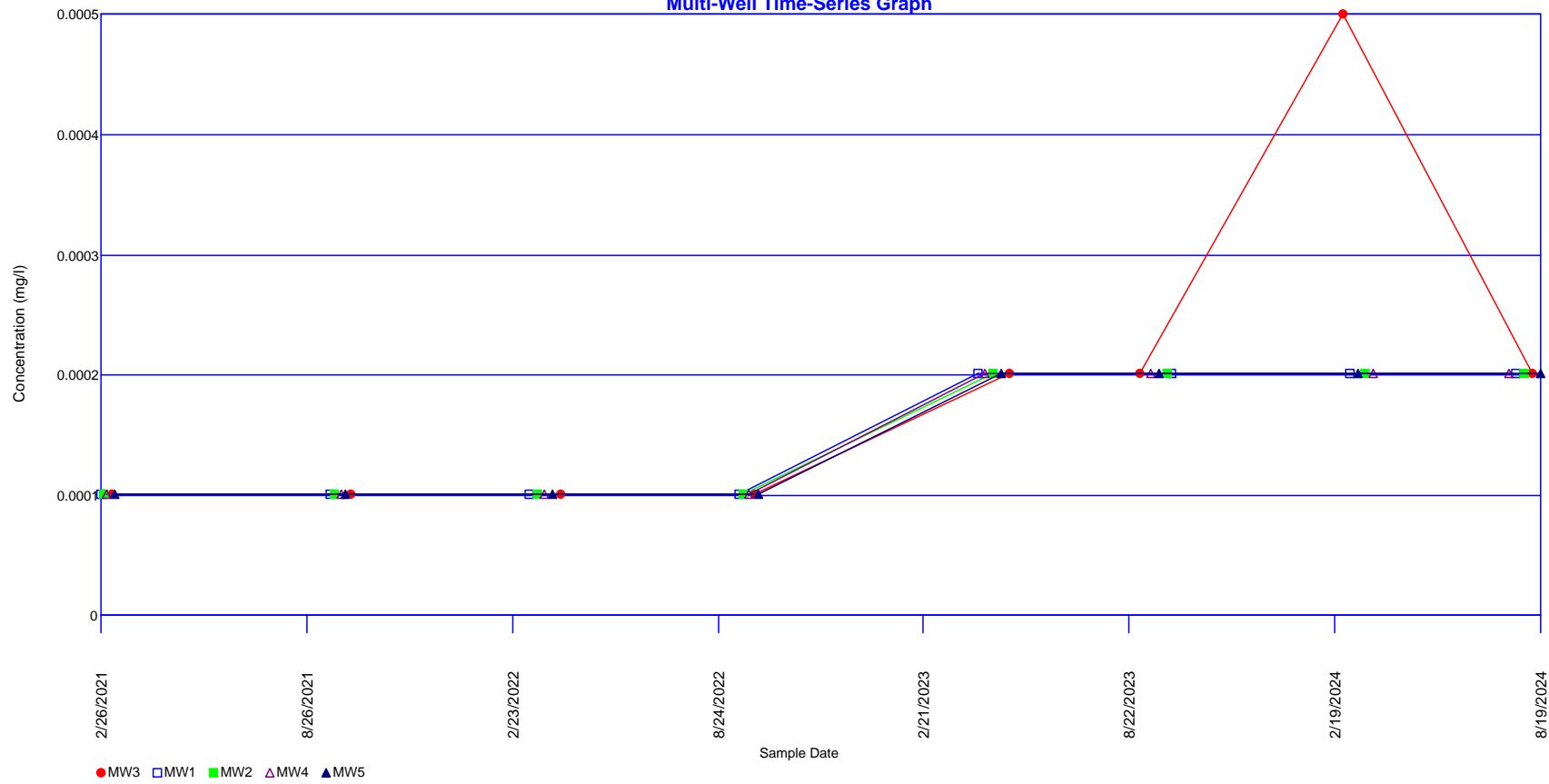
Barium Multi-Well Time-Series Graph



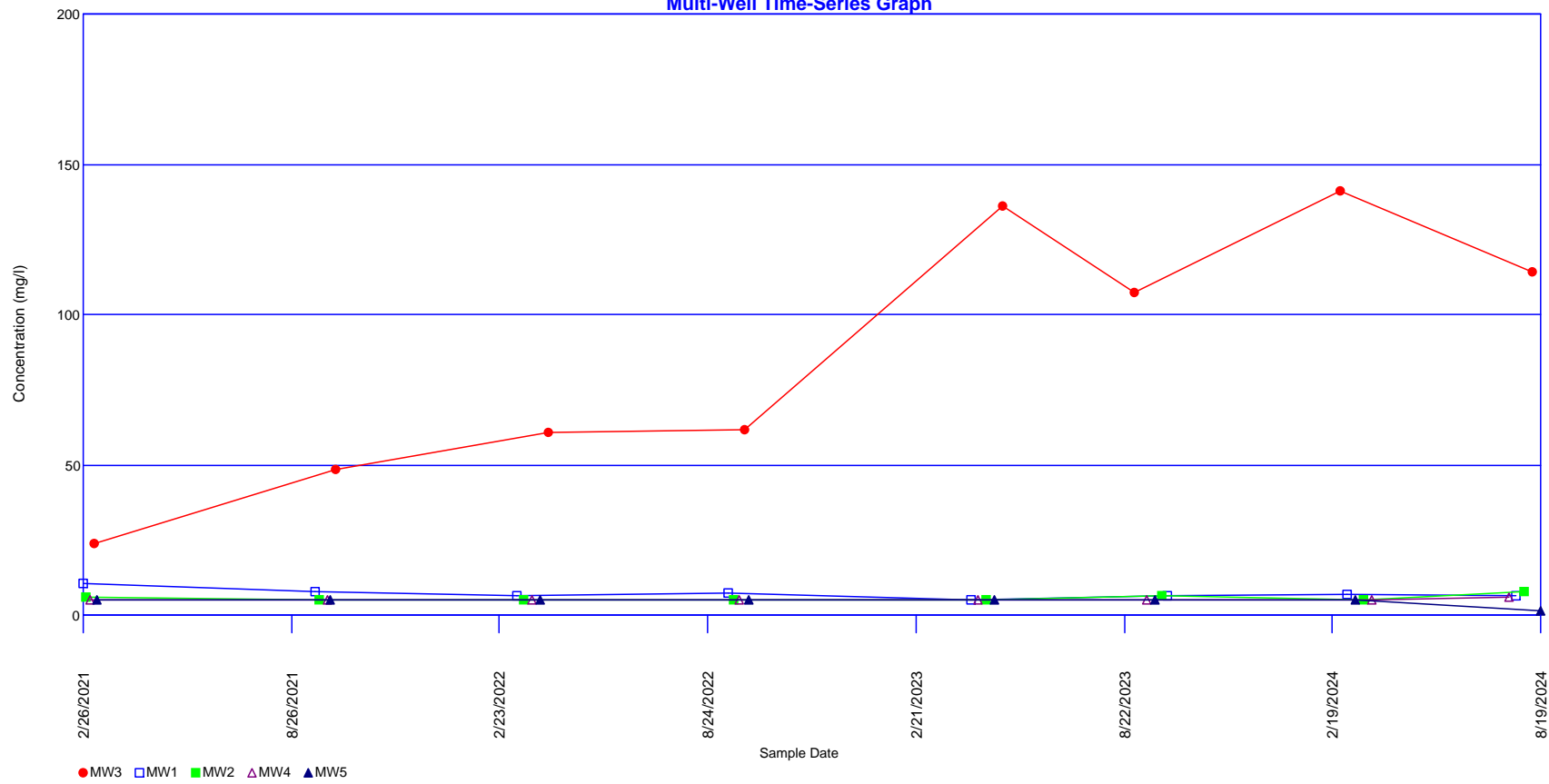
Boron Multi-Well Time-Series Graph



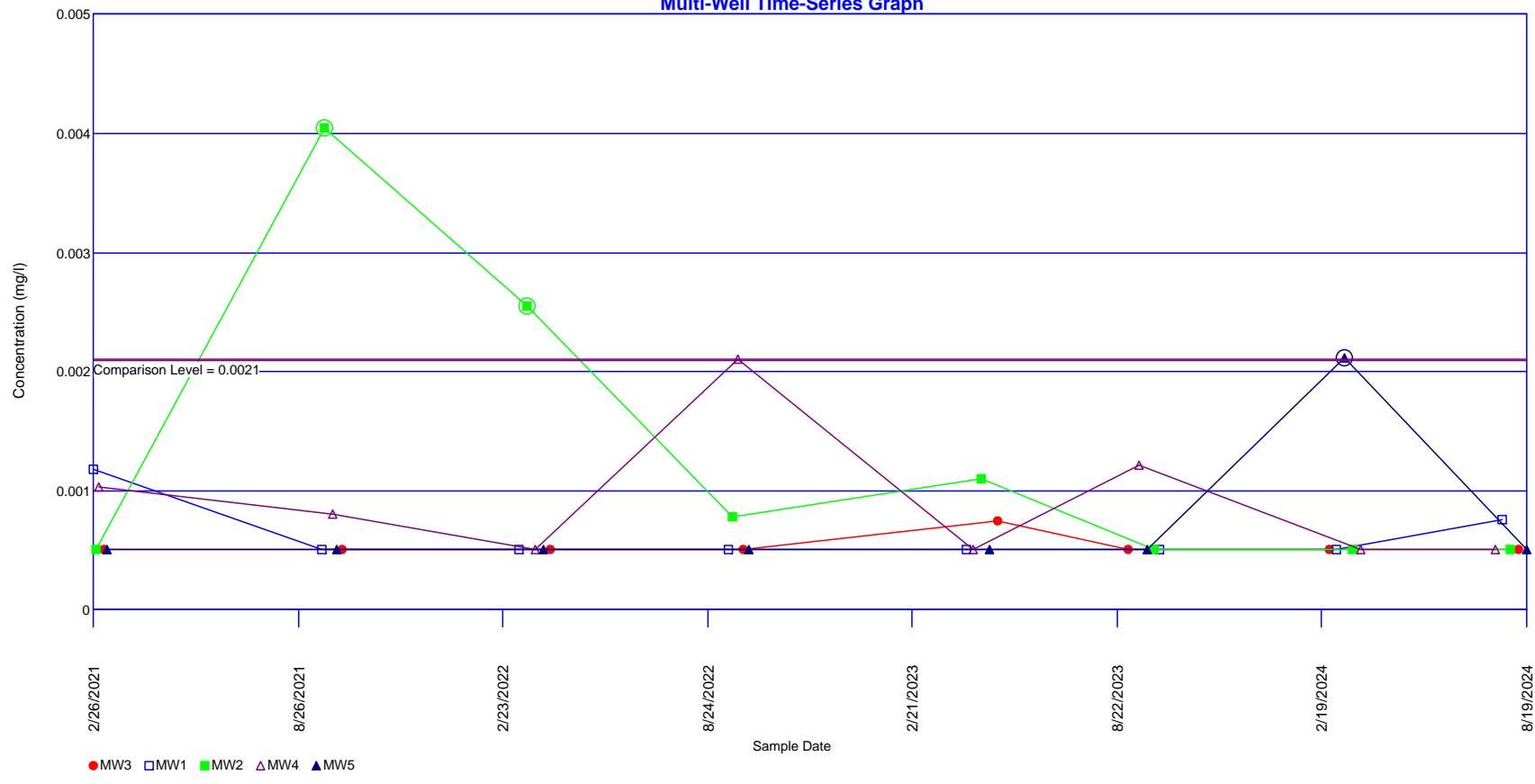
Cadmium Multi-Well Time-Series Graph



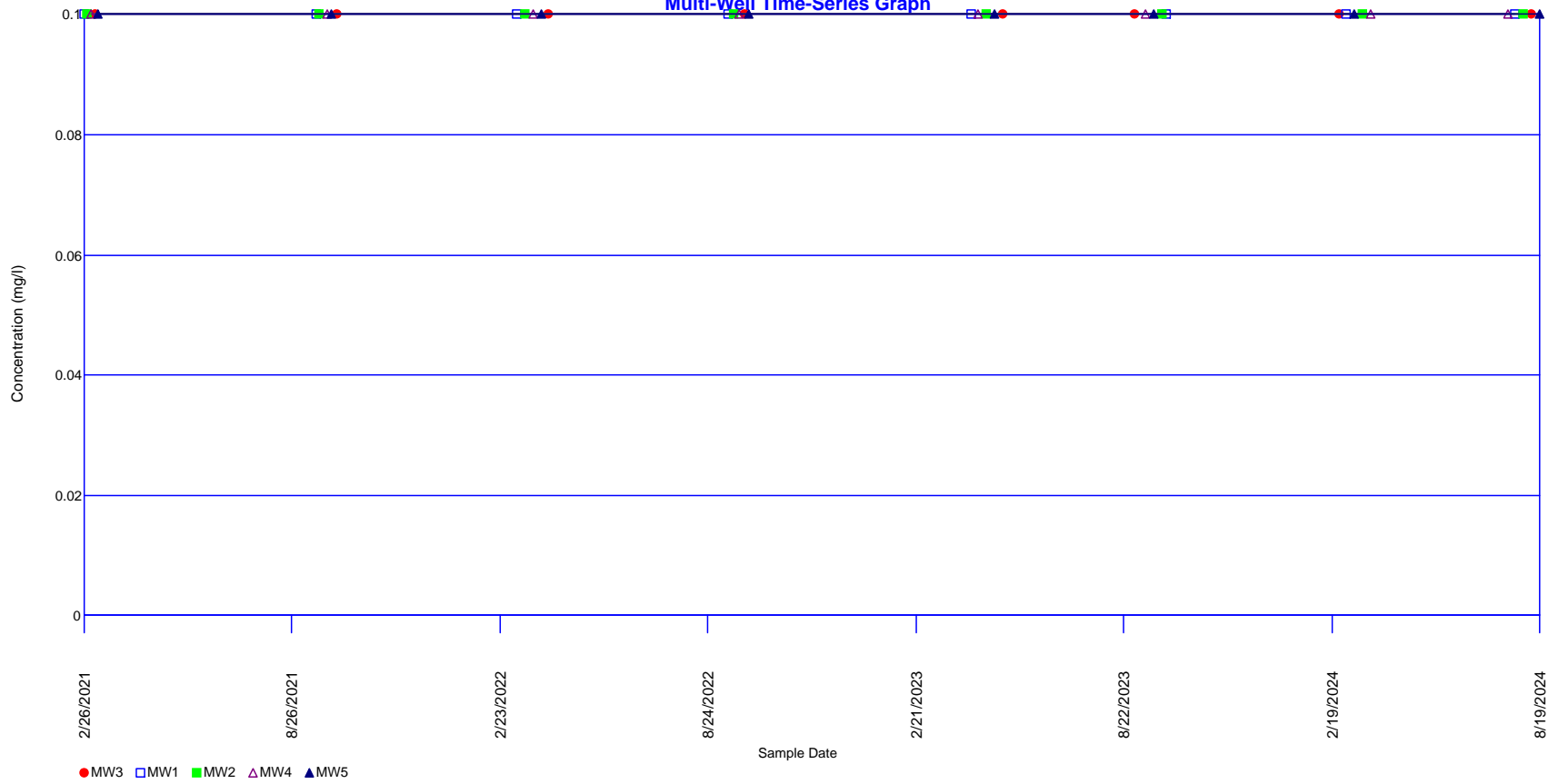
Chloride Multi-Well Time-Series Graph



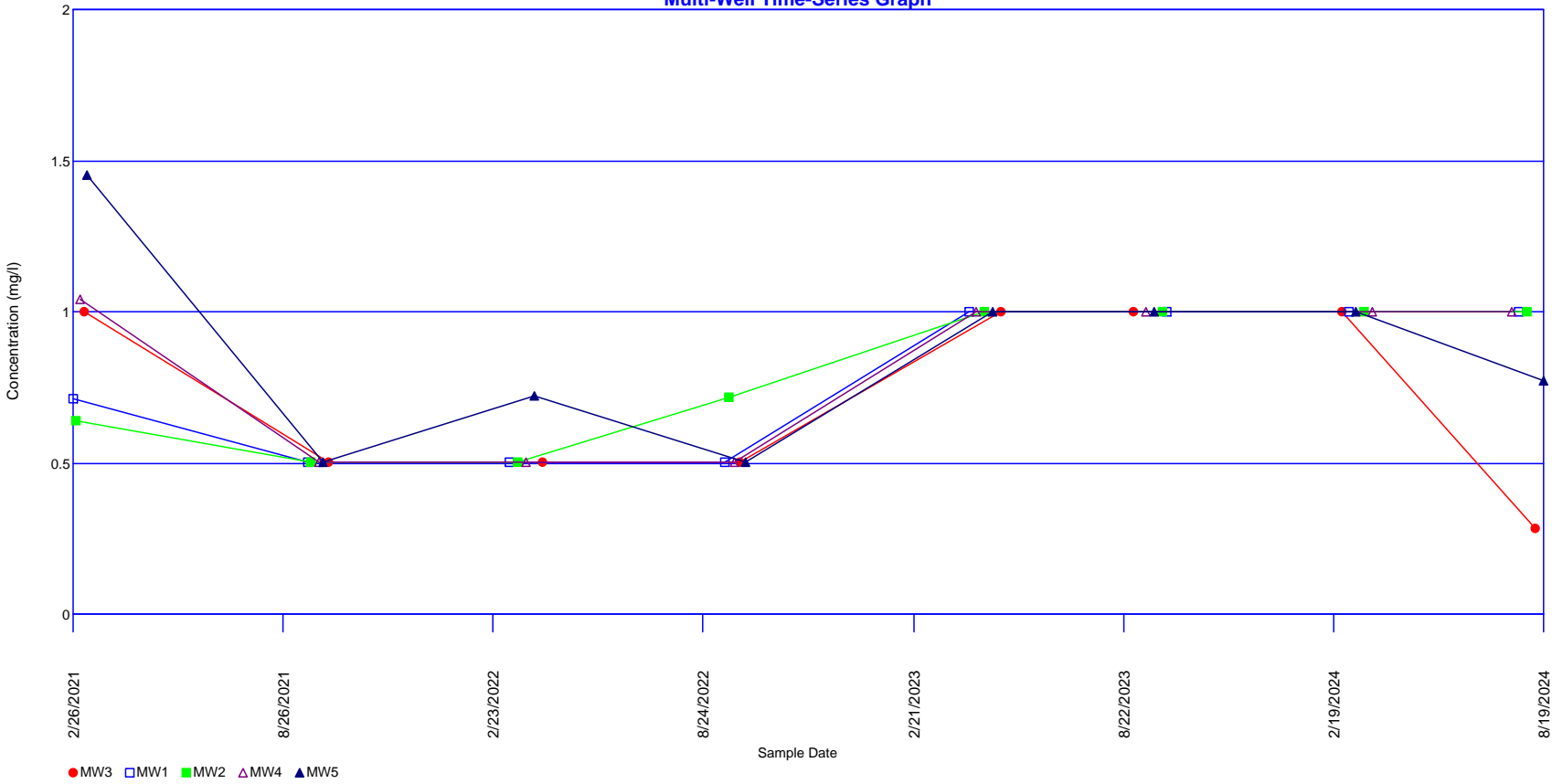
Cobalt Multi-Well Time-Series Graph



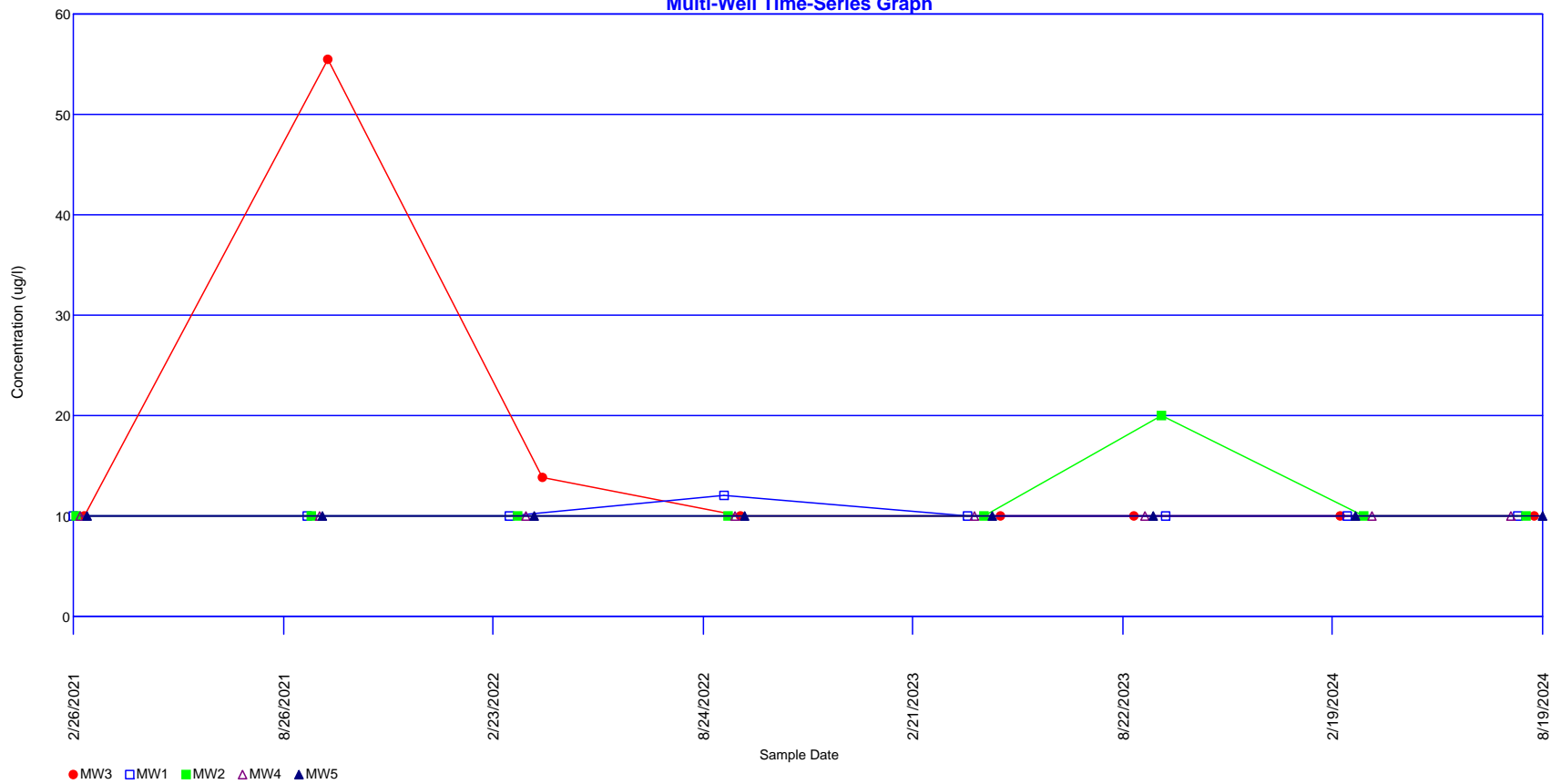
Iron Multi-Well Time-Series Graph



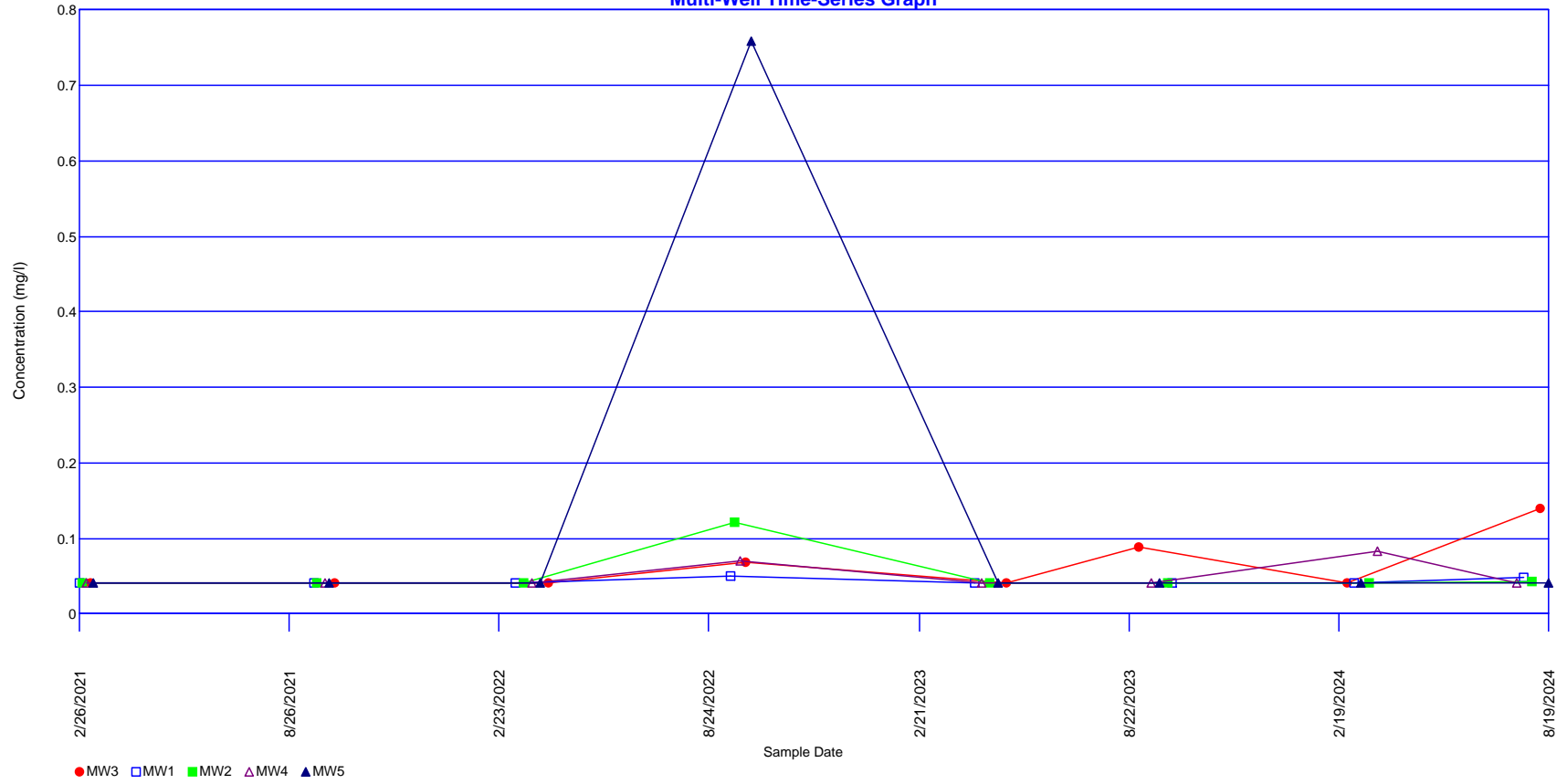
Fluoride Multi-Well Time-Series Graph



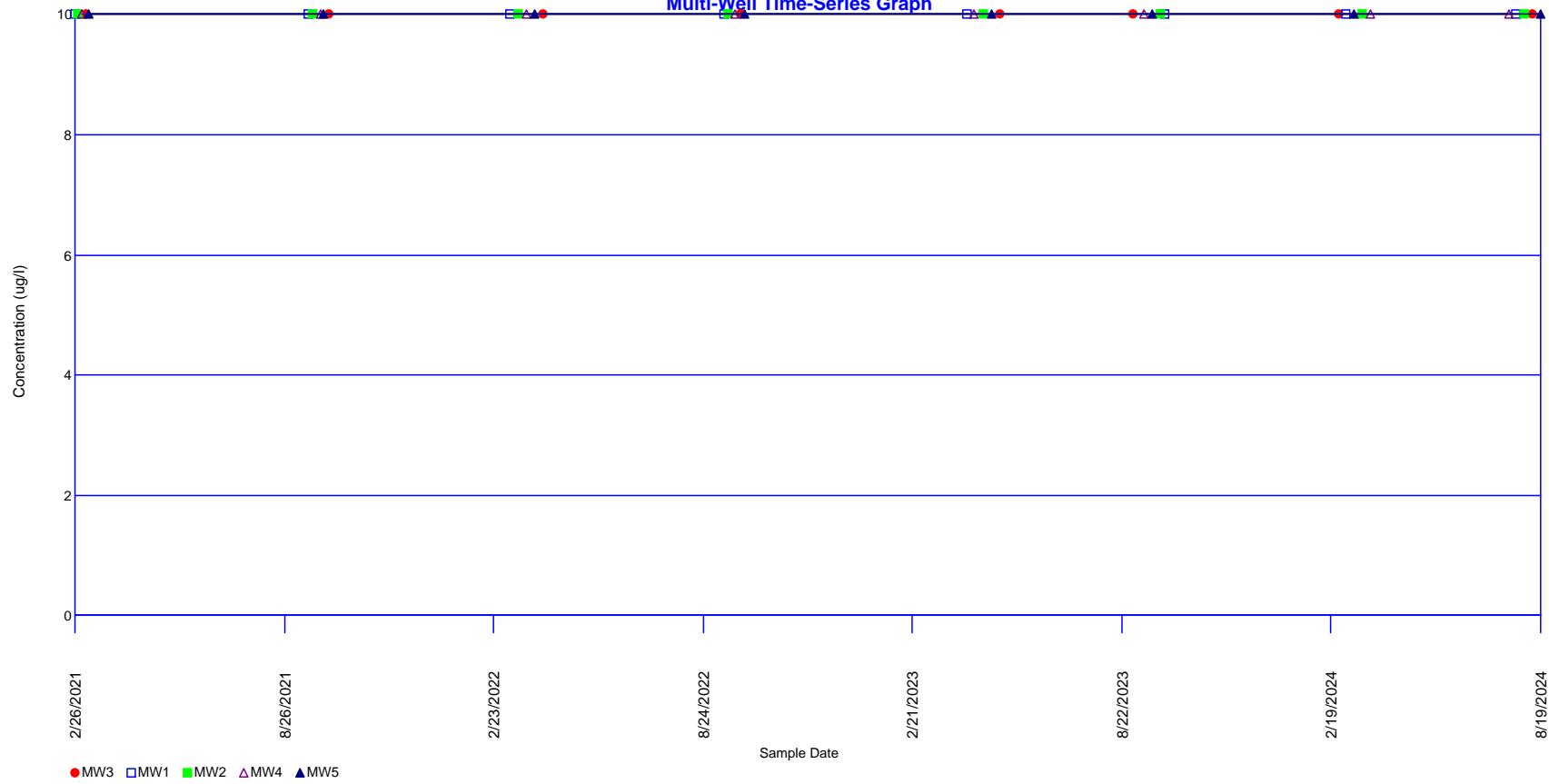
Formaldehyde Multi-Well Time-Series Graph



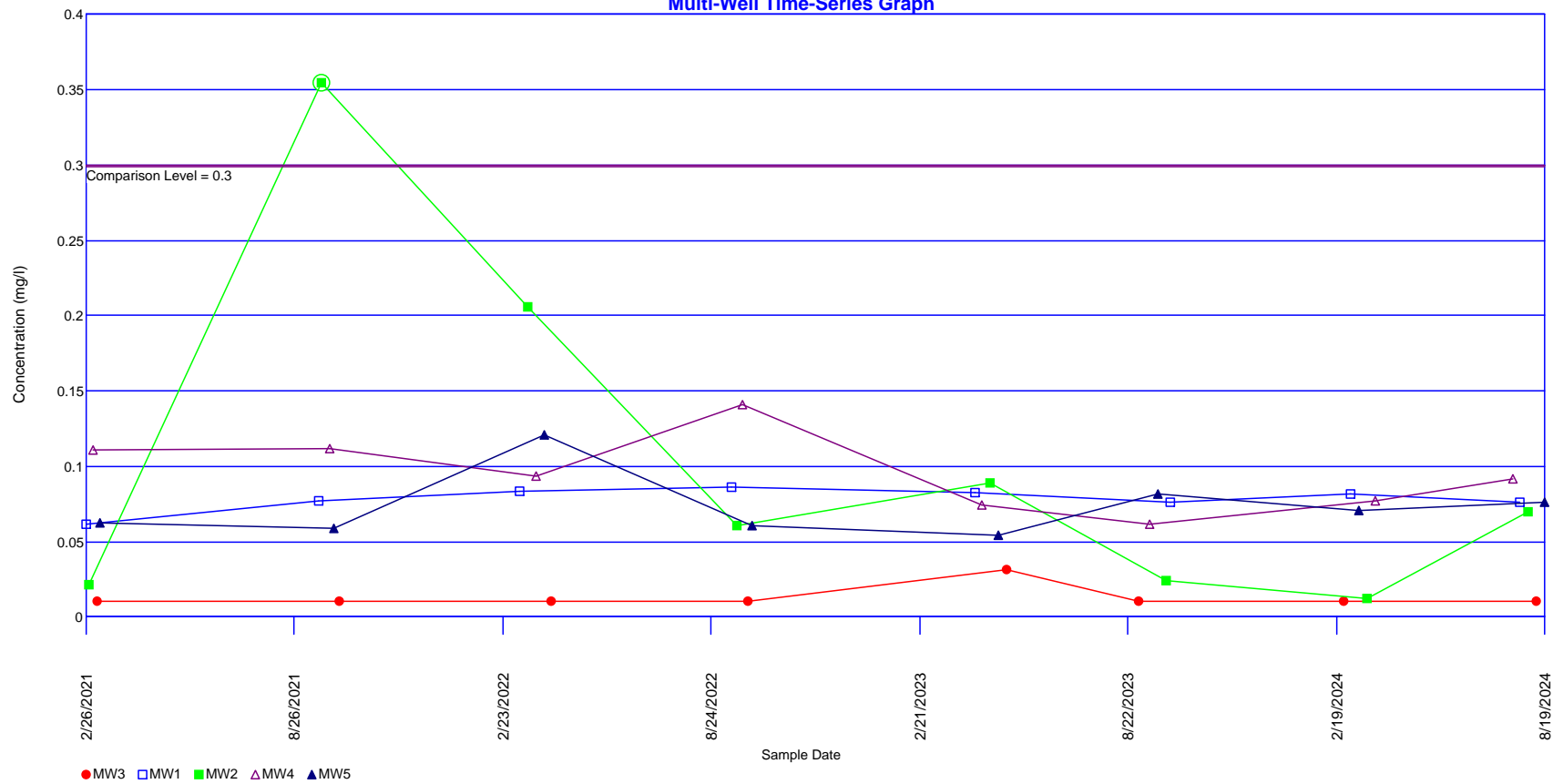
Total Organic Halogens, Halides Multi-Well Time-Series Graph



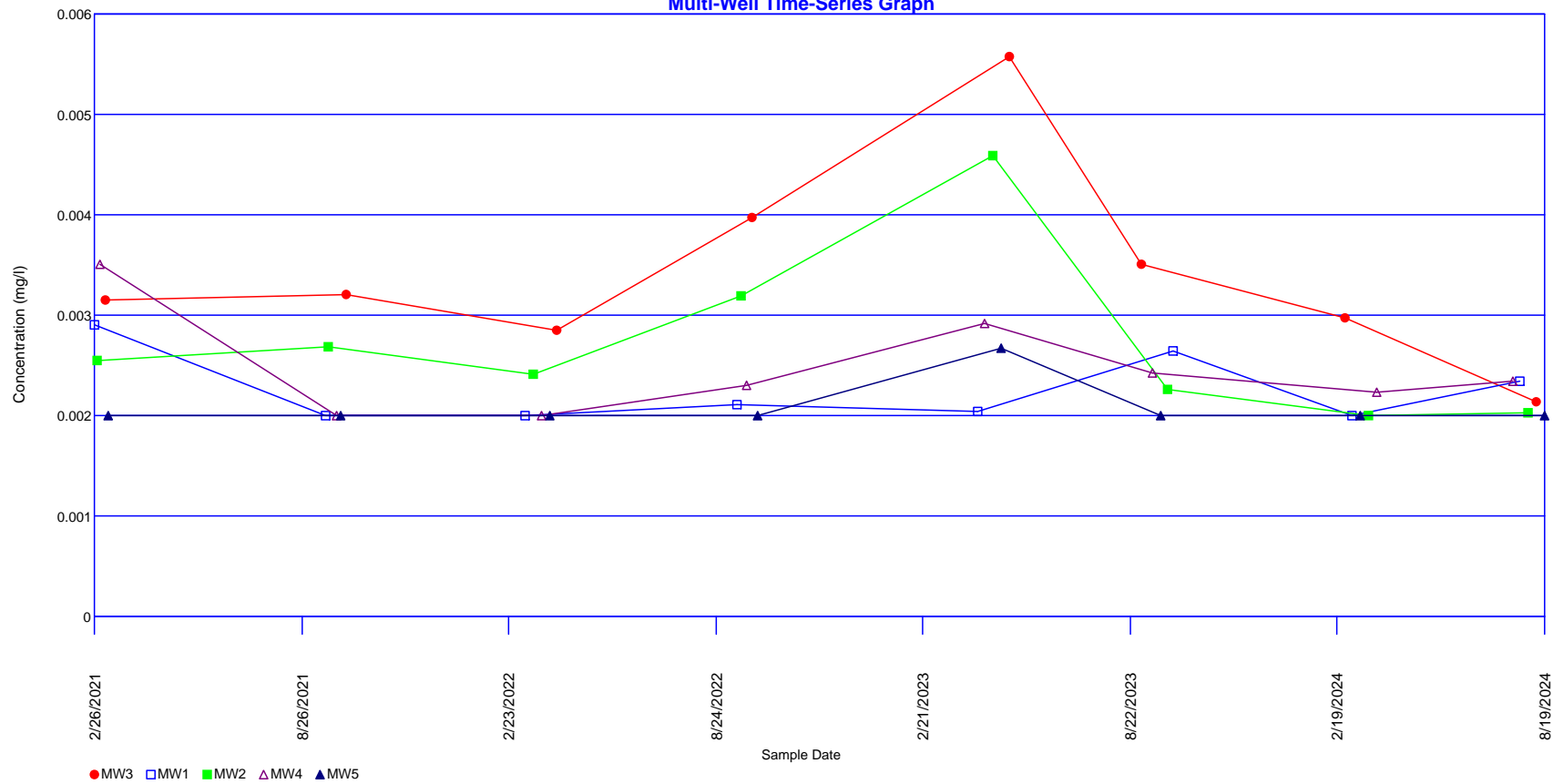
Methyl Ethyl Ketone (MEK) (2-Butanone)
Multi-Well Time-Series Graph



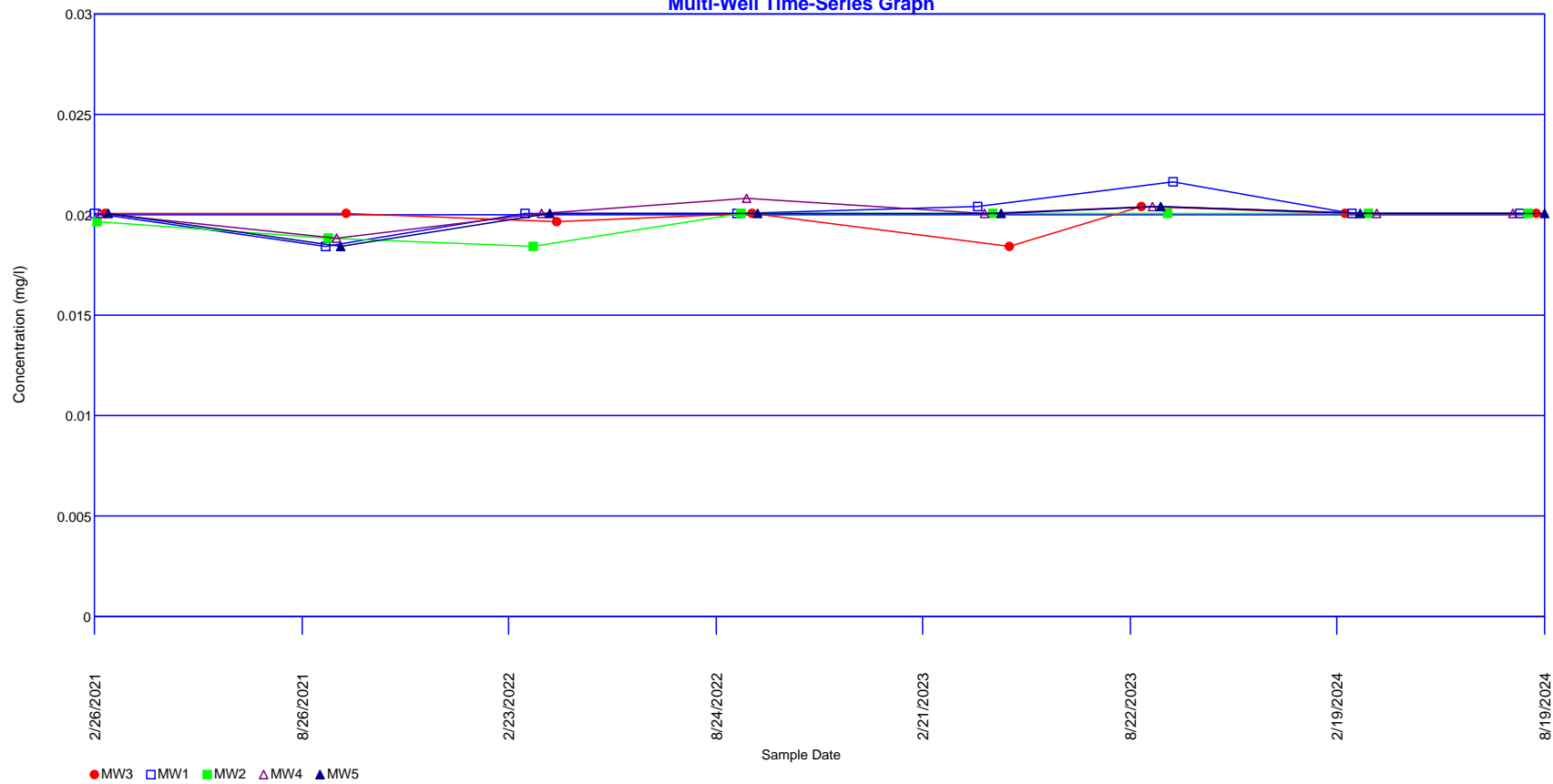
Manganese Multi-Well Time-Series Graph



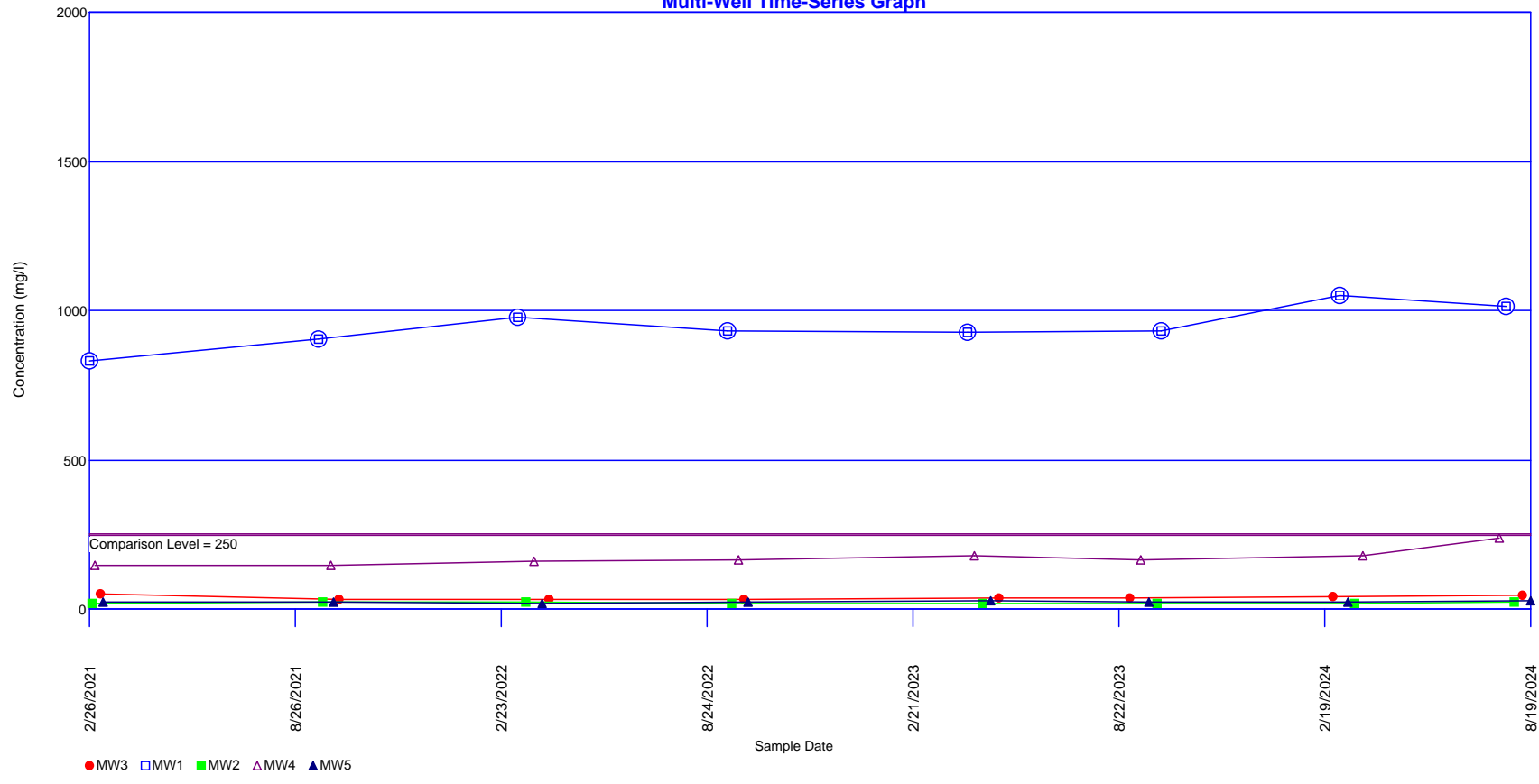
Molybdenum Multi-Well Time-Series Graph



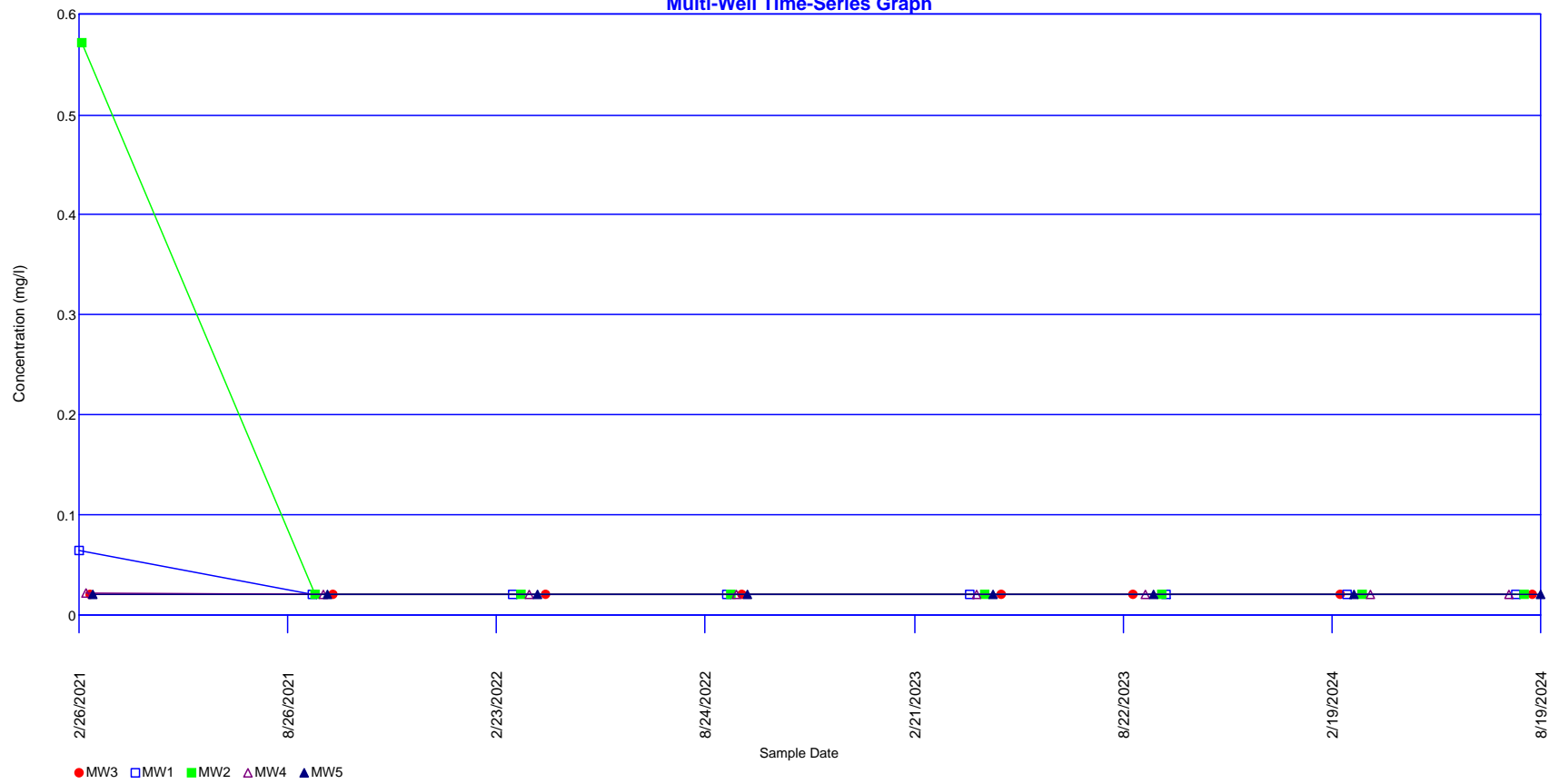
Phenols, total
Multi-Well Time-Series Graph



Sulfate Multi-Well Time-Series Graph



Zinc Multi-Well Time-Series Graph



APPENDIX B

Shapiro-Wilk Tests

Shapiro-Wilks Test of Normality

Parameter: Aluminum, total

Location: MW2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.05	0.165	0.115	0.6052	0.069598
2	0.05	0.05	0	0.3164	0
3	0.05	0.05	0	0.1743	0
4	0.05	0.05	0	0.0561	0
5	0.05	0.05	0		
6	0.05	0.05	0		
7	0.05	0.05	0		
8	0.165	0.05	-0.115		

Sum of b values = 0.069598

Sample Standard Deviation = 0.0406586

W Statistic = 0.418591

5% Critical value of 0.818 exceeds 0.418591

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.418591

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Ammonia Nitrogen

Location: MW5

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	0.529	0.029	0.6052	0.0175508
2	0.5	0.508	0.008	0.3164	0.0025312
3	0.5	0.5	0	0.1743	0
4	0.5	0.5	0	0.0561	0
5	0.5	0.5	0		
6	0.5	0.5	0		
7	0.508	0.5	-0.008		
8	0.529	0.5	-0.029		

Sum of b values = 0.020082

Sample Standard Deviation = 0.0102391

W Statistic = 0.549531

5% Critical value of 0.818 exceeds 0.549531

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.549531

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Barium

Location: MW1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0203	0.0268	0.0065	0.6052	0.0039338
2	0.0207	0.0252	0.0045	0.3164	0.0014238
3	0.021	0.0236	0.0026	0.1743	0.00045318
4	0.0231	0.0233	0.0002	0.0561	1.122e-005
5	0.0233	0.0231	-0.0002		
6	0.0236	0.021	-0.0026		
7	0.0252	0.0207	-0.0045		
8	0.0268	0.0203	-0.0065		

Sum of b values = 0.005822

Sample Standard Deviation = 0.00227784

W Statistic = 0.933251

5% Critical value of 0.818 is less than 0.933251

Data is normally distributed at 95% level of significance

1% Critical value of 0.749 is less than 0.933251

Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Barium

Location: MW2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0582	0.118	0.0598	0.6052	0.036191
2	0.072	0.118	0.046	0.3164	0.0145544
3	0.0727	0.11	0.0373	0.1743	0.00650139
4	0.0808	0.0882	0.0074	0.0561	0.00041514
5	0.0882	0.0808	-0.0074		
6	0.11	0.0727	-0.0373		
7	0.118	0.072	-0.046		
8	0.118	0.0582	-0.0598		

Sum of b values = 0.0576619

Sample Standard Deviation = 0.0229592

W Statistic = 0.90109

5% Critical value of 0.818 is less than 0.90109

Data is normally distributed at 95% level of significance

1% Critical value of 0.749 is less than 0.90109

Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Barium

Location: MW3

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.229	0.325	0.096	0.6052	0.0580992
2	0.264	0.32	0.056	0.3164	0.0177184
3	0.267	0.32	0.053	0.1743	0.0092379
4	0.282	0.295	0.013	0.0561	0.0007293
5	0.295	0.282	-0.013		
6	0.32	0.267	-0.053		
7	0.32	0.264	-0.056		
8	0.325	0.229	-0.096		

Sum of b values = 0.0857848

Sample Standard Deviation = 0.0338051

W Statistic = 0.919936

5% Critical value of 0.818 is less than 0.919936
Data is normally distributed at 95% level of significance

1% Critical value of 0.749 is less than 0.919936
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Barium

Location: MW4

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.112	0.188	0.076	0.6052	0.0459952
2	0.118	0.135	0.017	0.3164	0.0053788
3	0.12	0.129	0.009	0.1743	0.0015687
4	0.125	0.125	0	0.0561	0
5	0.125	0.125	0		
6	0.129	0.12	-0.009		
7	0.135	0.118	-0.017		
8	0.188	0.112	-0.076		

Sum of b values = 0.0529427

Sample Standard Deviation = 0.0238747

W Statistic = 0.702489

5% Critical value of 0.818 exceeds 0.702489

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.702489

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Barium

Location: MW5

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0775	0.126	0.0485	0.6052	0.0293522
2	0.0801	0.0972	0.0171	0.3164	0.00541044
3	0.0877	0.0965	0.0088	0.1743	0.00153384
4	0.0941	0.0955	0.0014	0.0561	7.854e-005
5	0.0955	0.0941	-0.0014		
6	0.0965	0.0877	-0.0088		
7	0.0972	0.0801	-0.0171		
8	0.126	0.0775	-0.0485		

Sum of b values = 0.036375

Sample Standard Deviation = 0.0148663

W Statistic = 0.855265

5% Critical value of 0.818 is less than 0.855265
Data is normally distributed at 95% level of significance

1% Critical value of 0.749 is less than 0.855265
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Boron

Location: MW1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.117	0.17	0.053	0.6052	0.0320756
2	0.12	0.168	0.048	0.3164	0.0151872
3	0.127	0.135	0.008	0.1743	0.0013944
4	0.129	0.134	0.005	0.0561	0.0002805
5	0.134	0.129	-0.005		
6	0.135	0.127	-0.008		
7	0.168	0.12	-0.048		
8	0.17	0.117	-0.053		

Sum of b values = 0.0489377

Sample Standard Deviation = 0.0204031

W Statistic = 0.821859

5% Critical value of 0.818 is less than 0.821859
Data is normally distributed at 95% level of significance

1% Critical value of 0.749 is less than 0.821859
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Boron

Location: MW4

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.1	0.106	0.006	0.6052	0.0036312
2	0.1	0.1	0	0.3164	0
3	0.1	0.1	0	0.1743	0
4	0.1	0.1	0	0.0561	0
5	0.1	0.1	0		
6	0.1	0.1	0		
7	0.1	0.1	0		
8	0.106	0.1	-0.006		

Sum of b values = 0.0036312

Sample Standard Deviation = 0.00212132

W Statistic = 0.418591

5% Critical value of 0.818 exceeds 0.418591

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.418591

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Boron

Location: MW5

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.16	0.23	0.07	0.6052	0.042364
2	0.176	0.213	0.037	0.3164	0.0117068
3	0.177	0.191	0.014	0.1743	0.0024402
4	0.182	0.188	0.006	0.0561	0.0003366
5	0.188	0.182	-0.006		
6	0.191	0.177	-0.014		
7	0.213	0.176	-0.037		
8	0.23	0.16	-0.07		

Sum of b values = 0.0568476

Sample Standard Deviation = 0.0222386

W Statistic = 0.933497

5% Critical value of 0.818 is less than 0.933497
Data is normally distributed at 95% level of significance

1% Critical value of 0.749 is less than 0.933497
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chloride

Location: MW1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	5	10.1	5.1	0.6052	3.08652
2	5.97	7.45	1.48	0.3164	0.468272
3	6.25	6.86	0.61	0.1743	0.106323
4	6.38	6.53	0.15	0.0561	0.008415
5	6.53	6.38	-0.15		
6	6.86	6.25	-0.61		
7	7.45	5.97	-1.48		
8	10.1	5	-5.1		

Sum of b values = 3.66953

Sample Standard Deviation = 1.50211

W Statistic = 0.852549

5% Critical value of 0.818 is less than 0.852549

Data is normally distributed at 95% level of significance

1% Critical value of 0.749 is less than 0.852549

Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chloride

Location: MW2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	5	7.68	2.68	0.6052	1.62194
2	5	5.99	0.99	0.3164	0.313236
3	5	5.66	0.66	0.1743	0.115038
4	5	5	0	0.0561	0
5	5	5	0		
6	5.66	5	-0.66		
7	5.99	5	-0.99		
8	7.68	5	-2.68		

Sum of b values = 2.05021

Sample Standard Deviation = 0.94525

W Statistic = 0.672055

5% Critical value of 0.818 exceeds 0.672055

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.672055

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chloride

Location: MW3

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	23.5	141	117.5	0.6052	71.111
2	48.3	136	87.7	0.3164	27.7483
3	60.4	114	53.6	0.1743	9.34248
4	61.4	107	45.6	0.0561	2.55816
5	107	61.4	-45.6		
6	114	60.4	-53.6		
7	136	48.3	-87.7		
8	141	23.5	-117.5		

Sum of b values = 110.76

Sample Standard Deviation = 43.6487

W Statistic = 0.919868

5% Critical value of 0.818 is less than 0.919868
Data is normally distributed at 95% level of significance

1% Critical value of 0.749 is less than 0.919868
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Chloride

Location: MW4

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	5	5.92	0.92	0.6052	0.556784
2	5	5	0	0.3164	0
3	5	5	0	0.1743	0
4	5	5	0	0.0561	0
5	5	5	0		
6	5	5	0		
7	5	5	0		
8	5.92	5	-0.92		

Sum of b values = 0.556784

Sample Standard Deviation = 0.325269

W Statistic = 0.418591

5% Critical value of 0.818 exceeds 0.418591

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.418591

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Cobalt

Location: MW1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0005	0.00117	0.00067	0.6052	0.000405484
2	0.0005	0.000752	0.000252	0.3164	7.97328e-005
3	0.0005	0.0005	0	0.1743	0
4	0.0005	0.0005	0	0.0561	0
5	0.0005	0.0005	0		
6	0.0005	0.0005	0		
7	0.000752	0.0005	-0.000252		
8	0.00117	0.0005	-0.00067		

Sum of b values = 0.000485217

Sample Standard Deviation = 0.000240874

W Statistic = 0.579685

5% Critical value of 0.818 exceeds 0.579685

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.579685

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Cobalt

Location: MW2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0005	0.00404	0.00354	0.6052	0.00214241
2	0.0005	0.00254	0.00204	0.3164	0.000645456
3	0.0005	0.00109	0.00059	0.1743	0.000102837
4	0.0005	0.000769	0.000269	0.0561	1.50909e-005
5	0.000769	0.0005	-0.000269		
6	0.00109	0.0005	-0.00059		
7	0.00254	0.0005	-0.00204		
8	0.00404	0.0005	-0.00354		

Sum of b values = 0.00290579

Sample Standard Deviation = 0.00130554

W Statistic = 0.707701

5% Critical value of 0.818 exceeds 0.707701

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.707701

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Cobalt

Location: MW3

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0005	0.000731	0.000231	0.6052	0.000139801
2	0.0005	0.0005	0	0.3164	0
3	0.0005	0.0005	0	0.1743	0
4	0.0005	0.0005	0	0.0561	0
5	0.0005	0.0005	0		
6	0.0005	0.0005	0		
7	0.0005	0.0005	0		
8	0.000731	0.0005	-0.000231		

Sum of b values = 0.000139801

Sample Standard Deviation = 8.16708e-005

W Statistic = 0.418591

5% Critical value of 0.818 exceeds 0.418591

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.418591

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Cobalt

Location: MW4

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0005	0.00209	0.00159	0.6052	0.000962268
2	0.0005	0.00121	0.00071	0.3164	0.000224644
3	0.0005	0.00102	0.00052	0.1743	9.0636e-005
4	0.0005	0.000795	0.000295	0.0561	1.65495e-005
5	0.000795	0.0005	-0.000295		
6	0.00102	0.0005	-0.00052		
7	0.00121	0.0005	-0.00071		
8	0.00209	0.0005	-0.00159		

Sum of b values = 0.0012941

Sample Standard Deviation = 0.000557638

W Statistic = 0.769363

5% Critical value of 0.818 exceeds 0.769363

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 is less than 0.769363

Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Cobalt

Location: MW5

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0005	0.00211	0.00161	0.6052	0.000974372
2	0.0005	0.0005	0	0.3164	0
3	0.0005	0.0005	0	0.1743	0
4	0.0005	0.0005	0	0.0561	0
5	0.0005	0.0005	0		
6	0.0005	0.0005	0		
7	0.0005	0.0005	0		
8	0.00211	0.0005	-0.00161		

Sum of b values = 0.000974372

Sample Standard Deviation = 0.000569221

W Statistic = 0.418591

5% Critical value of 0.818 exceeds 0.418591

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.418591

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Fluoride

Location: MW1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	1	0.5	0.6052	0.3026
2	0.5	1	0.5	0.3164	0.1582
3	0.5	1	0.5	0.1743	0.08715
4	0.709	1	0.291	0.0561	0.0163251
5	1	0.709	-0.291		
6	1	0.5	-0.5		
7	1	0.5	-0.5		
8	1	0.5	-0.5		

Sum of b values = 0.564275

Sample Standard Deviation = 0.248918

W Statistic = 0.734127

5% Critical value of 0.818 exceeds 0.734127

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.734127

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Fluoride

Location: MW2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	1	0.5	0.6052	0.3026
2	0.5	1	0.5	0.3164	0.1582
3	0.636	1	0.364	0.1743	0.0634452
4	0.713	1	0.287	0.0561	0.0161007
5	1	0.713	-0.287		
6	1	0.636	-0.364		
7	1	0.5	-0.5		
8	1	0.5	-0.5		

Sum of b values = 0.540346

Sample Standard Deviation = 0.231189

W Statistic = 0.780386

5% Critical value of 0.818 exceeds 0.780386

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 is less than 0.780386

Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Fluoride

Location: MW3

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.279	1	0.721	0.6052	0.436349
2	0.5	1	0.5	0.3164	0.1582
3	0.5	1	0.5	0.1743	0.08715
4	0.5	1	0.5	0.0561	0.02805
5	1	0.5	-0.5		
6	1	0.5	-0.5		
7	1	0.5	-0.5		
8	1	0.279	-0.721		

Sum of b values = 0.709749

Sample Standard Deviation = 0.305482

W Statistic = 0.771152

5% Critical value of 0.818 exceeds 0.771152

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 is less than 0.771152

Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Fluoride

Location: MW4

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	1.04	0.54	0.6052	0.326808
2	0.5	1	0.5	0.3164	0.1582
3	0.5	1	0.5	0.1743	0.08715
4	1	1	0	0.0561	0
5	1	1	0		
6	1	0.5	-0.5		
7	1	0.5	-0.5		
8	1.04	0.5	-0.54		

Sum of b values = 0.572158

Sample Standard Deviation = 0.263262

W Statistic = 0.67477

5% Critical value of 0.818 exceeds 0.67477

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.67477

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Fluoride

Location: MW5

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	1.45	0.95	0.6052	0.57494
2	0.5	1	0.5	0.3164	0.1582
3	0.721	1	0.279	0.1743	0.0486297
4	0.771	1	0.229	0.0561	0.0128469
5	1	0.771	-0.229		
6	1	0.721	-0.279		
7	1	0.5	-0.5		
8	1.45	0.5	-0.95		

Sum of b values = 0.794617

Sample Standard Deviation = 0.314611

W Statistic = 0.911316

5% Critical value of 0.818 is less than 0.911316
Data is normally distributed at 95% level of significance

1% Critical value of 0.749 is less than 0.911316
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Formaldehyde

Location: MW1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	10	12	2	0.6052	1.2104
2	10	10	0	0.3164	0
3	10	10	0	0.1743	0
4	10	10	0	0.0561	0
5	10	10	0		
6	10	10	0		
7	10	10	0		
8	12	10	-2		

Sum of b values = 1.2104

Sample Standard Deviation = 0.707107

W Statistic = 0.418591

5% Critical value of 0.818 exceeds 0.418591

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.418591

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Formaldehyde

Location: MW3

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	10	55.4	45.4	0.6052	27.4761
2	10	13.8	3.8	0.3164	1.20232
3	10	10	0	0.1743	0
4	10	10	0	0.0561	0
5	10	10	0		
6	10	10	0		
7	13.8	10	-3.8		
8	55.4	10	-45.4		

Sum of b values = 28.6784

Sample Standard Deviation = 15.915

W Statistic = 0.46387

5% Critical value of 0.818 exceeds 0.46387

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.46387

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Total Organic Halogens, Halides

Location: MW1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.04	0.0492	0.0092	0.6052	0.00556784
2	0.04	0.0458	0.0058	0.3164	0.00183512
3	0.04	0.04	0	0.1743	0
4	0.04	0.04	0	0.0561	0
5	0.04	0.04	0		
6	0.04	0.04	0		
7	0.0458	0.04	-0.0058		
8	0.0492	0.04	-0.0092		

Sum of b values = 0.00740296

Sample Standard Deviation = 0.00358877

W Statistic = 0.607884

5% Critical value of 0.818 exceeds 0.607884

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.607884

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Total Organic Halogens, Halides

Location: MW2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.04	0.119	0.079	0.6052	0.0478108
2	0.04	0.0411	0.0011	0.3164	0.00034804
3	0.04	0.04	0	0.1743	0
4	0.04	0.04	0	0.0561	0
5	0.04	0.04	0		
6	0.04	0.04	0		
7	0.0411	0.04	-0.0011		
8	0.119	0.04	-0.079		

Sum of b values = 0.0481588

Sample Standard Deviation = 0.0278778

W Statistic = 0.426321

5% Critical value of 0.818 exceeds 0.426321

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.426321

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Total Organic Halogens, Halides

Location: MW3

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.04	0.138	0.098	0.6052	0.0593096
2	0.04	0.0861	0.0461	0.3164	0.014586
3	0.04	0.0667	0.0267	0.1743	0.00465381
4	0.04	0.04	0	0.0561	0
5	0.04	0.04	0		
6	0.0667	0.04	-0.0267		
7	0.0861	0.04	-0.0461		
8	0.138	0.04	-0.098		

Sum of b values = 0.0785494

Sample Standard Deviation = 0.0354472

W Statistic = 0.701495

5% Critical value of 0.818 exceeds 0.701495

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.701495

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Total Organic Halogens, Halides

Location: MW4

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.04	0.0808	0.0408	0.6052	0.0246922
2	0.04	0.0688	0.0288	0.3164	0.00911232
3	0.04	0.04	0	0.1743	0
4	0.04	0.04	0	0.0561	0
5	0.04	0.04	0		
6	0.04	0.04	0		
7	0.0688	0.04	-0.0288		
8	0.0808	0.04	-0.0408		

Sum of b values = 0.0338045

Sample Standard Deviation = 0.0164254

W Statistic = 0.605087

5% Critical value of 0.818 exceeds 0.605087

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.605087

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Total Organic Halogens, Halides

Location: MW5

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.04	0.757	0.717	0.6052	0.433928
2	0.04	0.04	0	0.3164	0
3	0.04	0.04	0	0.1743	0
4	0.04	0.04	0	0.0561	0
5	0.04	0.04	0		
6	0.04	0.04	0		
7	0.04	0.04	0		
8	0.757	0.04	-0.717		

Sum of b values = 0.433928

Sample Standard Deviation = 0.253498

W Statistic = 0.418591

5% Critical value of 0.818 exceeds 0.418591

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.418591

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Manganese

Location: MW1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0605	0.085	0.0245	0.6052	0.0148274
2	0.0753	0.0829	0.0076	0.3164	0.00240464
3	0.0757	0.0821	0.0064	0.1743	0.00111552
4	0.0766	0.0808	0.0042	0.0561	0.00023562
5	0.0808	0.0766	-0.0042		
6	0.0821	0.0757	-0.0064		
7	0.0829	0.0753	-0.0076		
8	0.085	0.0605	-0.0245		

Sum of b values = 0.0185832

Sample Standard Deviation = 0.00770157

W Statistic = 0.831733

5% Critical value of 0.818 is less than 0.831733
Data is normally distributed at 95% level of significance

1% Critical value of 0.749 is less than 0.831733
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Manganese

Location: MW2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0115	0.354	0.3425	0.6052	0.207281
2	0.021	0.205	0.184	0.3164	0.0582176
3	0.0237	0.088	0.0643	0.1743	0.0112075
4	0.0601	0.0692	0.0091	0.0561	0.00051051
5	0.0692	0.0601	-0.0091		
6	0.088	0.0237	-0.0643		
7	0.205	0.021	-0.184		
8	0.354	0.0115	-0.3425		

Sum of b values = 0.277217

Sample Standard Deviation = 0.118315

W Statistic = 0.784265

5% Critical value of 0.818 exceeds 0.784265

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 is less than 0.784265

Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Manganese

Location: MW3

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.01	0.0303	0.0203	0.6052	0.0122856
2	0.01	0.01	0	0.3164	0
3	0.01	0.01	0	0.1743	0
4	0.01	0.01	0	0.0561	0
5	0.01	0.01	0		
6	0.01	0.01	0		
7	0.01	0.01	0		
8	0.0303	0.01	-0.0203		

Sum of b values = 0.0122856

Sample Standard Deviation = 0.00717713

W Statistic = 0.418591

5% Critical value of 0.818 exceeds 0.418591

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.418591

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Manganese

Location: MW4

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0608	0.14	0.0792	0.6052	0.0479318
2	0.0739	0.111	0.0371	0.3164	0.0117384
3	0.0764	0.11	0.0336	0.1743	0.00585648
4	0.0912	0.0923	0.0011	0.0561	6.171e-005
5	0.0923	0.0912	-0.0011		
6	0.11	0.0764	-0.0336		
7	0.111	0.0739	-0.0371		
8	0.14	0.0608	-0.0792		

Sum of b values = 0.0655885

Sample Standard Deviation = 0.0253155

W Statistic = 0.958924

5% Critical value of 0.818 is less than 0.958924
Data is normally distributed at 95% level of significance

1% Critical value of 0.749 is less than 0.958924
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Manganese

Location: MW5

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0538	0.12	0.0662	0.6052	0.0400642
2	0.0584	0.0806	0.0222	0.3164	0.00702408
3	0.0595	0.0754	0.0159	0.1743	0.00277137
4	0.0613	0.0695	0.0082	0.0561	0.00046002
5	0.0695	0.0613	-0.0082		
6	0.0754	0.0595	-0.0159		
7	0.0806	0.0584	-0.0222		
8	0.12	0.0538	-0.0662		

Sum of b values = 0.0503197

Sample Standard Deviation = 0.0213204

W Statistic = 0.795767

5% Critical value of 0.818 exceeds 0.795767

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 is less than 0.795767

Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Molybdenum

Location: MW1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.002	0.0029	0.0009	0.6052	0.00054468
2	0.002	0.00264	0.00064	0.3164	0.000202496
3	0.002	0.00233	0.00033	0.1743	5.7519e-005
4	0.00203	0.0021	7e-005	0.0561	3.927e-006
5	0.0021	0.00203	-7e-005		
6	0.00233	0.002	-0.00033		
7	0.00264	0.002	-0.00064		
8	0.0029	0.002	-0.0009		

Sum of b values = 0.000808622

Sample Standard Deviation = 0.000346286

W Statistic = 0.778973

5% Critical value of 0.818 exceeds 0.778973

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 is less than 0.778973

Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Molybdenum

Location: MW2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.002	0.00458	0.00258	0.6052	0.00156142
2	0.00202	0.00318	0.00116	0.3164	0.000367024
3	0.00225	0.00268	0.00043	0.1743	7.4949e-005
4	0.0024	0.00254	0.00014	0.0561	7.854e-006
5	0.00254	0.0024	-0.00014		
6	0.00268	0.00225	-0.00043		
7	0.00318	0.00202	-0.00116		
8	0.00458	0.002	-0.00258		

Sum of b values = 0.00201124

Sample Standard Deviation = 0.00084814

W Statistic = 0.803334

5% Critical value of 0.818 exceeds 0.803334

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 is less than 0.803334

Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Molybdenum

Location: MW3

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.00213	0.00557	0.00344	0.6052	0.00208189
2	0.00284	0.00397	0.00113	0.3164	0.000357532
3	0.00296	0.0035	0.00054	0.1743	9.4122e-005
4	0.00315	0.0032	5e-005	0.0561	2.805e-006
5	0.0032	0.00315	-5e-005		
6	0.0035	0.00296	-0.00054		
7	0.00397	0.00284	-0.00113		
8	0.00557	0.00213	-0.00344		

Sum of b values = 0.00253635

Sample Standard Deviation = 0.00101872

W Statistic = 0.885535

5% Critical value of 0.818 is less than 0.885535
Data is normally distributed at 95% level of significance

1% Critical value of 0.749 is less than 0.885535
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Molybdenum

Location: MW4

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.002	0.0035	0.0015	0.6052	0.0009078
2	0.002	0.00291	0.00091	0.3164	0.000287924
3	0.00222	0.00242	0.0002	0.1743	3.486e-005
4	0.00229	0.00234	5e-005	0.0561	2.805e-006
5	0.00234	0.00229	-5e-005		
6	0.00242	0.00222	-0.0002		
7	0.00291	0.002	-0.00091		
8	0.0035	0.002	-0.0015		

Sum of b values = 0.00123339

Sample Standard Deviation = 0.000508471

W Statistic = 0.840562

5% Critical value of 0.818 is less than 0.840562

Data is normally distributed at 95% level of significance

1% Critical value of 0.749 is less than 0.840562

Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Molybdenum

Location: MW5

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.002	0.00266	0.00066	0.6052	0.000399432
2	0.002	0.002	0	0.3164	0
3	0.002	0.002	0	0.1743	0
4	0.002	0.002	0	0.0561	0
5	0.002	0.002	0		
6	0.002	0.002	0		
7	0.002	0.002	0		
8	0.00266	0.002	-0.00066		

Sum of b values = 0.000399432

Sample Standard Deviation = 0.000233345

W Statistic = 0.418591

5% Critical value of 0.818 exceeds 0.418591

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.418591

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Sulfate

Location: MW1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	828	1050	222	0.6052	134.354
2	903	1010	107	0.3164	33.8548
3	924	976	52	0.1743	9.0636
4	927	928	1	0.0561	0.0561
5	928	927	-1		
6	976	924	-52		
7	1010	903	-107		
8	1050	828	-222		

Sum of b values = 177.329

Sample Standard Deviation = 68.3411

W Statistic = 0.961828

5% Critical value of 0.818 is less than 0.961828
Data is normally distributed at 95% level of significance

1% Critical value of 0.749 is less than 0.961828
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Sulfate

Location: MW2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	13.7	20.1	6.4	0.6052	3.87328
2	14.3	19.2	4.9	0.3164	1.55036
3	14.4	19	4.6	0.1743	0.80178
4	14.4	16.5	2.1	0.0561	0.11781
5	16.5	14.4	-2.1		
6	19	14.4	-4.6		
7	19.2	14.3	-4.9		
8	20.1	13.7	-6.4		

Sum of b values = 6.34323

Sample Standard Deviation = 2.61807

W Statistic = 0.838611

5% Critical value of 0.818 is less than 0.838611

Data is normally distributed at 95% level of significance

1% Critical value of 0.749 is less than 0.838611

Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Sulfate

Location: MW3

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	28.5	49.9	21.4	0.6052	12.9513
2	29.2	44.4	15.2	0.3164	4.80928
3	30.6	39.7	9.1	0.1743	1.58613
4	32.6	34.7	2.1	0.0561	0.11781
5	34.7	32.6	-2.1		
6	39.7	30.6	-9.1		
7	44.4	29.2	-15.2		
8	49.9	28.5	-21.4		

Sum of b values = 19.4645

Sample Standard Deviation = 7.76476

W Statistic = 0.897703

5% Critical value of 0.818 is less than 0.897703
Data is normally distributed at 95% level of significance

1% Critical value of 0.749 is less than 0.897703
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Sulfate

Location: MW4

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	143	234	91	0.6052	55.0732
2	143	177	34	0.3164	10.7576
3	158	174	16	0.1743	2.7888
4	160	161	1	0.0561	0.0561
5	161	160	-1		
6	174	158	-16		
7	177	143	-34		
8	234	143	-91		

Sum of b values = 68.6757

Sample Standard Deviation = 29.1094

W Statistic = 0.795136

5% Critical value of 0.818 exceeds 0.795136

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 is less than 0.795136

Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Sulfate

Location: MW5

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	18.1	24.7	6.6	0.6052	3.99432
2	18.5	23.3	4.8	0.3164	1.51872
3	19.7	22	2.3	0.1743	0.40089
4	20.2	20.8	0.6	0.0561	0.03366
5	20.8	20.2	-0.6		
6	22	19.7	-2.3		
7	23.3	18.5	-4.8		
8	24.7	18.1	-6.6		

Sum of b values = 5.94759

Sample Standard Deviation = 2.29748

W Statistic = 0.957375

5% Critical value of 0.818 is less than 0.957375

Data is normally distributed at 95% level of significance

1% Critical value of 0.749 is less than 0.957375

Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Zinc

Location: MW1

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.02	0.0633	0.0433	0.6052	0.0262052
2	0.02	0.02	0	0.3164	0
3	0.02	0.02	0	0.1743	0
4	0.02	0.02	0	0.0561	0
5	0.02	0.02	0		
6	0.02	0.02	0		
7	0.02	0.02	0		
8	0.0633	0.02	-0.0433		

Sum of b values = 0.0262052

Sample Standard Deviation = 0.0153089

W Statistic = 0.418591

5% Critical value of 0.818 exceeds 0.418591

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.418591

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Zinc

Location: MW2

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.02	0.571	0.551	0.6052	0.333465
2	0.02	0.02	0	0.3164	0
3	0.02	0.02	0	0.1743	0
4	0.02	0.02	0	0.0561	0
5	0.02	0.02	0		
6	0.02	0.02	0		
7	0.02	0.02	0		
8	0.571	0.02	-0.551		

Sum of b values = 0.333465

Sample Standard Deviation = 0.194808

W Statistic = 0.418591

5% Critical value of 0.818 exceeds 0.418591

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.418591

Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Zinc

Location: MW4

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

K = 4 for 8 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.02	0.0218	0.0018	0.6052	0.00108936
2	0.02	0.02	0	0.3164	0
3	0.02	0.02	0	0.1743	0
4	0.02	0.02	0	0.0561	0
5	0.02	0.02	0		
6	0.02	0.02	0		
7	0.02	0.02	0		
8	0.0218	0.02	-0.0018		

Sum of b values = 0.00108936

Sample Standard Deviation = 0.000636396

W Statistic = 0.418591

5% Critical value of 0.818 exceeds 0.418591

Evidence of non-normality at 95% level of significance

1% Critical value of 0.749 exceeds 0.418591

Evidence of non-normality at 99% level of significance

APPENDIX C

Outlier Tests (Dixon's)

Dixon's Test for Outliers

Parameter: Barium

Location: MW1

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.262295	0.0816327	0.683	None

Loc.	Date	Conc.	Outlier
MW1	2/26/2021	0.0268	FALSE
	9/17/2021	0.0252	FALSE
	3/11/2022	0.0236	FALSE
	9/12/2022	0.0231	FALSE
	4/11/2023	0.0233	FALSE
	9/29/2023	0.0207	FALSE
	3/4/2024	0.021	FALSE
	7/29/2024	0.0203	FALSE

Dixon's Test for Outliers

Parameter: Barium

Location: MW2

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0	0.230769	0.683	None

Loc.	Date	Conc.	Outlier
MW2	3/1/2021	0.0808	FALSE
	9/20/2021	0.0882	FALSE
	3/18/2022	0.072	FALSE
	9/16/2022	0.0582	FALSE
	4/25/2023	0.0727	FALSE
	9/25/2023	0.118	FALSE
	3/18/2024	0.11	FALSE
	8/5/2024	0.118	FALSE

Dixon's Test for Outliers

Parameter: Barium

Location: MW3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.0819672	0.384615	0.683	None

Loc.	Date	Conc.	Outlier
MW3	3/8/2021	0.264	FALSE
	10/5/2021	0.229	FALSE
	4/8/2022	0.295	FALSE
	9/26/2022	0.282	FALSE
	5/9/2023	0.32	FALSE
	9/1/2023	0.325	FALSE
	2/27/2024	0.267	FALSE
	8/12/2024	0.32	FALSE

Dixon's Test for Outliers

Parameter: Barium

Location: MW4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...

1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.757143	0.26087	0.683	0.188
2	0.26087	0.26087	0.637	None

Loc.	Date	Conc.	Outlier
MW4	3/4/2021	0.12	FALSE
	9/27/2021	0.188	TRUE
	3/25/2022	0.125	FALSE
	9/21/2022	0.129	FALSE
	4/17/2023	0.125	FALSE
	9/11/2023	0.135	FALSE
	3/25/2024	0.112	FALSE
	7/23/2024	0.118	FALSE

Dixon's Test for Outliers

Parameter: Barium

Location: MW5

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...

1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.627451	0.13198	0.683	None

Loc.	Date	Conc.	Outlier
MW5	3/11/2021	0.0972	FALSE
	9/30/2021	0.0877	FALSE
	4/1/2022	0.126	FALSE
	9/30/2022	0.0965	FALSE
	5/2/2023	0.0775	FALSE
	9/18/2023	0.0955	FALSE
	3/11/2024	0.0801	FALSE
	8/19/2024	0.0941	FALSE

Dixon's Test for Outliers

Parameter: Boron

Location: MW1

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.04	0.0588235	0.683	None

Loc.	Date	Conc.	Outlier
MW1	2/26/2021	0.134	FALSE
	9/17/2021	0.129	FALSE
	3/11/2022	0.168	FALSE
	9/12/2022	0.135	FALSE
	4/11/2023	0.117	FALSE
	9/29/2023	0.17	FALSE
	3/4/2024	0.127	FALSE
	7/29/2024	0.12	FALSE

Dixon's Test for Outliers

Parameter: Boron

Location: MW5

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.314815	0.301887	0.683	None

Loc.	Date	Conc.	Outlier
MW5	3/11/2021	0.177	FALSE
	9/30/2021	0.182	FALSE
	4/1/2022	0.23	FALSE
	9/30/2022	0.191	FALSE
	5/2/2023	0.188	FALSE
	9/18/2023	0.213	FALSE
	3/11/2024	0.16	FALSE
	8/19/2024	0.176	FALSE

Dixon's Test for Outliers

Parameter: Chloride

Location: MW1

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.641646	0.395918	0.683	None

Loc.	Date	Conc.	Outlier
MW1	2/26/2021	10.1	FALSE
	9/17/2021	7.45	FALSE
	3/11/2022	6.25	FALSE
	9/12/2022	6.86	FALSE
	4/11/2023	ND<5	FALSE
	9/29/2023	6.38	FALSE
	3/4/2024	6.53	FALSE
	7/29/2024	5.97	FALSE

Dixon's Test for Outliers

Parameter: Chloride

Location: MW2

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...

1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.630597	0	0.683	None

Loc.	Date	Conc.	Outlier
MW2	3/1/2021	5.66	FALSE
	9/20/2021	ND<5	FALSE
	3/18/2022	ND<5	FALSE
	9/16/2022	ND<5	FALSE
	4/25/2023	ND<5	FALSE
	9/25/2023	5.99	FALSE
	3/18/2024	ND<5	FALSE
	8/5/2024	7.68	FALSE

Dixon's Test for Outliers

Parameter: Chloride

Location: MW3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...

1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.0539374	0.220444	0.683	None

Loc.	Date	Conc.	Outlier
MW3	3/8/2021	23.5	FALSE
	10/5/2021	48.3	FALSE
	4/8/2022	60.4	FALSE
	9/26/2022	61.4	FALSE
	5/9/2023	136	FALSE
	9/1/2023	107	FALSE
	2/27/2024	141	FALSE
	8/12/2024	114	FALSE

Dixon's Test for Outliers

Parameter: Cobalt

Location: MW2

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.423729	0	0.683	None

Loc.	Date	Conc.	Outlier
MW2	3/1/2021	ND<0.0005	FALSE
	9/20/2021	0.00404	FALSE
	3/18/2022	0.00254	FALSE
	9/16/2022	0.000769	FALSE
	4/25/2023	0.00109	FALSE
	9/25/2023	ND<0.0005	FALSE
	3/18/2024	ND<0.0005	FALSE
	8/5/2024	ND<0.0005	FALSE

Dixon's Test for Outliers

Parameter: Cobalt

Location: MW4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...

1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.553459	0	0.683	None

Loc.	Date	Conc.	Outlier
MW4	3/4/2021	0.00102	FALSE
	9/27/2021	0.000795	FALSE
	3/25/2022	ND<0.0005	FALSE
	9/21/2022	0.00209	FALSE
	4/17/2023	ND<0.0005	FALSE
	9/11/2023	0.00121	FALSE
	3/25/2024	ND<0.0005	FALSE
	7/23/2024	ND<0.0005	FALSE

Dixon's Test for Outliers

Parameter: Fluoride

Location: MW5

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...

1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.473684	0	0.683	None

Loc.	Date	Conc.	Outlier
MW5	3/11/2021	1.45	FALSE
	9/30/2021	ND<0.5	FALSE
	4/1/2022	0.721	FALSE
	9/30/2022	ND<0.5	FALSE
	5/2/2023	ND<1	FALSE
	9/18/2023	ND<1	FALSE
	3/11/2024	ND<1	FALSE
	8/19/2024	0.771	FALSE

Dixon's Test for Outliers

Parameter: Total Organic Halogens, Halides

Location: MW3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.529592	0	0.683	None

Loc.	Date	Conc.	Outlier
MW3	3/8/2021	ND<0.04	FALSE
	10/5/2021	ND<0.04	FALSE
	4/8/2022	ND<0.04	FALSE
	9/26/2022	0.0667	FALSE
	5/9/2023	ND<0.04	FALSE
	9/1/2023	0.0861	FALSE
	2/27/2024	ND<0.04	FALSE
	8/12/2024	0.138	FALSE

Dixon's Test for Outliers

Parameter: Manganese

Location: MW1

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.216495	0.660714	0.683	None

Loc.	Date	Conc.	Outlier
MW1	2/26/2021	0.0605	FALSE
	9/17/2021	0.0766	FALSE
	3/11/2022	0.0829	FALSE
	9/12/2022	0.085	FALSE
	4/11/2023	0.0821	FALSE
	9/29/2023	0.0753	FALSE
	3/4/2024	0.0808	FALSE
	7/29/2024	0.0757	FALSE

Dixon's Test for Outliers

Parameter: Manganese

Location: MW2

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.447447	0.0490956	0.683	None

Loc.	Date	Conc.	Outlier
MW2	3/1/2021	0.021	FALSE
	9/20/2021	0.354	FALSE
	3/18/2022	0.205	FALSE
	9/16/2022	0.0601	FALSE
	4/25/2023	0.088	FALSE
	9/25/2023	0.0237	FALSE
	3/18/2024	0.0115	FALSE
	8/5/2024	0.0692	FALSE

Dixon's Test for Outliers

Parameter: Manganese

Location: MW4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...

1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.438729	0.260956	0.683	None

Loc.	Date	Conc.	Outlier
MW4	3/4/2021	0.11	FALSE
	9/27/2021	0.111	FALSE
	3/25/2022	0.0923	FALSE
	9/21/2022	0.14	FALSE
	4/17/2023	0.0739	FALSE
	9/11/2023	0.0608	FALSE
	3/25/2024	0.0764	FALSE
	7/23/2024	0.0912	FALSE

Dixon's Test for Outliers

Parameter: Manganese

Location: MW5

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.63961	0.171642	0.683	None

Loc.	Date	Conc.	Outlier
MW5	3/11/2021	0.0613	FALSE
	9/30/2021	0.0584	FALSE
	4/1/2022	0.12	FALSE
	9/30/2022	0.0595	FALSE
	5/2/2023	0.0538	FALSE
	9/18/2023	0.0806	FALSE
	3/11/2024	0.0695	FALSE
	8/19/2024	0.0754	FALSE

Dixon's Test for Outliers

Parameter: Molybdenum

Location: MW1

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...

1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.288889	0	0.683	None

Loc.	Date	Conc.	Outlier
MW1	2/26/2021	0.0029	FALSE
	9/17/2021	ND<0.002	FALSE
	3/11/2022	ND<0.002	FALSE
	9/12/2022	0.0021	FALSE
	4/11/2023	0.00203	FALSE
	9/29/2023	0.00264	FALSE
	3/4/2024	ND<0.002	FALSE
	7/29/2024	0.00233	FALSE

Dixon's Test for Outliers

Parameter: Molybdenum

Location: MW2

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.546875	0.0169492	0.683	None

Loc.	Date	Conc.	Outlier
MW2	3/1/2021	0.00254	FALSE
	9/20/2021	0.00268	FALSE
	3/18/2022	0.0024	FALSE
	9/16/2022	0.00318	FALSE
	4/25/2023	0.00458	FALSE
	9/25/2023	0.00225	FALSE
	3/18/2024	ND<0.002	FALSE
	8/5/2024	0.00202	FALSE

Dixon's Test for Outliers

Parameter: Molybdenum

Location: MW3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.586081	0.38587	0.683	None

Loc.	Date	Conc.	Outlier
MW3	3/8/2021	0.00315	FALSE
	10/5/2021	0.0032	FALSE
	4/8/2022	0.00284	FALSE
	9/26/2022	0.00397	FALSE
	5/9/2023	0.00557	FALSE
	9/1/2023	0.0035	FALSE
	2/27/2024	0.00296	FALSE
	8/12/2024	0.00213	FALSE

Dixon's Test for Outliers

Parameter: Molybdenum

Location: MW4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...

1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.393333	0	0.683	None

Loc.	Date	Conc.	Outlier
MW4	3/4/2021	0.0035	FALSE
	9/27/2021	ND<0.002	FALSE
	3/25/2022	ND<0.002	FALSE
	9/21/2022	0.00229	FALSE
	4/17/2023	0.00291	FALSE
	9/11/2023	0.00242	FALSE
	3/25/2024	0.00222	FALSE
	7/23/2024	0.00234	FALSE

Dixon's Test for Outliers

Parameter: Sulfate

Location: MW1

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.272109	0.412088	0.683	None

Loc.	Date	Conc.	Outlier
MW1	2/26/2021	828	FALSE
	9/17/2021	903	FALSE
	3/11/2022	976	FALSE
	9/12/2022	928	FALSE
	4/11/2023	924	FALSE
	9/29/2023	927	FALSE
	3/4/2024	1050	FALSE
	7/29/2024	1010	FALSE

Dixon's Test for Outliers

Parameter: Sulfate

Location: MW2

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...

1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.155172	0.109091	0.683	None

Loc.	Date	Conc.	Outlier
MW2	3/1/2021	13.7	FALSE
	9/20/2021	19.2	FALSE
	3/18/2022	20.1	FALSE
	9/16/2022	14.4	FALSE
	4/25/2023	16.5	FALSE
	9/25/2023	14.3	FALSE
	3/18/2024	14.4	FALSE
	8/5/2024	19	FALSE

Dixon's Test for Outliers

Parameter: Sulfate

Location: MW3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.2657	0.0440252	0.683	None

Loc.	Date	Conc.	Outlier
MW3	3/8/2021	49.9	FALSE
	10/5/2021	29.2	FALSE
	4/8/2022	28.5	FALSE
	9/26/2022	30.6	FALSE
	5/9/2023	32.6	FALSE
	9/1/2023	34.7	FALSE
	2/27/2024	39.7	FALSE
	8/12/2024	44.4	FALSE

Dixon's Test for Outliers

Parameter: Sulfate

Location: MW4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...

1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.626374	0	0.683	None

Loc.	Date	Conc.	Outlier
MW4	3/4/2021	143	FALSE
	9/27/2021	143	FALSE
	3/25/2022	158	FALSE
	9/21/2022	161	FALSE
	4/17/2023	174	FALSE
	9/11/2023	160	FALSE
	3/25/2024	177	FALSE
	7/23/2024	234	FALSE

Dixon's Test for Outliers

Parameter: Sulfate

Location: MW5

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 8 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.225806	0.0769231	0.683	None

Loc.	Date	Conc.	Outlier
MW5	3/11/2021	19.7	FALSE
	9/30/2021	20.2	FALSE
	4/1/2022	18.1	FALSE
	9/30/2022	18.5	FALSE
	5/2/2023	24.7	FALSE
	9/18/2023	20.8	FALSE
	3/11/2024	22	FALSE
	8/19/2024	23.3	FALSE

APPENDIX D

Mann-Kendall Trends

Mann-Kendall Trend Analysis

Parameter: Aluminum, total

Location: MW2

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.05	0.165	-0.115	0	1
ND<0.05	0.165	-0.115	0	2
ND<0.05	0.165	-0.115	0	3
ND<0.05	0.165	-0.115	0	4
ND<0.05	0.165	-0.115	0	5
ND<0.05	0.165	-0.115	0	6
ND<0.05	0.165	-0.115	0	7
ND<0.05	ND<0.05	0	0	7
ND<0.05	ND<0.05	0	0	7
ND<0.05	ND<0.05	0	0	7
ND<0.05	ND<0.05	0	0	7
ND<0.05	ND<0.05	0	0	7
ND<0.05	ND<0.05	0	0	7
ND<0.05	ND<0.05	0	0	7
ND<0.05	ND<0.05	0	0	7
ND<0.05	ND<0.05	0	0	7
ND<0.05	ND<0.05	0	0	7
ND<0.05	ND<0.05	0	0	7
ND<0.05	ND<0.05	0	0	7
ND<0.05	ND<0.05	0	0	7
ND<0.05	ND<0.05	0	0	7
ND<0.05	ND<0.05	0	0	7
ND<0.05	ND<0.05	0	0	7
ND<0.05	ND<0.05	0	0	7
ND<0.05	ND<0.05	0	0	7
ND<0.05	ND<0.05	0	0	7

S Statistic = $0 - 7 = -7$

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |-7|$ is 0.473

0.473 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Ammonia Nitrogen

Location: MW5

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.5	ND<0.5	0	0	0
ND<0.5	ND<0.5	0	0	0
0.529	ND<0.5	0.029	1	0
ND<0.5	ND<0.5	0	1	0
ND<0.5	ND<0.5	0	1	0
ND<0.5	ND<0.5	0	1	0
0.508	ND<0.5	0.008	2	0
ND<0.5	ND<0.5	0	2	0
0.529	ND<0.5	0.029	3	0
ND<0.5	ND<0.5	0	3	0
ND<0.5	ND<0.5	0	3	0
ND<0.5	ND<0.5	0	3	0
0.508	ND<0.5	0.008	4	0
0.529	ND<0.5	0.029	5	0
ND<0.5	ND<0.5	0	5	0
ND<0.5	ND<0.5	0	5	0
ND<0.5	ND<0.5	0	5	0
0.508	ND<0.5	0.008	6	0
ND<0.5	0.529	-0.029	6	1
ND<0.5	0.529	-0.029	6	2
ND<0.5	0.529	-0.029	6	3
0.508	0.529	-0.021	6	4
ND<0.5	ND<0.5	0	6	4
ND<0.5	ND<0.5	0	6	4
0.508	ND<0.5	0.008	7	4
ND<0.5	ND<0.5	0	7	4
0.508	ND<0.5	0.008	8	4
0.508	ND<0.5	0.008	9	4

S Statistic = 9 - 4 = 5

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |5|$ is 0.634

0.634 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Barium

Location: MW1

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
0.0252	0.0268	-0.0016	0	1
0.0236	0.0268	-0.0032	0	2
0.0231	0.0268	-0.0037	0	3
0.0233	0.0268	-0.0035	0	4
0.0207	0.0268	-0.0061	0	5
0.021	0.0268	-0.0058	0	6
0.0203	0.0268	-0.0065	0	7
0.0236	0.0252	-0.0016	0	8
0.0231	0.0252	-0.0021	0	9
0.0233	0.0252	-0.0019	0	10
0.0207	0.0252	-0.0045	0	11
0.021	0.0252	-0.0042	0	12
0.0203	0.0252	-0.0049	0	13
0.0231	0.0236	-0.0005	0	14
0.0233	0.0236	-0.0003	0	15
0.0207	0.0236	-0.0029	0	16
0.021	0.0236	-0.0026	0	17
0.0203	0.0236	-0.0033	0	18
0.0233	0.0231	0.0002	1	18
0.0207	0.0231	-0.0024	1	19
0.021	0.0231	-0.0021	1	20
0.0203	0.0231	-0.0028	1	21
0.0207	0.0233	-0.0026	1	22
0.021	0.0233	-0.0023	1	23
0.0203	0.0233	-0.003	1	24
0.021	0.0207	0.0003	2	24
0.0203	0.0207	-0.0004	2	25
0.0203	0.021	-0.0007	2	26

S Statistic = 2 - 26 = -24

Comparing at 95% confidence level (downward trend)

Probability of obtaining S >= 24 is 0.00087

S < 0 and 0.00087 < 0.05 indicating a downward trend

Mann-Kendall Trend Analysis

Parameter: Barium

Location: MW2

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
0.0882	0.0808	0.0074	1	0
0.072	0.0808	-0.0088	1	1
0.0582	0.0808	-0.0226	1	2
0.0727	0.0808	-0.0081	1	3
0.118	0.0808	0.0372	2	3
0.11	0.0808	0.0292	3	3
0.118	0.0808	0.0372	4	3
0.072	0.0882	-0.0162	4	4
0.0582	0.0882	-0.03	4	5
0.0727	0.0882	-0.0155	4	6
0.118	0.0882	0.0298	5	6
0.11	0.0882	0.0218	6	6
0.118	0.0882	0.0298	7	6
0.0582	0.072	-0.0138	7	7
0.0727	0.072	0.0007	8	7
0.118	0.072	0.046	9	7
0.11	0.072	0.038	10	7
0.118	0.072	0.046	11	7
0.0727	0.0582	0.0145	12	7
0.118	0.0582	0.0598	13	7
0.11	0.0582	0.0518	14	7
0.118	0.0582	0.0598	15	7
0.118	0.0727	0.0453	16	7
0.11	0.0727	0.0373	17	7
0.118	0.0727	0.0453	18	7
0.11	0.118	-0.008	18	8
0.118	0.118	0	18	8
0.118	0.11	0.008	19	8

S Statistic = 19 - 8 = 11

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |11|$ is 0.227

0.227 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Barium

Location: MW3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
0.229	0.264	-0.035	0	1
0.295	0.264	0.031	1	1
0.282	0.264	0.018	2	1
0.32	0.264	0.056	3	1
0.325	0.264	0.061	4	1
0.267	0.264	0.003	5	1
0.32	0.264	0.056	6	1
0.295	0.229	0.066	7	1
0.282	0.229	0.053	8	1
0.32	0.229	0.091	9	1
0.325	0.229	0.096	10	1
0.267	0.229	0.038	11	1
0.32	0.229	0.091	12	1
0.282	0.295	-0.013	12	2
0.32	0.295	0.025	13	2
0.325	0.295	0.03	14	2
0.267	0.295	-0.028	14	3
0.32	0.295	0.025	15	3
0.32	0.282	0.038	16	3
0.325	0.282	0.043	17	3
0.267	0.282	-0.015	17	4
0.32	0.282	0.038	18	4
0.325	0.32	0.005	19	4
0.267	0.32	-0.053	19	5
0.32	0.32	0	19	5
0.267	0.325	-0.058	19	6
0.32	0.325	-0.005	19	7
0.32	0.267	0.053	20	7

S Statistic = 20 - 7 = 13

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |13|$ is 0.143

0.143 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Barium

Location: MW4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
0.188	0.12	0.068	1	0
0.125	0.12	0.005	2	0
0.129	0.12	0.009	3	0
0.125	0.12	0.005	4	0
0.135	0.12	0.015	5	0
0.112	0.12	-0.008	5	1
0.118	0.12	-0.002	5	2
0.125	0.188	-0.063	5	3
0.129	0.188	-0.059	5	4
0.125	0.188	-0.063	5	5
0.135	0.188	-0.053	5	6
0.112	0.188	-0.076	5	7
0.118	0.188	-0.07	5	8
0.129	0.125	0.004	6	8
0.125	0.125	0	6	8
0.135	0.125	0.01	7	8
0.112	0.125	-0.013	7	9
0.118	0.125	-0.007	7	10
0.125	0.129	-0.004	7	11
0.135	0.129	0.006	8	11
0.112	0.129	-0.017	8	12
0.118	0.129	-0.011	8	13
0.135	0.125	0.01	9	13
0.112	0.125	-0.013	9	14
0.118	0.125	-0.007	9	15
0.112	0.135	-0.023	9	16
0.118	0.135	-0.017	9	17
0.118	0.112	0.006	10	17

S Statistic = 10 - 17 = -7

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |-7|$ is 0.473

0.473 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Barium

Location: MW5

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
0.0877	0.0972	-0.0095	0	1
0.126	0.0972	0.0288	1	1
0.0965	0.0972	-0.0007	1	2
0.0775	0.0972	-0.0197	1	3
0.0955	0.0972	-0.0017	1	4
0.0801	0.0972	-0.0171	1	5
0.0941	0.0972	-0.0031	1	6
0.126	0.0877	0.0383	2	6
0.0965	0.0877	0.0088	3	6
0.0775	0.0877	-0.0102	3	7
0.0955	0.0877	0.0078	4	7
0.0801	0.0877	-0.0076	4	8
0.0941	0.0877	0.0064	5	8
0.0965	0.126	-0.0295	5	9
0.0775	0.126	-0.0485	5	10
0.0955	0.126	-0.0305	5	11
0.0801	0.126	-0.0459	5	12
0.0941	0.126	-0.0319	5	13
0.0775	0.0965	-0.019	5	14
0.0955	0.0965	-0.001	5	15
0.0801	0.0965	-0.0164	5	16
0.0941	0.0965	-0.0024	5	17
0.0955	0.0775	0.018	6	17
0.0801	0.0775	0.0026	7	17
0.0941	0.0775	0.0166	8	17
0.0801	0.0955	-0.0154	8	18
0.0941	0.0955	-0.0014	8	19
0.0941	0.0801	0.014	9	19

S Statistic = 9 - 19 = -10

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |-10|$ is 0.276

0.276 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Boron

Location: MW1

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
0.129	0.134	-0.005	0	1
0.168	0.134	0.034	1	1
0.135	0.134	0.001	2	1
0.117	0.134	-0.017	2	2
0.17	0.134	0.036	3	2
0.127	0.134	-0.007	3	3
0.12	0.134	-0.014	3	4
0.168	0.129	0.039	4	4
0.135	0.129	0.006	5	4
0.117	0.129	-0.012	5	5
0.17	0.129	0.041	6	5
0.127	0.129	-0.002	6	6
0.12	0.129	-0.009	6	7
0.135	0.168	-0.033	6	8
0.117	0.168	-0.051	6	9
0.17	0.168	0.002	7	9
0.127	0.168	-0.041	7	10
0.12	0.168	-0.048	7	11
0.117	0.135	-0.018	7	12
0.17	0.135	0.035	8	12
0.127	0.135	-0.008	8	13
0.12	0.135	-0.015	8	14
0.17	0.117	0.053	9	14
0.127	0.117	0.01	10	14
0.12	0.117	0.003	11	14
0.127	0.17	-0.043	11	15
0.12	0.17	-0.05	11	16
0.12	0.127	-0.007	11	17

S Statistic = 11 - 17 = -6

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |-6|$ is 0.548

0.548 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Boron

Location: MW5

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
0.182	0.177	0.005	1	0
0.23	0.177	0.053	2	0
0.191	0.177	0.014	3	0
0.188	0.177	0.011	4	0
0.213	0.177	0.036	5	0
0.16	0.177	-0.017	5	1
0.176	0.177	-0.001	5	2
0.23	0.182	0.048	6	2
0.191	0.182	0.009	7	2
0.188	0.182	0.006	8	2
0.213	0.182	0.031	9	2
0.16	0.182	-0.022	9	3
0.176	0.182	-0.006	9	4
0.191	0.23	-0.039	9	5
0.188	0.23	-0.042	9	6
0.213	0.23	-0.017	9	7
0.16	0.23	-0.07	9	8
0.176	0.23	-0.054	9	9
0.188	0.191	-0.003	9	10
0.213	0.191	0.022	10	10
0.16	0.191	-0.031	10	11
0.176	0.191	-0.015	10	12
0.213	0.188	0.025	11	12
0.16	0.188	-0.028	11	13
0.176	0.188	-0.012	11	14
0.16	0.213	-0.053	11	15
0.176	0.213	-0.037	11	16
0.176	0.16	0.016	12	16

S Statistic = 12 - 16 = -4

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |-4|$ is 0.72

0.72 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Chloride

Location: MW1

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
7.45	10.1	-2.65	0	1
6.25	10.1	-3.85	0	2
6.86	10.1	-3.24	0	3
ND<5	10.1	-5.1	0	4
6.38	10.1	-3.72	0	5
6.53	10.1	-3.57	0	6
5.97	10.1	-4.13	0	7
6.25	7.45	-1.2	0	8
6.86	7.45	-0.59	0	9
ND<5	7.45	-2.45	0	10
6.38	7.45	-1.07	0	11
6.53	7.45	-0.92	0	12
5.97	7.45	-1.48	0	13
6.86	6.25	0.61	1	13
ND<5	6.25	-1.25	1	14
6.38	6.25	0.13	2	14
6.53	6.25	0.28	3	14
5.97	6.25	-0.28	3	15
ND<5	6.86	-1.86	3	16
6.38	6.86	-0.48	3	17
6.53	6.86	-0.33	3	18
5.97	6.86	-0.89	3	19
6.38	ND<5	1.38	4	19
6.53	ND<5	1.53	5	19
5.97	ND<5	0.97	6	19
6.53	6.38	0.15	7	19
5.97	6.38	-0.41	7	20
5.97	6.53	-0.56	7	21

S Statistic = 7 - 21 = -14

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |-14|$ is 0.108

0.108 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Chloride

Location: MW2

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<5	5.66	-0.66	0	1
ND<5	5.66	-0.66	0	2
ND<5	5.66	-0.66	0	3
ND<5	5.66	-0.66	0	4
5.99	5.66	0.33	1	4
ND<5	5.66	-0.66	1	5
7.68	5.66	2.02	2	5
ND<5	ND<5	0	2	5
ND<5	ND<5	0	2	5
ND<5	ND<5	0	2	5
5.99	ND<5	0.99	3	5
ND<5	ND<5	0	3	5
7.68	ND<5	2.68	4	5
ND<5	ND<5	0	4	5
ND<5	ND<5	0	4	5
5.99	ND<5	0.99	5	5
ND<5	ND<5	0	5	5
7.68	ND<5	2.68	6	5
ND<5	ND<5	0	6	5
5.99	ND<5	0.99	7	5
ND<5	ND<5	0	7	5
7.68	ND<5	2.68	8	5
5.99	ND<5	0.99	9	5
ND<5	ND<5	0	9	5
7.68	ND<5	2.68	10	5
ND<5	5.99	-0.99	10	6
7.68	5.99	1.69	11	6
7.68	ND<5	2.68	12	6

S Statistic = 12 - 6 = 6

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |6|$ is 0.548

0.548 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Chloride

Location: MW3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
48.3	23.5	24.8	1	0
60.4	23.5	36.9	2	0
61.4	23.5	37.9	3	0
136	23.5	112.5	4	0
107	23.5	83.5	5	0
141	23.5	117.5	6	0
114	23.5	90.5	7	0
60.4	48.3	12.1	8	0
61.4	48.3	13.1	9	0
136	48.3	87.7	10	0
107	48.3	58.7	11	0
141	48.3	92.7	12	0
114	48.3	65.7	13	0
61.4	60.4	1	14	0
136	60.4	75.6	15	0
107	60.4	46.6	16	0
141	60.4	80.6	17	0
114	60.4	53.6	18	0
136	61.4	74.6	19	0
107	61.4	45.6	20	0
141	61.4	79.6	21	0
114	61.4	52.6	22	0
107	136	-29	22	1
141	136	5	23	1
114	136	-22	23	2
141	107	34	24	2
114	107	7	25	2
114	141	-27	25	3

S Statistic = 25 - 3 = 22

Comparing at 95% confidence level (upward trend)

Probability of obtaining S >= 22 is 0.0028

S > 0 and 0.0028 < 0.05 indicating an upward trend

Mann-Kendall Trend Analysis

Parameter: Chloride

Location: MW4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<5	ND<5	0	0	0
ND<5	ND<5	0	0	0
ND<5	ND<5	0	0	0
ND<5	ND<5	0	0	0
ND<5	ND<5	0	0	0
ND<5	ND<5	0	0	0
5.92	ND<5	0.92	1	0
ND<5	ND<5	0	1	0
ND<5	ND<5	0	1	0
ND<5	ND<5	0	1	0
ND<5	ND<5	0	1	0
ND<5	ND<5	0	1	0
5.92	ND<5	0.92	2	0
ND<5	ND<5	0	2	0
ND<5	ND<5	0	2	0
ND<5	ND<5	0	2	0
ND<5	ND<5	0	2	0
5.92	ND<5	0.92	3	0
ND<5	ND<5	0	3	0
ND<5	ND<5	0	3	0
ND<5	ND<5	0	3	0
5.92	ND<5	0.92	4	0
ND<5	ND<5	0	4	0
ND<5	ND<5	0	4	0
5.92	ND<5	0.92	5	0
ND<5	ND<5	0	5	0
5.92	ND<5	0.92	6	0
5.92	ND<5	0.92	7	0

S Statistic = 7 - 0 = 7

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |7|$ is 0.473

0.473 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Cobalt

Location: MW1

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.0005	0.00117	-0.00067	0	1
ND<0.0005	0.00117	-0.00067	0	2
ND<0.0005	0.00117	-0.00067	0	3
ND<0.0005	0.00117	-0.00067	0	4
ND<0.0005	0.00117	-0.00067	0	5
ND<0.0005	0.00117	-0.00067	0	6
0.000752	0.00117	-0.000418	0	7
ND<0.0005	ND<0.0005	0	0	7
ND<0.0005	ND<0.0005	0	0	7
ND<0.0005	ND<0.0005	0	0	7
ND<0.0005	ND<0.0005	0	0	7
ND<0.0005	ND<0.0005	0	0	7
0.000752	ND<0.0005	0.000252	1	7
ND<0.0005	ND<0.0005	0	1	7
ND<0.0005	ND<0.0005	0	1	7
ND<0.0005	ND<0.0005	0	1	7
ND<0.0005	ND<0.0005	0	1	7
0.000752	ND<0.0005	0.000252	2	7
ND<0.0005	ND<0.0005	0	2	7
ND<0.0005	ND<0.0005	0	2	7
ND<0.0005	ND<0.0005	0	2	7
0.000752	ND<0.0005	0.000252	3	7
ND<0.0005	ND<0.0005	0	3	7
ND<0.0005	ND<0.0005	0	3	7
0.000752	ND<0.0005	0.000252	4	7
ND<0.0005	ND<0.0005	0	4	7
0.000752	ND<0.0005	0.000252	5	7
0.000752	ND<0.0005	0.000252	6	7

S Statistic = 6 - 7 = -1

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |-1|$ is 1

1 ≥ 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Cobalt

Location: MW2

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
0.00404	ND<0.0005	0.00354	1	0
0.00254	ND<0.0005	0.00204	2	0
0.000769	ND<0.0005	0.000269	3	0
0.00109	ND<0.0005	0.00059	4	0
ND<0.0005	ND<0.0005	0	4	0
ND<0.0005	ND<0.0005	0	4	0
ND<0.0005	ND<0.0005	0	4	0
0.00254	0.00404	-0.0015	4	1
0.000769	0.00404	-0.003271	4	2
0.00109	0.00404	-0.00295	4	3
ND<0.0005	0.00404	-0.00354	4	4
ND<0.0005	0.00404	-0.00354	4	5
ND<0.0005	0.00404	-0.00354	4	6
0.000769	0.00254	-0.001771	4	7
0.00109	0.00254	-0.00145	4	8
ND<0.0005	0.00254	-0.00204	4	9
ND<0.0005	0.00254	-0.00204	4	10
ND<0.0005	0.00254	-0.00204	4	11
0.00109	0.000769	0.000321	5	11
ND<0.0005	0.000769	-0.000269	5	12
ND<0.0005	0.000769	-0.000269	5	13
ND<0.0005	0.000769	-0.000269	5	14
ND<0.0005	0.00109	-0.00059	5	15
ND<0.0005	0.00109	-0.00059	5	16
ND<0.0005	0.00109	-0.00059	5	17
ND<0.0005	ND<0.0005	0	5	17
ND<0.0005	ND<0.0005	0	5	17
ND<0.0005	ND<0.0005	0	5	17

S Statistic = 5 - 17 = -12

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |-12|$ is 0.178

0.178 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Cobalt

Location: MW3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.0005	ND<0.0005	0	0	0
ND<0.0005	ND<0.0005	0	0	0
ND<0.0005	ND<0.0005	0	0	0
0.000731	ND<0.0005	0.000231	1	0
ND<0.0005	ND<0.0005	0	1	0
ND<0.0005	ND<0.0005	0	1	0
ND<0.0005	ND<0.0005	0	1	0
ND<0.0005	ND<0.0005	0	1	0
ND<0.0005	ND<0.0005	0	1	0
ND<0.0005	ND<0.0005	0	1	0
ND<0.0005	ND<0.0005	0	1	0
0.000731	ND<0.0005	0.000231	2	0
ND<0.0005	ND<0.0005	0	2	0
ND<0.0005	ND<0.0005	0	2	0
ND<0.0005	ND<0.0005	0	2	0
ND<0.0005	ND<0.0005	0	2	0
ND<0.0005	ND<0.0005	0	2	0
ND<0.0005	ND<0.0005	0	2	0
0.000731	ND<0.0005	0.000231	3	0
ND<0.0005	ND<0.0005	0	3	0
ND<0.0005	ND<0.0005	0	3	0
ND<0.0005	ND<0.0005	0	3	0
ND<0.0005	ND<0.0005	0	3	0
0.000731	ND<0.0005	0.000231	4	0
ND<0.0005	ND<0.0005	0	4	0
ND<0.0005	ND<0.0005	0	4	0
ND<0.0005	ND<0.0005	0	4	0
ND<0.0005	0.000731	-0.000231	4	1
ND<0.0005	0.000731	-0.000231	4	2
ND<0.0005	0.000731	-0.000231	4	3
ND<0.0005	ND<0.0005	0	4	3
ND<0.0005	ND<0.0005	0	4	3
ND<0.0005	ND<0.0005	0	4	3

S Statistic = 4 - 3 = 1

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |1|$ is 1

1 ≥ 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Cobalt

Location: MW4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
0.000795	0.00102	-0.000225	0	1
ND<0.0005	0.00102	-0.00052	0	2
0.00209	0.00102	0.00107	1	2
ND<0.0005	0.00102	-0.00052	1	3
0.00121	0.00102	0.00019	2	3
ND<0.0005	0.00102	-0.00052	2	4
ND<0.0005	0.00102	-0.00052	2	5
ND<0.0005	0.000795	-0.000295	2	6
0.00209	0.000795	0.001295	3	6
ND<0.0005	0.000795	-0.000295	3	7
0.00121	0.000795	0.000415	4	7
ND<0.0005	0.000795	-0.000295	4	8
ND<0.0005	0.000795	-0.000295	4	9
0.00209	ND<0.0005	0.00159	5	9
ND<0.0005	ND<0.0005	0	5	9
0.00121	ND<0.0005	0.00071	6	9
ND<0.0005	ND<0.0005	0	6	9
ND<0.0005	ND<0.0005	0	6	9
ND<0.0005	0.00209	-0.00159	6	10
0.00121	0.00209	-0.00088	6	11
ND<0.0005	0.00209	-0.00159	6	12
ND<0.0005	0.00209	-0.00159	6	13
0.00121	ND<0.0005	0.00071	7	13
ND<0.0005	ND<0.0005	0	7	13
ND<0.0005	ND<0.0005	0	7	13
ND<0.0005	0.00121	-0.00071	7	14
ND<0.0005	0.00121	-0.00071	7	15
ND<0.0005	ND<0.0005	0	7	15

S Statistic = 7 - 15 = -8

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |-8|$ is 0.398

0.398 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Cobalt

Location: MW5

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.0005	ND<0.0005	0	0	0
ND<0.0005	ND<0.0005	0	0	0
ND<0.0005	ND<0.0005	0	0	0
ND<0.0005	ND<0.0005	0	0	0
ND<0.0005	ND<0.0005	0	0	0
0.00211	ND<0.0005	0.00161	1	0
ND<0.0005	ND<0.0005	0	1	0
ND<0.0005	ND<0.0005	0	1	0
ND<0.0005	ND<0.0005	0	1	0
ND<0.0005	ND<0.0005	0	1	0
0.00211	ND<0.0005	0.00161	2	0
ND<0.0005	ND<0.0005	0	2	0
ND<0.0005	ND<0.0005	0	2	0
ND<0.0005	ND<0.0005	0	2	0
ND<0.0005	ND<0.0005	0	2	0
0.00211	ND<0.0005	0.00161	3	0
ND<0.0005	ND<0.0005	0	3	0
ND<0.0005	ND<0.0005	0	3	0
ND<0.0005	ND<0.0005	0	3	0
0.00211	ND<0.0005	0.00161	4	0
ND<0.0005	ND<0.0005	0	4	0
ND<0.0005	ND<0.0005	0	4	0
0.00211	ND<0.0005	0.00161	5	0
ND<0.0005	ND<0.0005	0	5	0
0.00211	ND<0.0005	0.00161	6	0
ND<0.0005	ND<0.0005	0	6	0
ND<0.0005	0.00211	-0.00161	6	1

S Statistic = 6 - 1 = 5

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |5|$ is 0.634

0.634 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Fluoride

Location: MW1

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.5	0.709	-0.209	0	1
ND<0.5	0.709	-0.209	0	2
ND<0.5	0.709	-0.209	0	3
ND<1	0.709	0.291	1	3
ND<1	0.709	0.291	2	3
ND<1	0.709	0.291	3	3
ND<1	0.709	0.291	4	3
ND<0.5	ND<0.5	0	4	3
ND<0.5	ND<0.5	0	4	3
ND<1	ND<0.5	0.5	5	3
ND<1	ND<0.5	0.5	6	3
ND<1	ND<0.5	0.5	7	3
ND<1	ND<0.5	0.5	8	3
ND<0.5	ND<0.5	0	8	3
ND<1	ND<0.5	0.5	9	3
ND<1	ND<0.5	0.5	10	3
ND<1	ND<0.5	0.5	11	3
ND<1	ND<0.5	0.5	12	3
ND<1	ND<0.5	0.5	13	3
ND<1	ND<0.5	0.5	14	3
ND<1	ND<0.5	0.5	15	3
ND<1	ND<0.5	0.5	16	3
ND<1	ND<1	0	16	3
ND<1	ND<1	0	16	3
ND<1	ND<1	0	16	3
ND<1	ND<1	0	16	3
ND<1	ND<1	0	16	3
ND<1	ND<1	0	16	3

S Statistic = 16 - 3 = 13

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |13|$ is 0.143

0.143 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Fluoride

Location: MW2

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.5	0.636	-0.136	0	1
ND<0.5	0.636	-0.136	0	2
0.713	0.636	0.077	1	2
ND<1	0.636	0.364	2	2
ND<1	0.636	0.364	3	2
ND<1	0.636	0.364	4	2
ND<1	0.636	0.364	5	2
ND<0.5	ND<0.5	0	5	2
0.713	ND<0.5	0.213	6	2
ND<1	ND<0.5	0.5	7	2
ND<1	ND<0.5	0.5	8	2
ND<1	ND<0.5	0.5	9	2
ND<1	ND<0.5	0.5	10	2
0.713	ND<0.5	0.213	11	2
ND<1	ND<0.5	0.5	12	2
ND<1	ND<0.5	0.5	13	2
ND<1	ND<0.5	0.5	14	2
ND<1	ND<0.5	0.5	15	2
ND<1	0.713	0.287	16	2
ND<1	0.713	0.287	17	2
ND<1	0.713	0.287	18	2
ND<1	0.713	0.287	19	2
ND<1	ND<1	0	19	2
ND<1	ND<1	0	19	2
ND<1	ND<1	0	19	2
ND<1	ND<1	0	19	2
ND<1	ND<1	0	19	2
ND<1	ND<1	0	19	2

S Statistic = 19 - 2 = 17

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |17|$ is 0.047

0.047 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Fluoride

Location: MW3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.5	1	-0.5	0	1
ND<0.5	1	-0.5	0	2
ND<0.5	1	-0.5	0	3
ND<1	1	0	0	3
ND<1	1	0	0	3
ND<1	1	0	0	3
0.279	1	-0.721	0	4
ND<0.5	ND<0.5	0	0	4
ND<0.5	ND<0.5	0	0	4
ND<1	ND<0.5	0.5	1	4
ND<1	ND<0.5	0.5	2	4
ND<1	ND<0.5	0.5	3	4
0.279	ND<0.5	-0.221	3	5
ND<0.5	ND<0.5	0	3	5
ND<1	ND<0.5	0.5	4	5
ND<1	ND<0.5	0.5	5	5
ND<1	ND<0.5	0.5	6	5
0.279	ND<0.5	-0.221	6	6
ND<1	ND<0.5	0.5	7	6
ND<1	ND<0.5	0.5	8	6
ND<1	ND<0.5	0.5	9	6
0.279	ND<0.5	-0.221	9	7
ND<1	ND<1	0	9	7
ND<1	ND<1	0	9	7
0.279	ND<1	-0.721	9	8
ND<1	ND<1	0	9	8
0.279	ND<1	-0.721	9	9
0.279	ND<1	-0.721	9	10

S Statistic = 9 - 10 = -1

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |-1|$ is 1

1 ≥ 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Fluoride

Location: MW4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.5	1.04	-0.54	0	1
ND<0.5	1.04	-0.54	0	2
ND<0.5	1.04	-0.54	0	3
ND<1	1.04	-0.04	0	4
ND<1	1.04	-0.04	0	5
ND<1	1.04	-0.04	0	6
ND<1	1.04	-0.04	0	7
ND<0.5	ND<0.5	0	0	7
ND<0.5	ND<0.5	0	0	7
ND<1	ND<0.5	0.5	1	7
ND<1	ND<0.5	0.5	2	7
ND<1	ND<0.5	0.5	3	7
ND<1	ND<0.5	0.5	4	7
ND<0.5	ND<0.5	0	4	7
ND<1	ND<0.5	0.5	5	7
ND<1	ND<0.5	0.5	6	7
ND<1	ND<0.5	0.5	7	7
ND<1	ND<0.5	0.5	8	7
ND<1	ND<0.5	0.5	9	7
ND<1	ND<0.5	0.5	10	7
ND<1	ND<0.5	0.5	11	7
ND<1	ND<0.5	0.5	12	7
ND<1	ND<1	0	12	7
ND<1	ND<1	0	12	7
ND<1	ND<1	0	12	7
ND<1	ND<1	0	12	7
ND<1	ND<1	0	12	7
ND<1	ND<1	0	12	7

S Statistic = 12 - 7 = 5

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |5|$ is 0.634

0.634 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Fluoride

Location: MW5

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.5	1.45	-0.95	0	1
0.721	1.45	-0.729	0	2
ND<0.5	1.45	-0.95	0	3
ND<1	1.45	-0.45	0	4
ND<1	1.45	-0.45	0	5
ND<1	1.45	-0.45	0	6
0.771	1.45	-0.679	0	7
0.721	ND<0.5	0.221	1	7
ND<0.5	ND<0.5	0	1	7
ND<1	ND<0.5	0.5	2	7
ND<1	ND<0.5	0.5	3	7
ND<1	ND<0.5	0.5	4	7
0.771	ND<0.5	0.271	5	7
ND<0.5	0.721	-0.221	5	8
ND<1	0.721	0.279	6	8
ND<1	0.721	0.279	7	8
ND<1	0.721	0.279	8	8
0.771	0.721	0.05	9	8
ND<1	ND<0.5	0.5	10	8
ND<1	ND<0.5	0.5	11	8
ND<1	ND<0.5	0.5	12	8
0.771	ND<0.5	0.271	13	8
ND<1	ND<1	0	13	8
ND<1	ND<1	0	13	8
0.771	ND<1	-0.229	13	9
ND<1	ND<1	0	13	9
0.771	ND<1	-0.229	13	10
0.771	ND<1	-0.229	13	11

S Statistic = 13 - 11 = 2

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |2|$ is 0.904

0.904 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Formaldehyde

Location: MW1

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<10	ND<10	0	0	0
ND<10	ND<10	0	0	0
12	ND<10	2	1	0
ND<10	ND<10	0	1	0
ND<10	ND<10	0	1	0
ND<10	ND<10	0	1	0
ND<10	ND<10	0	1	0
ND<10	ND<10	0	1	0
ND<10	ND<10	0	1	0
ND<10	ND<10	0	1	0
ND<10	ND<10	0	1	0
ND<10	ND<10	0	1	0
12	ND<10	2	2	0
ND<10	ND<10	0	2	0
ND<10	ND<10	0	2	0
ND<10	ND<10	0	2	0
ND<10	ND<10	0	2	0
ND<10	ND<10	0	2	0
12	ND<10	2	3	0
ND<10	ND<10	0	3	0
ND<10	ND<10	0	3	0
ND<10	ND<10	0	3	0
ND<10	ND<10	0	3	0
ND<10	12	-2	3	1
ND<10	12	-2	3	2
ND<10	12	-2	3	3
ND<10	12	-2	3	4
ND<10	ND<10	0	3	4
ND<10	ND<10	0	3	4
ND<10	ND<10	0	3	4
ND<10	ND<10	0	3	4
ND<10	ND<10	0	3	4
ND<10	ND<10	0	3	4
ND<10	ND<10	0	3	4
ND<10	ND<10	0	3	4

S Statistic = 3 - 4 = -1

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |-1|$ is 1

1 ≥ 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Formaldehyde

Location: MW3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
55.4	ND<10	45.4	1	0
13.8	ND<10	3.8	2	0
ND<10	ND<10	0	2	0
ND<10	ND<10	0	2	0
ND<10	ND<10	0	2	0
ND<10	ND<10	0	2	0
ND<10	ND<10	0	2	0
13.8	55.4	-41.6	2	1
ND<10	55.4	-45.4	2	2
ND<10	55.4	-45.4	2	3
ND<10	55.4	-45.4	2	4
ND<10	55.4	-45.4	2	5
ND<10	55.4	-45.4	2	6
ND<10	13.8	-3.8	2	7
ND<10	13.8	-3.8	2	8
ND<10	13.8	-3.8	2	9
ND<10	13.8	-3.8	2	10
ND<10	13.8	-3.8	2	11
ND<10	ND<10	0	2	11
ND<10	ND<10	0	2	11
ND<10	ND<10	0	2	11
ND<10	ND<10	0	2	11
ND<10	ND<10	0	2	11
ND<10	ND<10	0	2	11
ND<10	ND<10	0	2	11
ND<10	ND<10	0	2	11
ND<10	ND<10	0	2	11
ND<10	ND<10	0	2	11
ND<10	ND<10	0	2	11

S Statistic = 2 - 11 = -9

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |-9|$ is 0.337

0.337 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Total Organic Halogens, Halides

Location: MW1

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.04	ND<0.04	0	0	0
ND<0.04	ND<0.04	0	0	0
0.0492	ND<0.04	0.0092	1	0
ND<0.04	ND<0.04	0	1	0
ND<0.04	ND<0.04	0	1	0
ND<0.04	ND<0.04	0	1	0
0.0458	ND<0.04	0.0058	2	0
ND<0.04	ND<0.04	0	2	0
0.0492	ND<0.04	0.0092	3	0
ND<0.04	ND<0.04	0	3	0
ND<0.04	ND<0.04	0	3	0
ND<0.04	ND<0.04	0	3	0
0.0458	ND<0.04	0.0058	4	0
0.0492	ND<0.04	0.0092	5	0
ND<0.04	ND<0.04	0	5	0
ND<0.04	ND<0.04	0	5	0
ND<0.04	ND<0.04	0	5	0
0.0458	ND<0.04	0.0058	6	0
ND<0.04	0.0492	-0.0092	6	1
ND<0.04	0.0492	-0.0092	6	2
ND<0.04	0.0492	-0.0092	6	3
0.0458	0.0492	-0.0034	6	4
ND<0.04	ND<0.04	0	6	4
ND<0.04	ND<0.04	0	6	4
0.0458	ND<0.04	0.0058	7	4
ND<0.04	ND<0.04	0	7	4
0.0458	ND<0.04	0.0058	8	4
0.0458	ND<0.04	0.0058	9	4

S Statistic = 9 - 4 = 5

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |5|$ is 0.634

0.634 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Total Organic Halogens, Halides

Location: MW2

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.04	ND<0.04	0	0	0
ND<0.04	ND<0.04	0	0	0
0.119	ND<0.04	0.079	1	0
ND<0.04	ND<0.04	0	1	0
ND<0.04	ND<0.04	0	1	0
ND<0.04	ND<0.04	0	1	0
0.0411	ND<0.04	0.0011	2	0
ND<0.04	ND<0.04	0	2	0
0.119	ND<0.04	0.079	3	0
ND<0.04	ND<0.04	0	3	0
ND<0.04	ND<0.04	0	3	0
ND<0.04	ND<0.04	0	3	0
0.0411	ND<0.04	0.0011	4	0
0.119	ND<0.04	0.079	5	0
ND<0.04	ND<0.04	0	5	0
ND<0.04	ND<0.04	0	5	0
ND<0.04	ND<0.04	0	5	0
0.0411	ND<0.04	0.0011	6	0
ND<0.04	0.119	-0.079	6	1
ND<0.04	0.119	-0.079	6	2
ND<0.04	0.119	-0.079	6	3
0.0411	0.119	-0.0779	6	4
ND<0.04	ND<0.04	0	6	4
ND<0.04	ND<0.04	0	6	4
0.0411	ND<0.04	0.0011	7	4
ND<0.04	ND<0.04	0	7	4
0.0411	ND<0.04	0.0011	8	4
0.0411	ND<0.04	0.0011	9	4

S Statistic = 9 - 4 = 5

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |5|$ is 0.634

0.634 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Total Organic Halogens, Halides

Location: MW3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.04	ND<0.04	0	0	0
ND<0.04	ND<0.04	0	0	0
0.0667	ND<0.04	0.0267	1	0
ND<0.04	ND<0.04	0	1	0
0.0861	ND<0.04	0.0461	2	0
ND<0.04	ND<0.04	0	2	0
0.138	ND<0.04	0.098	3	0
ND<0.04	ND<0.04	0	3	0
0.0667	ND<0.04	0.0267	4	0
ND<0.04	ND<0.04	0	4	0
0.0861	ND<0.04	0.0461	5	0
ND<0.04	ND<0.04	0	5	0
0.138	ND<0.04	0.098	6	0
0.0667	ND<0.04	0.0267	7	0
ND<0.04	ND<0.04	0	7	0
0.0861	ND<0.04	0.0461	8	0
ND<0.04	ND<0.04	0	8	0
0.138	ND<0.04	0.098	9	0
ND<0.04	0.0667	-0.0267	9	1
0.0861	0.0667	0.0194	10	1
ND<0.04	0.0667	-0.0267	10	2
0.138	0.0667	0.0713	11	2
0.0861	ND<0.04	0.0461	12	2
ND<0.04	ND<0.04	0	12	2
0.138	ND<0.04	0.098	13	2
ND<0.04	0.0861	-0.0461	13	3
0.138	0.0861	0.0519	14	3
0.138	ND<0.04	0.098	15	3

S Statistic = 15 - 3 = 12

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |12|$ is 0.178

0.178 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Total Organic Halogens, Halides

Location: MW4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.04	ND<0.04	0	0	0
ND<0.04	ND<0.04	0	0	0
0.0688	ND<0.04	0.0288	1	0
ND<0.04	ND<0.04	0	1	0
ND<0.04	ND<0.04	0	1	0
0.0808	ND<0.04	0.0408	2	0
ND<0.04	ND<0.04	0	2	0
ND<0.04	ND<0.04	0	2	0
0.0688	ND<0.04	0.0288	3	0
ND<0.04	ND<0.04	0	3	0
ND<0.04	ND<0.04	0	3	0
0.0808	ND<0.04	0.0408	4	0
ND<0.04	ND<0.04	0	4	0
0.0688	ND<0.04	0.0288	5	0
ND<0.04	ND<0.04	0	5	0
ND<0.04	ND<0.04	0	5	0
0.0808	ND<0.04	0.0408	6	0
ND<0.04	ND<0.04	0	6	0
ND<0.04	0.0688	-0.0288	6	1
ND<0.04	0.0688	-0.0288	6	2
0.0808	0.0688	0.012	7	2
ND<0.04	0.0688	-0.0288	7	3
ND<0.04	ND<0.04	0	7	3
0.0808	ND<0.04	0.0408	8	3
ND<0.04	ND<0.04	0	8	3
0.0808	ND<0.04	0.0408	9	3
ND<0.04	ND<0.04	0	9	3
ND<0.04	0.0808	-0.0408	9	4

S Statistic = 9 - 4 = 5

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |5|$ is 0.634

0.634 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Total Organic Halogens, Halides

Location: MW5

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.04	ND<0.04	0	0	0
ND<0.04	ND<0.04	0	0	0
0.757	ND<0.04	0.717	1	0
ND<0.04	ND<0.04	0	1	0
ND<0.04	ND<0.04	0	1	0
ND<0.04	ND<0.04	0	1	0
ND<0.04	ND<0.04	0	1	0
ND<0.04	ND<0.04	0	1	0
0.757	ND<0.04	0.717	2	0
ND<0.04	ND<0.04	0	2	0
ND<0.04	ND<0.04	0	2	0
ND<0.04	ND<0.04	0	2	0
ND<0.04	ND<0.04	0	2	0
0.757	ND<0.04	0.717	3	0
ND<0.04	ND<0.04	0	3	0
ND<0.04	ND<0.04	0	3	0
ND<0.04	ND<0.04	0	3	0
ND<0.04	ND<0.04	0	3	0
ND<0.04	0.757	-0.717	3	1
ND<0.04	0.757	-0.717	3	2
ND<0.04	0.757	-0.717	3	3
ND<0.04	0.757	-0.717	3	4
ND<0.04	ND<0.04	0	3	4
ND<0.04	ND<0.04	0	3	4
ND<0.04	ND<0.04	0	3	4
ND<0.04	ND<0.04	0	3	4
ND<0.04	ND<0.04	0	3	4
ND<0.04	ND<0.04	0	3	4

S Statistic = 3 - 4 = -1

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |-1|$ is 1

1 ≥ 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Manganese

Location: MW1

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
0.0766	0.0605	0.0161	1	0
0.0829	0.0605	0.0224	2	0
0.085	0.0605	0.0245	3	0
0.0821	0.0605	0.0216	4	0
0.0753	0.0605	0.0148	5	0
0.0808	0.0605	0.0203	6	0
0.0757	0.0605	0.0152	7	0
0.0829	0.0766	0.0063	8	0
0.085	0.0766	0.0084	9	0
0.0821	0.0766	0.0055	10	0
0.0753	0.0766	-0.0013	10	1
0.0808	0.0766	0.0042	11	1
0.0757	0.0766	-0.0009	11	2
0.085	0.0829	0.0021	12	2
0.0821	0.0829	-0.0008	12	3
0.0753	0.0829	-0.0076	12	4
0.0808	0.0829	-0.0021	12	5
0.0757	0.0829	-0.0072	12	6
0.0821	0.085	-0.0029	12	7
0.0753	0.085	-0.0097	12	8
0.0808	0.085	-0.0042	12	9
0.0757	0.085	-0.0093	12	10
0.0753	0.0821	-0.0068	12	11
0.0808	0.0821	-0.0013	12	12
0.0757	0.0821	-0.0064	12	13
0.0808	0.0753	0.0055	13	13
0.0757	0.0753	0.0004	14	13
0.0757	0.0808	-0.0051	14	14

S Statistic = 14 - 14 = 0

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |0|$ is 1.096

1.096 ≥ 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Manganese

Location: MW3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.01	ND<0.01	0	0	0
ND<0.01	ND<0.01	0	0	0
ND<0.01	ND<0.01	0	0	0
0.0303	ND<0.01	0.0203	1	0
ND<0.01	ND<0.01	0	1	0
ND<0.01	ND<0.01	0	1	0
ND<0.01	ND<0.01	0	1	0
ND<0.01	ND<0.01	0	1	0
ND<0.01	ND<0.01	0	1	0
ND<0.01	ND<0.01	0	1	0
ND<0.01	ND<0.01	0	1	0
0.0303	ND<0.01	0.0203	2	0
ND<0.01	ND<0.01	0	2	0
ND<0.01	ND<0.01	0	2	0
ND<0.01	ND<0.01	0	2	0
ND<0.01	ND<0.01	0	2	0
ND<0.01	ND<0.01	0	2	0
ND<0.01	ND<0.01	0	2	0
0.0303	ND<0.01	0.0203	3	0
ND<0.01	ND<0.01	0	3	0
ND<0.01	ND<0.01	0	3	0
ND<0.01	ND<0.01	0	3	0
ND<0.01	ND<0.01	0	3	0
0.0303	ND<0.01	0.0203	4	0
ND<0.01	ND<0.01	0	4	0
ND<0.01	ND<0.01	0	4	0
ND<0.01	ND<0.01	0	4	0
ND<0.01	0.0303	-0.0203	4	1
ND<0.01	0.0303	-0.0203	4	2
ND<0.01	0.0303	-0.0203	4	3
ND<0.01	ND<0.01	0	4	3
ND<0.01	ND<0.01	0	4	3
ND<0.01	ND<0.01	0	4	3

S Statistic = 4 - 3 = 1

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |1|$ is 1

1 ≥ 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Manganese

Location: MW4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
0.111	0.11	0.001	1	0
0.0923	0.11	-0.0177	1	1
0.14	0.11	0.03	2	1
0.0739	0.11	-0.0361	2	2
0.0608	0.11	-0.0492	2	3
0.0764	0.11	-0.0336	2	4
0.0912	0.11	-0.0188	2	5
0.0923	0.111	-0.0187	2	6
0.14	0.111	0.029	3	6
0.0739	0.111	-0.0371	3	7
0.0608	0.111	-0.0502	3	8
0.0764	0.111	-0.0346	3	9
0.0912	0.111	-0.0198	3	10
0.14	0.0923	0.0477	4	10
0.0739	0.0923	-0.0184	4	11
0.0608	0.0923	-0.0315	4	12
0.0764	0.0923	-0.0159	4	13
0.0912	0.0923	-0.0011	4	14
0.0739	0.14	-0.0661	4	15
0.0608	0.14	-0.0792	4	16
0.0764	0.14	-0.0636	4	17
0.0912	0.14	-0.0488	4	18
0.0608	0.0739	-0.0131	4	19
0.0764	0.0739	0.0025	5	19
0.0912	0.0739	0.0173	6	19
0.0764	0.0608	0.0156	7	19
0.0912	0.0608	0.0304	8	19
0.0912	0.0764	0.0148	9	19

S Statistic = 9 - 19 = -10

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |-10|$ is 0.276

0.276 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Manganese

Location: MW5

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
0.0584	0.0613	-0.0029	0	1
0.12	0.0613	0.0587	1	1
0.0595	0.0613	-0.0018	1	2
0.0538	0.0613	-0.0075	1	3
0.0806	0.0613	0.0193	2	3
0.0695	0.0613	0.0082	3	3
0.0754	0.0613	0.0141	4	3
0.12	0.0584	0.0616	5	3
0.0595	0.0584	0.0011	6	3
0.0538	0.0584	-0.0046	6	4
0.0806	0.0584	0.0222	7	4
0.0695	0.0584	0.0111	8	4
0.0754	0.0584	0.017	9	4
0.0595	0.12	-0.0605	9	5
0.0538	0.12	-0.0662	9	6
0.0806	0.12	-0.0394	9	7
0.0695	0.12	-0.0505	9	8
0.0754	0.12	-0.0446	9	9
0.0538	0.0595	-0.0057	9	10
0.0806	0.0595	0.0211	10	10
0.0695	0.0595	0.01	11	10
0.0754	0.0595	0.0159	12	10
0.0806	0.0538	0.0268	13	10
0.0695	0.0538	0.0157	14	10
0.0754	0.0538	0.0216	15	10
0.0695	0.0806	-0.0111	15	11
0.0754	0.0806	-0.0052	15	12
0.0754	0.0695	0.0059	16	12

S Statistic = 16 - 12 = 4

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |4|$ is 0.72

0.72 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Molybdenum

Location: MW1

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.002	0.0029	-0.0009	0	1
ND<0.002	0.0029	-0.0009	0	2
0.0021	0.0029	-0.0008	0	3
0.00203	0.0029	-0.00087	0	4
0.00264	0.0029	-0.00026	0	5
ND<0.002	0.0029	-0.0009	0	6
0.00233	0.0029	-0.00057	0	7
ND<0.002	ND<0.002	0	0	7
0.0021	ND<0.002	0.0001	1	7
0.00203	ND<0.002	3e-005	2	7
0.00264	ND<0.002	0.00064	3	7
ND<0.002	ND<0.002	0	3	7
0.00233	ND<0.002	0.00033	4	7
0.0021	ND<0.002	0.0001	5	7
0.00203	ND<0.002	3e-005	6	7
0.00264	ND<0.002	0.00064	7	7
ND<0.002	ND<0.002	0	7	7
0.00233	ND<0.002	0.00033	8	7
0.00203	0.0021	-7e-005	8	8
0.00264	0.0021	0.00054	9	8
ND<0.002	0.0021	-0.0001	9	9
0.00233	0.0021	0.00023	10	9
0.00264	0.00203	0.00061	11	9
ND<0.002	0.00203	-3e-005	11	10
0.00233	0.00203	0.0003	12	10
ND<0.002	0.00264	-0.00064	12	11
0.00233	0.00264	-0.00031	12	12
0.00233	ND<0.002	0.00033	13	12

S Statistic = 13 - 12 = 1

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |1|$ is 1

1 ≥ 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Molybdenum

Location: MW2

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
0.00268	0.00254	0.00014	1	0
0.0024	0.00254	-0.00014	1	1
0.00318	0.00254	0.00064	2	1
0.00458	0.00254	0.00204	3	1
0.00225	0.00254	-0.00029	3	2
ND<0.002	0.00254	-0.00054	3	3
0.00202	0.00254	-0.00052	3	4
0.0024	0.00268	-0.00028	3	5
0.00318	0.00268	0.0005	4	5
0.00458	0.00268	0.0019	5	5
0.00225	0.00268	-0.00043	5	6
ND<0.002	0.00268	-0.00068	5	7
0.00202	0.00268	-0.00066	5	8
0.00318	0.0024	0.00078	6	8
0.00458	0.0024	0.00218	7	8
0.00225	0.0024	-0.00015	7	9
ND<0.002	0.0024	-0.0004	7	10
0.00202	0.0024	-0.00038	7	11
0.00458	0.00318	0.0014	8	11
0.00225	0.00318	-0.00093	8	12
ND<0.002	0.00318	-0.00118	8	13
0.00202	0.00318	-0.00116	8	14
0.00225	0.00458	-0.00233	8	15
ND<0.002	0.00458	-0.00258	8	16
0.00202	0.00458	-0.00256	8	17
ND<0.002	0.00225	-0.00025	8	18
0.00202	0.00225	-0.00023	8	19
0.00202	ND<0.002	2e-005	9	19

S Statistic = 9 - 19 = -10

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |-10|$ is 0.276

0.276 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Molybdenum

Location: MW3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
0.0032	0.00315	5e-005	1	0
0.00284	0.00315	-0.00031	1	1
0.00397	0.00315	0.00082	2	1
0.00557	0.00315	0.00242	3	1
0.0035	0.00315	0.00035	4	1
0.00296	0.00315	-0.00019	4	2
0.00213	0.00315	-0.00102	4	3
0.00284	0.0032	-0.00036	4	4
0.00397	0.0032	0.00077	5	4
0.00557	0.0032	0.00237	6	4
0.0035	0.0032	0.0003	7	4
0.00296	0.0032	-0.00024	7	5
0.00213	0.0032	-0.00107	7	6
0.00397	0.00284	0.00113	8	6
0.00557	0.00284	0.00273	9	6
0.0035	0.00284	0.00066	10	6
0.00296	0.00284	0.00012	11	6
0.00213	0.00284	-0.00071	11	7
0.00557	0.00397	0.0016	12	7
0.0035	0.00397	-0.00047	12	8
0.00296	0.00397	-0.00101	12	9
0.00213	0.00397	-0.00184	12	10
0.0035	0.00557	-0.00207	12	11
0.00296	0.00557	-0.00261	12	12
0.00213	0.00557	-0.00344	12	13
0.00296	0.0035	-0.00054	12	14
0.00213	0.0035	-0.00137	12	15
0.00213	0.00296	-0.00083	12	16

S Statistic = 12 - 16 = -4

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |-4|$ is 0.72

0.72 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Molybdenum

Location: MW4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.002	0.0035	-0.0015	0	1
ND<0.002	0.0035	-0.0015	0	2
0.00229	0.0035	-0.00121	0	3
0.00291	0.0035	-0.00059	0	4
0.00242	0.0035	-0.00108	0	5
0.00222	0.0035	-0.00128	0	6
0.00234	0.0035	-0.00116	0	7
ND<0.002	ND<0.002	0	0	7
0.00229	ND<0.002	0.00029	1	7
0.00291	ND<0.002	0.00091	2	7
0.00242	ND<0.002	0.00042	3	7
0.00222	ND<0.002	0.00022	4	7
0.00234	ND<0.002	0.00034	5	7
0.00229	ND<0.002	0.00029	6	7
0.00291	ND<0.002	0.00091	7	7
0.00242	ND<0.002	0.00042	8	7
0.00222	ND<0.002	0.00022	9	7
0.00234	ND<0.002	0.00034	10	7
0.00291	0.00229	0.00062	11	7
0.00242	0.00229	0.00013	12	7
0.00222	0.00229	-7e-005	12	8
0.00234	0.00229	5e-005	13	8
0.00242	0.00291	-0.00049	13	9
0.00222	0.00291	-0.00069	13	10
0.00234	0.00291	-0.00057	13	11
0.00222	0.00242	-0.0002	13	12
0.00234	0.00242	-8e-005	13	13
0.00234	0.00222	0.00012	14	13

S Statistic = 14 - 13 = 1

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |1|$ is 1

1 ≥ 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Molybdenum

Location: MW5

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.002	ND<0.002	0	0	0
ND<0.002	ND<0.002	0	0	0
ND<0.002	ND<0.002	0	0	0
0.00266	ND<0.002	0.00066	1	0
ND<0.002	ND<0.002	0	1	0
ND<0.002	ND<0.002	0	1	0
ND<0.002	ND<0.002	0	1	0
ND<0.002	ND<0.002	0	1	0
ND<0.002	ND<0.002	0	1	0
ND<0.002	ND<0.002	0	1	0
ND<0.002	ND<0.002	0	1	0
0.00266	ND<0.002	0.00066	2	0
ND<0.002	ND<0.002	0	2	0
ND<0.002	ND<0.002	0	2	0
ND<0.002	ND<0.002	0	2	0
ND<0.002	ND<0.002	0	2	0
ND<0.002	ND<0.002	0	2	0
ND<0.002	ND<0.002	0	2	0
0.00266	ND<0.002	0.00066	3	0
ND<0.002	ND<0.002	0	3	0
ND<0.002	ND<0.002	0	3	0
ND<0.002	ND<0.002	0	3	0
ND<0.002	ND<0.002	0	3	0
0.00266	ND<0.002	0.00066	4	0
ND<0.002	ND<0.002	0	4	0
ND<0.002	ND<0.002	0	4	0
ND<0.002	ND<0.002	0	4	0
ND<0.002	0.00266	-0.00066	4	1
ND<0.002	0.00266	-0.00066	4	2
ND<0.002	0.00266	-0.00066	4	3
ND<0.002	ND<0.002	0	4	3
ND<0.002	ND<0.002	0	4	3
ND<0.002	ND<0.002	0	4	3

S Statistic = 4 - 3 = 1

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |1|$ is 1

1 ≥ 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Sulfate

Location: MW1

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
903	828	75	1	0
976	828	148	2	0
928	828	100	3	0
924	828	96	4	0
927	828	99	5	0
1050	828	222	6	0
1010	828	182	7	0
976	903	73	8	0
928	903	25	9	0
924	903	21	10	0
927	903	24	11	0
1050	903	147	12	0
1010	903	107	13	0
928	976	-48	13	1
924	976	-52	13	2
927	976	-49	13	3
1050	976	74	14	3
1010	976	34	15	3
924	928	-4	15	4
927	928	-1	15	5
1050	928	122	16	5
1010	928	82	17	5
927	924	3	18	5
1050	924	126	19	5
1010	924	86	20	5
1050	927	123	21	5
1010	927	83	22	5
1010	1050	-40	22	6

S Statistic = 22 - 6 = 16

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |16|$ is 0.062

0.062 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Sulfate

Location: MW2

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
19.2	13.7	5.5	1	0
20.1	13.7	6.4	2	0
14.4	13.7	0.7	3	0
16.5	13.7	2.8	4	0
14.3	13.7	0.6	5	0
14.4	13.7	0.7	6	0
19	13.7	5.3	7	0
20.1	19.2	0.9	8	0
14.4	19.2	-4.8	8	1
16.5	19.2	-2.7	8	2
14.3	19.2	-4.9	8	3
14.4	19.2	-4.8	8	4
19	19.2	-0.2	8	5
14.4	20.1	-5.7	8	6
16.5	20.1	-3.6	8	7
14.3	20.1	-5.8	8	8
14.4	20.1	-5.7	8	9
19	20.1	-1.1	8	10
16.5	14.4	2.1	9	10
14.3	14.4	-0.1	9	11
14.4	14.4	0	9	11
19	14.4	4.6	10	11
14.3	16.5	-2.2	10	12
14.4	16.5	-2.1	10	13
19	16.5	2.5	11	13
14.4	14.3	0.1	12	13
19	14.3	4.7	13	13
19	14.4	4.6	14	13

S Statistic = 14 - 13 = 1

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |1|$ is 1

1 ≥ 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Sulfate

Location: MW3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
29.2	49.9	-20.7	0	1
28.5	49.9	-21.4	0	2
30.6	49.9	-19.3	0	3
32.6	49.9	-17.3	0	4
34.7	49.9	-15.2	0	5
39.7	49.9	-10.2	0	6
44.4	49.9	-5.5	0	7
28.5	29.2	-0.7	0	8
30.6	29.2	1.4	1	8
32.6	29.2	3.4	2	8
34.7	29.2	5.5	3	8
39.7	29.2	10.5	4	8
44.4	29.2	15.2	5	8
30.6	28.5	2.1	6	8
32.6	28.5	4.1	7	8
34.7	28.5	6.2	8	8
39.7	28.5	11.2	9	8
44.4	28.5	15.9	10	8
32.6	30.6	2	11	8
34.7	30.6	4.1	12	8
39.7	30.6	9.1	13	8
44.4	30.6	13.8	14	8
34.7	32.6	2.1	15	8
39.7	32.6	7.1	16	8
44.4	32.6	11.8	17	8
39.7	34.7	5	18	8
44.4	34.7	9.7	19	8
44.4	39.7	4.7	20	8

S Statistic = 20 - 8 = 12

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |12|$ is 0.178

0.178 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Sulfate

Location: MW4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
143	143	0	0	0
158	143	15	1	0
161	143	18	2	0
174	143	31	3	0
160	143	17	4	0
177	143	34	5	0
234	143	91	6	0
158	143	15	7	0
161	143	18	8	0
174	143	31	9	0
160	143	17	10	0
177	143	34	11	0
234	143	91	12	0
161	158	3	13	0
174	158	16	14	0
160	158	2	15	0
177	158	19	16	0
234	158	76	17	0
174	161	13	18	0
160	161	-1	18	1
177	161	16	19	1
234	161	73	20	1
160	174	-14	20	2
177	174	3	21	2
234	174	60	22	2
177	160	17	23	2
234	160	74	24	2
234	177	57	25	2

S Statistic = 25 - 2 = 23

Comparing at 95% confidence level (upward trend)

Probability of obtaining $S \geq 23$ is 0.001835

S > 0 and 0.001835 < 0.05 indicating an upward trend

Mann-Kendall Trend Analysis

Parameter: Sulfate

Location: MW5

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
20.2	19.7	0.5	1	0
18.1	19.7	-1.6	1	1
18.5	19.7	-1.2	1	2
24.7	19.7	5	2	2
20.8	19.7	1.1	3	2
22	19.7	2.3	4	2
23.3	19.7	3.6	5	2
18.1	20.2	-2.1	5	3
18.5	20.2	-1.7	5	4
24.7	20.2	4.5	6	4
20.8	20.2	0.6	7	4
22	20.2	1.8	8	4
23.3	20.2	3.1	9	4
18.5	18.1	0.4	10	4
24.7	18.1	6.6	11	4
20.8	18.1	2.7	12	4
22	18.1	3.9	13	4
23.3	18.1	5.2	14	4
24.7	18.5	6.2	15	4
20.8	18.5	2.3	16	4
22	18.5	3.5	17	4
23.3	18.5	4.8	18	4
20.8	24.7	-3.9	18	5
22	24.7	-2.7	18	6
23.3	24.7	-1.4	18	7
22	20.8	1.2	19	7
23.3	20.8	2.5	20	7
23.3	22	1.3	21	7

S Statistic = 21 - 7 = 14

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |14|$ is 0.108

0.108 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Zinc

Location: MW1

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.02	0.0633	-0.0433	0	1
ND<0.02	0.0633	-0.0433	0	2
ND<0.02	0.0633	-0.0433	0	3
ND<0.02	0.0633	-0.0433	0	4
ND<0.02	0.0633	-0.0433	0	5
ND<0.02	0.0633	-0.0433	0	6
ND<0.02	0.0633	-0.0433	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7

S Statistic = 0 - 7 = -7
 Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)
 Probability of obtaining $S \geq |-7|$ is 0.473
 0.473 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Zinc

Location: MW2

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.02	0.571	-0.551	0	1
ND<0.02	0.571	-0.551	0	2
ND<0.02	0.571	-0.551	0	3
ND<0.02	0.571	-0.551	0	4
ND<0.02	0.571	-0.551	0	5
ND<0.02	0.571	-0.551	0	6
ND<0.02	0.571	-0.551	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7

S Statistic = $0 - 7 = -7$

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |-7|$ is 0.473

0.473 \geq 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Zinc

Location: MW4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.02	0.0218	-0.0018	0	1
ND<0.02	0.0218	-0.0018	0	2
ND<0.02	0.0218	-0.0018	0	3
ND<0.02	0.0218	-0.0018	0	4
ND<0.02	0.0218	-0.0018	0	5
ND<0.02	0.0218	-0.0018	0	6
ND<0.02	0.0218	-0.0018	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7
ND<0.02	ND<0.02	0	0	7

S Statistic = $0 - 7 = -7$

Comparing at $1.0 - (0.05 / 2) = 97.5\%$ confidence level (two-tailed)

Probability of obtaining $S \geq |-7|$ is 0.473

0.473 \geq 0.025 indicating no evidence of a trend

APPENDIX E

Parametric and Non-Parametric Prediction Limit

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW1

Parameter: Barium

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	2/26/2021	0.0268
	9/17/2021	0.0252
	3/11/2022	0.0236
	9/12/2022	0.0231
	4/11/2023	0.0233
	9/29/2023	0.0207
	3/4/2024	0.021

From 7 baseline samples

Baseline mean = 0.0233857

Baseline std Dev = 0.00215981

For 1 recent sampling event(s)

Actual confidence level is $1.0 - (0.01/1) = 99\%$

t is Percentile of Student's T-Test $(0.99/1) = 0.99$

Degrees of Freedom = 7 (background observations) - 1

$t(0.99, 6) = 3.14267$

Date	Samples	Mean	Interval	Significant
7/29/2024	1	0.0203	[0, 0.0306419]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW2

Parameter: Barium

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	3/1/2021	0.0808
	9/20/2021	0.0882
	3/18/2022	0.072
	9/16/2022	0.0582
	4/25/2023	0.0727
	9/25/2023	0.118
	3/18/2024	0.11

From 7 baseline samples

Baseline mean = 0.0857

Baseline std Dev = 0.0215135

For 1 recent sampling event(s)

Actual confidence level is $1.0 - (0.01/1) = 99\%$

t is Percentile of Student's T-Test $(0.99/1) = 0.99$

Degrees of Freedom = 7 (background observations) - 1

$t(0.99, 6) = 3.14267$

Date	Samples	Mean	Interval	Significant
8/5/2024	1	0.118	[0, 0.157978]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW3

Parameter: Barium

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	3/8/2021	0.264
	10/5/2021	0.229
	4/8/2022	0.295
	9/26/2022	0.282
	5/9/2023	0.32
	9/1/2023	0.325
	2/27/2024	0.267

From 7 baseline samples

Baseline mean = 0.283143

Baseline std Dev = 0.0336919

For 1 recent sampling event(s)

Actual confidence level is $1.0 - (0.01/1) = 99\%$

t is Percentile of Student's T-Test $(0.99/1) = 0.99$

Degrees of Freedom = 7 (background observations) - 1

$t(0.99, 6) = 3.14267$

Date	Samples	Mean	Interval	Significant
8/12/2024	1	0.32	[0, 0.396336]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW5

Parameter: Barium

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	3/11/2021	0.0972
	9/30/2021	0.0877
	4/1/2022	0.126
	9/30/2022	0.0965
	5/2/2023	0.0775
	9/18/2023	0.0955
	3/11/2024	0.0801

From 7 baseline samples

Baseline mean = 0.0943571

Baseline std Dev = 0.0160572

For 1 recent sampling event(s)

Actual confidence level is 1.0 - (0.01/1) = 99 %

t is Percentile of Student's T-Test (0.99/1) = 0.99

Degrees of Freedom = 7 (background observations) - 1

t(0.99, 6) = 3.14267

Date	Samples	Mean	Interval	Significant
8/19/2024	1	0.0941	[0, 0.148304]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW1

Parameter: Boron

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	2/26/2021	0.134
	9/17/2021	0.129
	3/11/2022	0.168
	9/12/2022	0.135
	4/11/2023	0.117
	9/29/2023	0.17
	3/4/2024	0.127

From 7 baseline samples

Baseline mean = 0.14

Baseline std Dev = 0.020672

For 1 recent sampling event(s)

Actual confidence level is $1.0 - (0.01/1) = 99\%$

t is Percentile of Student's T-Test $(0.99/1) = 0.99$

Degrees of Freedom = 7 (background observations) - 1

$t(0.99, 6) = 3.14267$

Date	Samples	Mean	Interval	Significant
7/29/2024	1	0.12	[0, 0.209451]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW5

Parameter: Boron

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	3/11/2021	0.177
	9/30/2021	0.182
	4/1/2022	0.23
	9/30/2022	0.191
	5/2/2023	0.188
	9/18/2023	0.213
	3/11/2024	0.16

From 7 baseline samples

Baseline mean = 0.191571

Baseline std Dev = 0.0232727

For 1 recent sampling event(s)

Actual confidence level is $1.0 - (0.01/1) = 99\%$

t is Percentile of Student's T-Test $(0.99/1) = 0.99$

Degrees of Freedom = 7 (background observations) - 1

$t(0.99, 6) = 3.14267$

Date	Samples	Mean	Interval	Significant
8/19/2024	1	0.176	[0, 0.26976]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW1

Parameter: Chloride

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	2/26/2021	10.1
	9/17/2021	7.45
	3/11/2022	6.25
	9/12/2022	6.86
	4/11/2023	ND<5
	9/29/2023	6.38
	3/4/2024	6.53

From 7 baseline samples

Baseline mean = 6.93857

Baseline std Dev = 1.57974

For 1 recent sampling event(s)

Actual confidence level is $1.0 - (0.01/1) = 99\%$

t is Percentile of Student's T-Test $(0.99/1) = 0.99$

Degrees of Freedom = 7 (background observations) - 1

$t(0.99, 6) = 3.14267$

Date	Samples	Mean	Interval	Significant
7/29/2024	1	5.97	[0, 12.246]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW3

Parameter: Chloride

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	3/8/2021	23.5
	10/5/2021	48.3
	4/8/2022	60.4
	9/26/2022	61.4
	5/9/2023	136
	9/1/2023	107
	2/27/2024	141

From 7 baseline samples

Baseline mean = 82.5143

Baseline std Dev = 45.5869

For 1 recent sampling event(s)

Actual confidence level is $1.0 - (0.01/1) = 99\%$

t is Percentile of Student's T-Test $(0.99/1) = 0.99$

Degrees of Freedom = 7 (background observations) - 1

$t(0.99, 6) = 3.14267$

Date	Samples	Mean	Interval	Significant
8/12/2024	1	114	[0, 235.671]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW4

Parameter: Cobalt

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	3/4/2021	0.00102
	9/27/2021	0.000795
	3/25/2022	ND<0.0005
	9/21/2022	0.00209
	4/17/2023	ND<0.0005
	9/11/2023	0.00121
	3/25/2024	ND<0.0005

From 7 baseline samples

Baseline mean = 0.000945

Baseline std Dev = 0.000577848

For 1 recent sampling event(s)

Actual confidence level is $1.0 - (0.01/1) = 99\%$

t is Percentile of Student's T-Test $(0.99/1) = 0.99$

Degrees of Freedom = 7 (background observations) - 1

$t(0.99, 6) = 3.14267$

Date	Samples	Mean	Interval	Significant
7/23/2024	1	0.0005	[0, 0.00288637]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW2

Parameter: Fluoride

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	3/1/2021	0.636
	9/20/2021	ND<0.5
	3/18/2022	ND<0.5
	9/16/2022	0.713
	4/25/2023	ND<1
	9/25/2023	ND<1
	3/18/2024	ND<1

From 7 baseline samples

Baseline mean = 0.764143

Baseline std Dev = 0.232904

For 1 recent sampling event(s)

Actual confidence level is $1.0 - (0.01/1) = 99\%$

t is Percentile of Student's T-Test $(0.99/1) = 0.99$

Degrees of Freedom = 7 (background observations) - 1

$t(0.99, 6) = 3.14267$

Date	Samples	Mean	Interval	Significant
8/5/2024	1	1	[0, 1.54662]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW3

Parameter: Fluoride

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	3/8/2021	1
	10/5/2021	ND<0.5
	4/8/2022	ND<0.5
	9/26/2022	ND<0.5
	5/9/2023	ND<1
	9/1/2023	ND<1
	2/27/2024	ND<1

From 7 baseline samples

Baseline mean = 0.785714

Baseline std Dev = 0.267261

For 1 recent sampling event(s)

Actual confidence level is $1.0 - (0.01/1) = 99\%$

t is Percentile of Student's T-Test $(0.99/1) = 0.99$

Degrees of Freedom = 7 (background observations) - 1

$t(0.99, 6) = 3.14267$

Date	Samples	Mean	Interval	Significant
8/12/2024	1	0.279	[0, 1.68362]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW5

Parameter: Fluoride

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	3/11/2021	1.45
	9/30/2021	ND<0.5
	4/1/2022	0.721
	9/30/2022	ND<0.5
	5/2/2023	ND<1
	9/18/2023	ND<1
	3/11/2024	ND<1

From 7 baseline samples

Baseline mean = 0.881571

Baseline std Dev = 0.337185

For 1 recent sampling event(s)

Actual confidence level is $1.0 - (0.01/1) = 99\%$

t is Percentile of Student's T-Test $(0.99/1) = 0.99$

Degrees of Freedom = 7 (background observations) - 1

$t(0.99, 6) = 3.14267$

Date	Samples	Mean	Interval	Significant
8/19/2024	1	0.771	[0, 2.0144]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW1

Parameter: Manganese

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	2/26/2021	0.0605
	9/17/2021	0.0766
	3/11/2022	0.0829
	9/12/2022	0.085
	4/11/2023	0.0821
	9/29/2023	0.0753
	3/4/2024	0.0808

From 7 baseline samples

Baseline mean = 0.0776

Baseline std Dev = 0.00828694

For 1 recent sampling event(s)

Actual confidence level is $1.0 - (0.01/1) = 99\%$

t is Percentile of Student's T-Test $(0.99/1) = 0.99$

Degrees of Freedom = 7 (background observations) - 1

$t(0.99, 6) = 3.14267$

Date	Samples	Mean	Interval	Significant
7/29/2024	1	0.0757	[0, 0.105441]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW2

Parameter: Manganese

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	3/1/2021	0.021
	9/20/2021	0.354
	3/18/2022	0.205
	9/16/2022	0.0601
	4/25/2023	0.088
	9/25/2023	0.0237
	3/18/2024	0.0115

From 7 baseline samples

Baseline mean = 0.109043

Baseline std Dev = 0.126885

For 1 recent sampling event(s)

Actual confidence level is $1.0 - (0.01/1) = 99\%$

t is Percentile of Student's T-Test $(0.99/1) = 0.99$

Degrees of Freedom = 7 (background observations) - 1

$t(0.99, 6) = 3.14267$

Date	Samples	Mean	Interval	Significant
8/5/2024	1	0.0692	[0, 0.535334]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW4

Parameter: Manganese

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	3/4/2021	0.11
	9/27/2021	0.111
	3/25/2022	0.0923
	9/21/2022	0.14
	4/17/2023	0.0739
	9/11/2023	0.0608
	3/25/2024	0.0764

From 7 baseline samples

Baseline mean = 0.0949143

Baseline std Dev = 0.027307

For 1 recent sampling event(s)

Actual confidence level is $1.0 - (0.01/1) = 99\%$

t is Percentile of Student's T-Test $(0.99/1) = 0.99$

Degrees of Freedom = 7 (background observations) - 1

$t(0.99, 6) = 3.14267$

Date	Samples	Mean	Interval	Significant
7/23/2024	1	0.0912	[0, 0.186656]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW5

Parameter: Manganese

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	3/11/2021	0.0613
	9/30/2021	0.0584
	4/1/2022	0.12
	9/30/2022	0.0595
	5/2/2023	0.0538
	9/18/2023	0.0806
	3/11/2024	0.0695

From 7 baseline samples

Baseline mean = 0.0718714

Baseline std Dev = 0.0229893

For 1 recent sampling event(s)

Actual confidence level is 1.0 - (0.01/1) = 99 %

t is Percentile of Student's T-Test (0.99/1) = 0.99

Degrees of Freedom = 7 (background observations) - 1

t(0.99, 6) = 3.14267

Date	Samples	Mean	Interval	Significant
8/19/2024	1	0.0754	[0, 0.149107]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW1

Parameter: Molybdenum

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	2/26/2021	0.0029
	9/17/2021	ND<0.002
	3/11/2022	ND<0.002
	9/12/2022	0.0021
	4/11/2023	0.00203
	9/29/2023	0.00264
	3/4/2024	ND<0.002

From 7 baseline samples

Baseline mean = 0.00223857

Baseline std Dev = 0.000372399

For 1 recent sampling event(s)

Actual confidence level is $1.0 - (0.01/1) = 99\%$

t is Percentile of Student's T-Test $(0.99/1) = 0.99$

Degrees of Freedom = 7 (background observations) - 1

$t(0.99, 6) = 3.14267$

Date	Samples	Mean	Interval	Significant
7/29/2024	1	0.00233	[0, 0.0034897]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW2

Parameter: Molybdenum

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	3/1/2021	0.00254
	9/20/2021	0.00268
	3/18/2022	0.0024
	9/16/2022	0.00318
	4/25/2023	0.00458
	9/25/2023	0.00225
	3/18/2024	ND<0.002

From 7 baseline samples

Baseline mean = 0.00280429

Baseline std Dev = 0.000865753

For 1 recent sampling event(s)

Actual confidence level is $1.0 - (0.01/1) = 99\%$

t is Percentile of Student's T-Test $(0.99/1) = 0.99$

Degrees of Freedom = 7 (background observations) - 1

$t(0.99, 6) = 3.14267$

Date	Samples	Mean	Interval	Significant
8/5/2024	1	0.00202	[0, 0.00571292]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW3

Parameter: Molybdenum

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	3/8/2021	0.00315
	10/5/2021	0.0032
	4/8/2022	0.00284
	9/26/2022	0.00397
	5/9/2023	0.00557
	9/1/2023	0.0035
	2/27/2024	0.00296

From 7 baseline samples

Baseline mean = 0.00359857

Baseline std Dev = 0.000946704

For 1 recent sampling event(s)

Actual confidence level is 1.0 - (0.01/1) = 99 %

t is Percentile of Student's T-Test (0.99/1) = 0.99

Degrees of Freedom = 7 (background observations) - 1

t(0.99, 6) = 3.14267

Date	Samples	Mean	Interval	Significant
8/12/2024	1	0.00213	[0, 0.00677917]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW4

Parameter: Molybdenum

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	3/4/2021	0.0035
	9/27/2021	ND<0.002
	3/25/2022	ND<0.002
	9/21/2022	0.00229
	4/17/2023	0.00291
	9/11/2023	0.00242
	3/25/2024	0.00222

From 7 baseline samples

Baseline mean = 0.00247714

Baseline std Dev = 0.000546709

For 1 recent sampling event(s)

Actual confidence level is $1.0 - (0.01/1) = 99\%$

t is Percentile of Student's T-Test $(0.99/1) = 0.99$

Degrees of Freedom = 7 (background observations) - 1

$t(0.99, 6) = 3.14267$

Date	Samples	Mean	Interval	Significant
7/23/2024	1	0.00234	[0, 0.00431389]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW1

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	2/26/2021	828
	9/17/2021	903
	3/11/2022	976
	9/12/2022	928
	4/11/2023	924
	9/29/2023	927
	3/4/2024	1050

From 7 baseline samples

Baseline mean = 933.714

Baseline std Dev = 67.8251

For 1 recent sampling event(s)

Actual confidence level is 1.0 - (0.01/1) = 99 %

t is Percentile of Student's T-Test (0.99/1) = 0.99

Degrees of Freedom = 7 (background observations) - 1

t(0.99, 6) = 3.14267

Date	Samples	Mean	Interval	Significant
7/29/2024	1	1010	[0, 1161.58]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW2

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	3/1/2021	13.7
	9/20/2021	19.2
	3/18/2022	20.1
	9/16/2022	14.4
	4/25/2023	16.5
	9/25/2023	14.3
	3/18/2024	14.4

From 7 baseline samples

Baseline mean = 16.0857

Baseline std Dev = 2.59963

For 1 recent sampling event(s)

Actual confidence level is 1.0 - (0.01/1) = 99 %

t is Percentile of Student's T-Test (0.99/1) = 0.99

Degrees of Freedom = 7 (background observations) - 1

t(0.99, 6) = 3.14267

Date	Samples	Mean	Interval	Significant
8/5/2024	1	19	[0, 24.8196]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW3

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	3/8/2021	49.9
	10/5/2021	29.2
	4/8/2022	28.5
	9/26/2022	30.6
	5/9/2023	32.6
	9/1/2023	34.7
	2/27/2024	39.7

From 7 baseline samples

Baseline mean = 35.0286

Baseline std Dev = 7.58501

For 1 recent sampling event(s)

Actual confidence level is 1.0 - (0.01/1) = 99 %

t is Percentile of Student's T-Test (0.99/1) = 0.99

Degrees of Freedom = 7 (background observations) - 1

t(0.99, 6) = 3.14267

Date	Samples	Mean	Interval	Significant
8/12/2024	1	44.4	[0, 60.5116]	FALSE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW4

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	3/4/2021	143
	9/27/2021	143
	3/25/2022	158
	9/21/2022	161
	4/17/2023	174
	9/11/2023	160
	3/25/2024	177

From 7 baseline samples

Baseline mean = 159.429

Baseline std Dev = 13.3274

For 1 recent sampling event(s)

Actual confidence level is $1.0 - (0.01/1) = 99\%$

t is Percentile of Student's T-Test $(0.99/1) = 0.99$

Degrees of Freedom = 7 (background observations) - 1

$t(0.99, 6) = 3.14267$

Date	Samples	Mean	Interval	Significant
7/23/2024	1	234	[0, 204.204]	TRUE

Parametric Prediction Interval Analysis

Intra-Well Comparison for MW5

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Intra-Well Unified Guid. Formula 99% One-Sided Comparison

Baseline Samples	Date	Result
	3/11/2021	19.7
	9/30/2021	20.2
	4/1/2022	18.1
	9/30/2022	18.5
	5/2/2023	24.7
	9/18/2023	20.8
	3/11/2024	22

From 7 baseline samples

Baseline mean = 20.5714

Baseline std Dev = 2.25219

For 1 recent sampling event(s)

Actual confidence level is 1.0 - (0.01/1) = 99 %

t is Percentile of Student's T-Test (0.99/1) = 0.99

Degrees of Freedom = 7 (background observations) - 1

t(0.99, 6) = 3.14267

Date	Samples	Mean	Interval	Significant
8/19/2024	1	23.3	[0, 28.138]	FALSE

Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Aluminum, total

Location: MW2

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
MW3	3/8/2021	ND<0.05	8
	10/5/2021	ND<0.05	8
	4/8/2022	ND<0.05	8
	9/26/2022	ND<0.05	8
	5/9/2023	ND<0.05	8
	9/1/2023	ND<0.05	8
	2/27/2024	ND<0.05	8
	8/12/2024	ND<0.05	8
MW2	3/1/2021	0.165	16
	9/20/2021	ND<0.05	8
	3/18/2022	ND<0.05	8
	9/16/2022	ND<0.05	8
	4/25/2023	ND<0.05	8
	9/25/2023	ND<0.05	8
	3/18/2024	ND<0.05	8
	8/5/2024	ND<0.05	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: Ammonia Nitrogen

Location: MW5

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
MW3	3/8/2021	ND<0.5	7.5
	10/5/2021	ND<0.5	7.5
	4/8/2022	ND<0.5	7.5
	9/26/2022	ND<0.5	7.5
	5/9/2023	ND<0.5	7.5
	9/1/2023	ND<0.5	7.5
	2/27/2024	ND<0.5	7.5
	8/12/2024	ND<0.5	7.5
MW5	3/11/2021	ND<0.5	7.5
	9/30/2021	ND<0.5	7.5
	4/1/2022	ND<0.5	7.5
	9/30/2022	0.529	16
	5/2/2023	ND<0.5	7.5
	9/18/2023	ND<0.5	7.5
	3/11/2024	ND<0.5	7.5
	8/19/2024	0.508	15

The Wilcoxon Statistic is 40

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 0.787658

The Standard Deviation adjusted for ties is 5.47723

The Z Score adjusted for ties is 1.36931

0.787658 < 2.326 indicating no statistical significance at 1% level

1.36931 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Barium

Location: MW4

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total non detects is 0

Non detect rank is 7.5

Wilcoxon Ranks

Location	Date	Conc.	Rank
MW3	3/8/2021	0.264	10
	10/5/2021	0.229	9
	4/8/2022	0.295	13
	9/26/2022	0.282	12
	5/9/2023	0.32	14
	9/1/2023	0.325	16
	2/27/2024	0.267	11
	8/12/2024	0.32	15
MW4	3/4/2021	0.12	3
	9/27/2021	0.188	8
	3/25/2022	0.125	4
	9/21/2022	0.129	6
	4/17/2023	0.125	5
	9/11/2023	0.135	7
	3/25/2024	0.112	1
	7/23/2024	0.118	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: Boron

Location: MW4

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
MW3	3/8/2021	ND<0.1	8
	10/5/2021	ND<0.1	8
	4/8/2022	ND<0.1	8
	9/26/2022	ND<0.1	8
	5/9/2023	ND<0.1	8
	9/1/2023	ND<0.1	8
	2/27/2024	ND<0.1	8
	8/12/2024	ND<0.1	8
MW4	3/4/2021	0.106	16
	9/27/2021	ND<0.1	8
	3/25/2022	ND<0.1	8
	9/21/2022	ND<0.1	8
	4/17/2023	ND<0.1	8
	9/11/2023	ND<0.1	8
	3/25/2024	ND<0.1	8
	7/23/2024	ND<0.1	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: Chloride

Location: MW2

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
MW3	3/8/2021	23.5	9
	10/5/2021	48.3	10
	4/8/2022	60.4	11
	9/26/2022	61.4	12
	5/9/2023	136	15
	9/1/2023	107	13
	2/27/2024	141	16
	8/12/2024	114	14
MW2	3/1/2021	5.66	6
	9/20/2021	ND<5	3
	3/18/2022	ND<5	3
	9/16/2022	ND<5	3
	4/25/2023	ND<5	3
	9/25/2023	5.99	7
	3/18/2024	ND<5	3
	8/5/2024	7.68	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 9.38083

The Z Score adjusted for ties is -3.46451

-3.41318 < 2.326 indicating no statistical significance at 1% level

-3.46451 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Chloride

Location: MW4

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
MW3	3/8/2021	23.5	9
	10/5/2021	48.3	10
	4/8/2022	60.4	11
	9/26/2022	61.4	12
	5/9/2023	136	15
	9/1/2023	107	13
	2/27/2024	141	16
	8/12/2024	114	14
MW4	3/4/2021	ND<5	4
	9/27/2021	ND<5	4
	3/25/2022	ND<5	4
	9/21/2022	ND<5	4
	4/17/2023	ND<5	4
	9/11/2023	ND<5	4
	3/25/2024	ND<5	4
	7/23/2024	5.92	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 9.1214

The Z Score adjusted for ties is -3.56305

-3.41318 < 2.326 indicating no statistical significance at 1% level

-3.56305 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cobalt

Location: MW1

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
MW3	3/8/2021	ND<0.0005	7
	10/5/2021	ND<0.0005	7
	4/8/2022	ND<0.0005	7
	9/26/2022	ND<0.0005	7
	5/9/2023	0.000731	14
	9/1/2023	ND<0.0005	7
	2/27/2024	ND<0.0005	7
	8/12/2024	ND<0.0005	7
MW1	2/26/2021	0.00117	16
	9/17/2021	ND<0.0005	7
	3/11/2022	ND<0.0005	7
	9/12/2022	ND<0.0005	7
	4/11/2023	ND<0.0005	7
	9/29/2023	ND<0.0005	7
	3/4/2024	ND<0.0005	7
	7/29/2024	0.000752	15

The Wilcoxon Statistic is 37

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 0.472595

The Standard Deviation adjusted for ties is 6.49102

The Z Score adjusted for ties is 0.693266

0.472595 < 2.326 indicating no statistical significance at 1% level

0.693266 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cobalt

Location: MW2

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
MW3	3/8/2021	ND<0.0005	6
	10/5/2021	ND<0.0005	6
	4/8/2022	ND<0.0005	6
	9/26/2022	ND<0.0005	6
	5/9/2023	0.000731	12
	9/1/2023	ND<0.0005	6
	2/27/2024	ND<0.0005	6
	8/12/2024	ND<0.0005	6
MW2	3/1/2021	ND<0.0005	6
	9/20/2021	0.00404	16
	3/18/2022	0.00254	15
	9/16/2022	0.000769	13
	4/25/2023	0.00109	14
	9/25/2023	ND<0.0005	6
	3/18/2024	ND<0.0005	6
	8/5/2024	ND<0.0005	6

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 7.83156

The Z Score adjusted for ties is 1.72379

1.41778 < 2.326 indicating no statistical significance at 1% level

1.72379 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

Poisson Prediction Limit (Intra-Well Comparison)

Parameter: Cobalt

Well: MW3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Baseline Samples = 7

Recent Dates = 1

Baseline Samples	Date	Conc.	Cum Sum
	3/8/2021	ND<0.0005	0.0005
	10/5/2021	ND<0.0005	0.001
	4/8/2022	ND<0.0005	0.0015
	9/26/2022	ND<0.0005	0.002
	5/9/2023	0.000731	0.002731
	9/1/2023	ND<0.0005	0.003231
	2/27/2024	ND<0.0005	0.003731

Poisson Count of 7 baseline Samples = 0.003731

99% t-test = 3.14267

95% t-test = 1.94318

Comparison Samples

Date	Conc.	Sum.	Samples	Cum. Sum
8/12/2024	ND<0.0005	0.0005	1	0.0005

Number of comparisons = 1

Future Samples (k) = 1

c = 0.142857

99% Prediction Limit (Tk) = 1.41569

95% Prediction Limit (Tk) = 0.544186

Samples	Sum	95% SSI	99% SSI
1	0.0005	FALSE	FALSE

Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Cobalt

Location: MW5

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
MW3	3/8/2021	ND<0.0005	7.5
	10/5/2021	ND<0.0005	7.5
	4/8/2022	ND<0.0005	7.5
	9/26/2022	ND<0.0005	7.5
	5/9/2023	0.000731	15
	9/1/2023	ND<0.0005	7.5
	2/27/2024	ND<0.0005	7.5
	8/12/2024	ND<0.0005	7.5
MW5	3/11/2021	ND<0.0005	7.5
	9/30/2021	ND<0.0005	7.5
	4/1/2022	ND<0.0005	7.5
	9/30/2022	ND<0.0005	7.5
	5/2/2023	ND<0.0005	7.5
	9/18/2023	ND<0.0005	7.5
	3/11/2024	0.00211	16
	8/19/2024	ND<0.0005	7.5

The Wilcoxon Statistic is 32.5

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is 0

The Standard Deviation adjusted for ties is 5.47723

The Z Score adjusted for ties is 0

0 < 2.326 indicating no statistical significance at 1% level

0 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Fluoride

Location: MW1

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
MW3	3/8/2021	1	16
	10/5/2021	ND<0.5	7
	4/8/2022	ND<0.5	7
	9/26/2022	ND<0.5	7
	5/9/2023	ND<1	7
	9/1/2023	ND<1	7
	2/27/2024	ND<1	7
	8/12/2024	0.279	14
MW1	2/26/2021	0.709	15
	9/17/2021	ND<0.5	7
	3/11/2022	ND<0.5	7
	9/12/2022	ND<0.5	7
	4/11/2023	ND<1	7
	9/29/2023	ND<1	7
	3/4/2024	ND<1	7
	7/29/2024	ND<1	7

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 6.49102

The Z Score adjusted for ties is -0.693266

-0.472595 < 2.326 indicating no statistical significance at 1% level

-0.693266 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Fluoride

Location: MW4

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
MW3	3/8/2021	1	15
	10/5/2021	ND<0.5	7
	4/8/2022	ND<0.5	7
	9/26/2022	ND<0.5	7
	5/9/2023	ND<1	7
	9/1/2023	ND<1	7
	2/27/2024	ND<1	7
	8/12/2024	0.279	14
MW4	3/4/2021	1.04	16
	9/27/2021	ND<0.5	7
	3/25/2022	ND<0.5	7
	9/21/2022	ND<0.5	7
	4/17/2023	ND<1	7
	9/11/2023	ND<1	7
	3/25/2024	ND<1	7
	7/23/2024	ND<1	7

The Wilcoxon Statistic is 29

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -0.367574

The Standard Deviation adjusted for ties is 6.49102

The Z Score adjusted for ties is -0.539207

-0.367574 < 2.326 indicating no statistical significance at 1% level

-0.539207 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Formaldehyde

Location: MW1

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
MW3	3/8/2021	ND<10	7
	10/5/2021	55.4	16
	4/8/2022	13.8	15
	9/26/2022	ND<10	7
	5/9/2023	ND<10	7
	9/1/2023	ND<10	7
	2/27/2024	ND<10	7
	8/12/2024	ND<10	7
MW1	2/26/2021	ND<10	7
	9/17/2021	ND<10	7
	3/11/2022	ND<10	7
	9/12/2022	12	14
	4/11/2023	ND<10	7
	9/29/2023	ND<10	7
	3/4/2024	ND<10	7
	7/29/2024	ND<10	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

Poisson Prediction Limit (Intra-Well Comparison)

Parameter: Formaldehyde

Well: MW3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Baseline Samples = 7

Recent Dates = 1

Baseline Samples	Date	Conc.	Cum Sum
	3/8/2021	ND<10	10
	10/5/2021	55.4	65.4
	4/8/2022	13.8	79.2
	9/26/2022	ND<10	89.2
	5/9/2023	ND<10	99.2
	9/1/2023	ND<10	109.2
	2/27/2024	ND<10	119.2

Poisson Count of 7 baseline Samples = 119.2

99% t-test = 3.14267

95% t-test = 1.94318

Comparison Samples

Date	Conc.	Sum.	Samples	Cum. Sum
8/12/2024	ND<10	10	1	10

Number of comparisons = 1

Future Samples (k) = 1

c = 0.142857

99% Prediction Limit (Tk) = 31.6158

95% Prediction Limit (Tk) = 25.8748

Samples	Sum	95% SSI	99% SSI
1	10	FALSE	FALSE

Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Total Organic Halogens, Halides

Location: MW1

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
MW3	3/8/2021	ND<0.04	6
	10/5/2021	ND<0.04	6
	4/8/2022	ND<0.04	6
	9/26/2022	0.0667	14
	5/9/2023	ND<0.04	6
	9/1/2023	0.0861	15
	2/27/2024	ND<0.04	6
	8/12/2024	0.138	16
MW1	2/26/2021	ND<0.04	6
	9/17/2021	ND<0.04	6
	3/11/2022	ND<0.04	6
	9/12/2022	0.0492	13
	4/11/2023	ND<0.04	6
	9/29/2023	ND<0.04	6
	3/4/2024	ND<0.04	6
	7/29/2024	0.0458	12

The Wilcoxon Statistic is 25

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -0.787658

The Standard Deviation adjusted for ties is 7.83156

The Z Score adjusted for ties is -0.957664

-0.787658 < 2.326 indicating no statistical significance at 1% level

-0.957664 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Total Organic Halogens, Halides

Location: MW2

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
MW3	3/8/2021	ND<0.04	6
	10/5/2021	ND<0.04	6
	4/8/2022	ND<0.04	6
	9/26/2022	0.0667	13
	5/9/2023	ND<0.04	6
	9/1/2023	0.0861	14
	2/27/2024	ND<0.04	6
	8/12/2024	0.138	16
MW2	3/1/2021	ND<0.04	6
	9/20/2021	ND<0.04	6
	3/18/2022	ND<0.04	6
	9/16/2022	0.119	15
	4/25/2023	ND<0.04	6
	9/25/2023	ND<0.04	6
	3/18/2024	ND<0.04	6
	8/5/2024	0.0411	12

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 7.83156

The Z Score adjusted for ties is -0.702287

-0.577616 < 2.326 indicating no statistical significance at 1% level

-0.702287 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

Poisson Prediction Limit (Intra-Well Comparison)

Parameter: Total Organic Halogens, Halides

Well: MW3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Baseline Samples = 7

Recent Dates = 1

Baseline Samples	Date	Conc.	Cum Sum
	3/8/2021	ND<0.04	0.04
	10/5/2021	ND<0.04	0.08
	4/8/2022	ND<0.04	0.12
	9/26/2022	0.0667	0.1867
	5/9/2023	ND<0.04	0.2267
	9/1/2023	0.0861	0.3128
	2/27/2024	ND<0.04	0.3528

Poisson Count of 7 baseline Samples = 0.3528

99% t-test = 3.14267

95% t-test = 1.94318

Comparison Samples

Date	Conc.	Sum.	Samples	Cum. Sum
8/12/2024	0.138	0.138	1	0.138

Number of comparisons = 1

Future Samples (k) = 1

c = 0.142857

99% Prediction Limit (Tk) = 1.78859

95% Prediction Limit (Tk) = 0.858849

Samples	Sum	95% SSI	99% SSI
1	0.138	FALSE	FALSE

Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Total Organic Halogens, Halides

Location: MW4

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
MW3	3/8/2021	ND<0.04	6
	10/5/2021	ND<0.04	6
	4/8/2022	ND<0.04	6
	9/26/2022	0.0667	12
	5/9/2023	ND<0.04	6
	9/1/2023	0.0861	15
	2/27/2024	ND<0.04	6
	8/12/2024	0.138	16
MW4	3/4/2021	ND<0.04	6
	9/27/2021	ND<0.04	6
	3/25/2022	ND<0.04	6
	9/21/2022	0.0688	13
	4/17/2023	ND<0.04	6
	9/11/2023	ND<0.04	6
	3/25/2024	0.0808	14
	7/23/2024	ND<0.04	6

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 7.83156

The Z Score adjusted for ties is -0.702287

-0.577616 < 2.326 indicating no statistical significance at 1% level

-0.702287 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Total Organic Halogens, Halides

Location: MW5

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
MW3	3/8/2021	ND<0.04	6.5
	10/5/2021	ND<0.04	6.5
	4/8/2022	ND<0.04	6.5
	9/26/2022	0.0667	13
	5/9/2023	ND<0.04	6.5
	9/1/2023	0.0861	14
	2/27/2024	ND<0.04	6.5
	8/12/2024	0.138	15
MW5	3/11/2021	ND<0.04	6.5
	9/30/2021	ND<0.04	6.5
	4/1/2022	ND<0.04	6.5
	9/30/2022	0.757	16
	5/2/2023	ND<0.04	6.5
	9/18/2023	ND<0.04	6.5
	3/11/2024	ND<0.04	6.5
	8/19/2024	ND<0.04	6.5

The Wilcoxon Statistic is 25.5

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

Poisson Prediction Limit (Intra-Well Comparison)

Parameter: Manganese

Well: MW3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Baseline Samples = 7

Recent Dates = 1

Baseline Samples	Date	Conc.	Cum Sum
	3/8/2021	ND<0.01	0.01
	10/5/2021	ND<0.01	0.02
	4/8/2022	ND<0.01	0.03
	9/26/2022	ND<0.01	0.04
	5/9/2023	0.0303	0.0703
	9/1/2023	ND<0.01	0.0803
	2/27/2024	ND<0.01	0.0903

Poisson Count of 7 baseline Samples = 0.0903

99% t-test = 3.14267

95% t-test = 1.94318

Comparison Samples

Date	Conc.	Sum.	Samples	Cum. Sum
8/12/2024	ND<0.01	0.01	1	0.01

Number of comparisons = 1

Future Samples (k) = 1

c = 0.142857

99% Prediction Limit (Tk) = 1.5204

95% Prediction Limit (Tk) = 0.640957

Samples	Sum	95% SSI	99% SSI
1	0.01	FALSE	FALSE

Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Molybdenum

Location: MW5

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
MW3	3/8/2021	0.00315	12
	10/5/2021	0.0032	13
	4/8/2022	0.00284	10
	9/26/2022	0.00397	15
	5/9/2023	0.00557	16
	9/1/2023	0.0035	14
	2/27/2024	0.00296	11
	8/12/2024	0.00213	8
MW5	3/11/2021	ND<0.002	4
	9/30/2021	ND<0.002	4
	4/1/2022	ND<0.002	4
	9/30/2022	ND<0.002	4
	5/2/2023	0.00266	9
	9/18/2023	ND<0.002	4
	3/11/2024	ND<0.002	4
	8/19/2024	ND<0.002	4

The Wilcoxon Statistic is 1

The Expected value is 32

The Standard Deviation is 9.5219

The Z Score is -3.30816

The Standard Deviation adjusted for ties is 9.1214

The Z Score adjusted for ties is -3.45342

-3.30816 < 2.326 indicating no statistical significance at 1% level

-3.45342 < 2.326 indicating no statistical significance at 1% level when adjusted for ties

Wilcoxon Non-Parametric Analysis (Inter-Well)

Parameter: Zinc

Location: MW1

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
MW3	3/8/2021	ND<0.02	8
	10/5/2021	ND<0.02	8
	4/8/2022	ND<0.02	8
	9/26/2022	ND<0.02	8
	5/9/2023	ND<0.02	8
	9/1/2023	ND<0.02	8
	2/27/2024	ND<0.02	8
	8/12/2024	ND<0.02	8
MW1	2/26/2021	0.0633	16
	9/17/2021	ND<0.02	8
	3/11/2022	ND<0.02	8
	9/12/2022	ND<0.02	8
	4/11/2023	ND<0.02	8
	9/29/2023	ND<0.02	8
	3/4/2024	ND<0.02	8
	7/29/2024	ND<0.02	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

Location: MW2

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
MW3	3/8/2021	ND<0.02	8
	10/5/2021	ND<0.02	8
	4/8/2022	ND<0.02	8
	9/26/2022	ND<0.02	8
	5/9/2023	ND<0.02	8
	9/1/2023	ND<0.02	8
	2/27/2024	ND<0.02	8
	8/12/2024	ND<0.02	8
MW2	3/1/2021	0.571	16
	9/20/2021	ND<0.02	8
	3/18/2022	ND<0.02	8
	9/16/2022	ND<0.02	8
	4/25/2023	ND<0.02	8
	9/25/2023	ND<0.02	8
	3/18/2024	ND<0.02	8
	8/5/2024	ND<0.02	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

Location: MW4

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
MW3	3/8/2021	ND<0.02	8
	10/5/2021	ND<0.02	8
	4/8/2022	ND<0.02	8
	9/26/2022	ND<0.02	8
	5/9/2023	ND<0.02	8
	9/1/2023	ND<0.02	8
	2/27/2024	ND<0.02	8
	8/12/2024	ND<0.02	8
MW4	3/4/2021	0.0218	16
	9/27/2021	ND<0.02	8
	3/25/2022	ND<0.02	8
	9/21/2022	ND<0.02	8
	4/17/2023	ND<0.02	8
	9/11/2023	ND<0.02	8
	3/25/2024	ND<0.02	8
	7/23/2024	ND<0.02	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

APPENDIX F

Laboratory Analytical Reports



ANALYTICAL REPORT

PREPARED FOR

Attn: Edward Bertch
EB Solutions, Inc
5060 4th St. SW
Cedar Rapids, Iowa 52404

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JOB DESCRIPTION

Crawford Project

JOB NUMBER

310-275812-1

Eurofins Cedar Falls

Job Notes

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

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

Authorization



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Case Narrative

Client: EB Solutions, Inc
Project: Crawford Project

Job ID: 310-275812-1

Job ID: 310-275812-1

Eurofins Cedar Falls

Job Narrative 310-275812-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The sample was received on 2/29/2024 9:00 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.2°C.

GC/MS VOA

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

HPLC/IC

Method 9056A_ORGFM_28D: The following sample was diluted due to the nature of the sample matrix: MW3 (310-275812-1). Elevated reporting limits (RLs) are provided.

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

Metals

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

General Chemistry

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

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Sample Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-275812-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-275812-1	MW3	Water	02/27/24 10:06	02/29/24 09:00

1

2

3

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14

15

Detection Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-275812-1

Client Sample ID: MW3

Lab Sample ID: 310-275812-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	141		5.00		mg/L	5		9056A	Total/NA
Sulfate	39.7		5.00		mg/L	5		9056A	Total/NA
Barium	0.267	F1	0.00200		mg/L	1		6020B	Total/NA
Molybdenum	0.00296		0.00200		mg/L	1		6020B	Dissolved
Chemical Oxygen Demand	99.2		25.0		mg/L	5		SM 5220D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

1

2

3

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15

Client Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-275812-1

Client Sample ID: MW3

Lab Sample ID: 310-275812-1

Date Collected: 02/27/24 10:06

Matrix: Water

Date Received: 02/29/24 09:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			03/01/24 12:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		80 - 120					03/01/24 12:40	1
Dibromofluoromethane (Surr)	97		73 - 130					03/01/24 12:40	1
Toluene-d8 (Surr)	100		80 - 120					03/01/24 12:40	1

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	141		5.00		mg/L			03/13/24 17:40	5
Fluoride	<1.00		1.00		mg/L			03/13/24 17:40	5
Sulfate	39.7		5.00		mg/L			03/13/24 17:40	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		03/01/24 08:57	03/01/24 18:00	1
Barium	0.267	F1	0.00200		mg/L		03/01/24 08:57	03/01/24 18:00	1
Cadmium	<0.000200	F1	0.000200		mg/L		03/01/24 08:57	03/01/24 18:00	1
Manganese	<0.0100		0.0100		mg/L		03/01/24 08:57	03/01/24 18:00	1
Zinc	<0.0200		0.0200		mg/L		03/01/24 08:57	03/01/24 18:00	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/01/24 09:14	03/07/24 12:30	1
Arsenic	<0.00200		0.00200		mg/L		03/01/24 09:14	03/07/24 12:30	1
Boron	<0.100		0.100		mg/L		03/01/24 09:14	03/11/24 14:08	1
Cobalt	<0.000500		0.000500		mg/L		03/01/24 09:14	03/07/24 12:30	1
Iron	<0.100		0.100		mg/L		03/01/24 09:14	03/07/24 12:30	1
Manganese	<0.0100		0.0100		mg/L		03/01/24 09:14	03/07/24 12:30	1
Molybdenum	0.00296		0.00200		mg/L		03/01/24 09:14	03/07/24 12:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	<0.500		0.500		mg/L		03/08/24 09:12	03/08/24 20:23	1
Halogens, Total Organic (SW846 9020B)	<40.0		40.0		ug/L		03/11/24 11:49	03/11/24 15:52	1
Phenols, Total (SW846 9066)	<0.0200		0.0200		mg/L		03/04/24 09:34	03/04/24 17:50	1
Total Suspended Solids (USGS I-3765-85)	<1.88		1.88		mg/L			02/29/24 17:22	1
Chemical Oxygen Demand (SM 5220D)	99.2		25.0		mg/L			03/08/24 08:33	5

Definitions/Glossary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-275812-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.

Glossary

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

Surrogate Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-275812-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	DBFM	TOL
		(80-120)	(73-130)	(80-120)
310-275812-1	MW3	102	97	100
LCS 310-414993/6	Lab Control Sample	101	99	100
MB 310-414993/5	Method Blank	104	94	100

Surrogate Legend

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

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-275812-1

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

Lab Sample ID: MB 310-414993/5
Matrix: Water
Analysis Batch: 414993

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			03/01/24 10:43	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		80 - 120					03/01/24 10:43	1
Dibromofluoromethane (Surr)	94		73 - 130					03/01/24 10:43	1
Toluene-d8 (Surr)	100		80 - 120					03/01/24 10:43	1

Lab Sample ID: LCS 310-414993/6
Matrix: Water
Analysis Batch: 414993

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2-Butanone (MEK)	40.0	39.63		ug/L		99	50 - 150
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	101		80 - 120				
Dibromofluoromethane (Surr)	99		73 - 130				
Toluene-d8 (Surr)	100		80 - 120				

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-416026/3
Matrix: Water
Analysis Batch: 416026

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			03/13/24 17:14	1
Fluoride	<0.200		0.200		mg/L			03/13/24 17:14	1
Sulfate	<1.00		1.00		mg/L			03/13/24 17:14	1

Lab Sample ID: LCS 310-416026/4
Matrix: Water
Analysis Batch: 416026

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.986		mg/L		100	90 - 110
Fluoride	2.00	2.086		mg/L		104	90 - 110
Sulfate	10.0	10.45		mg/L		104	90 - 110

Lab Sample ID: 310-275812-1 MS
Matrix: Water
Analysis Batch: 416026

Client Sample ID: MW3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	141		25.0	161.8	4	mg/L		84	80 - 120
Fluoride	<1.00		5.00	5.427		mg/L		109	80 - 120
Sulfate	39.7		25.0	64.61		mg/L		100	80 - 120

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QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-275812-1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: 310-275812-1 MSD
Matrix: Water
Analysis Batch: 416026

Client Sample ID: MW3
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Chloride	141		25.0	161.9	4	mg/L		84	80 - 120	0	15
Fluoride	<1.00		5.00	5.442		mg/L		109	80 - 120	0	15
Sulfate	39.7		25.0	64.80		mg/L		100	80 - 120	0	15

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-414978/1-A
Matrix: Water
Analysis Batch: 415067

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 414978

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil	Fac
	Result	Qualifier								
Aluminum	<0.0500		0.0500		mg/L		03/01/24 08:57	03/01/24 17:55	1	
Barium	<0.00200		0.00200		mg/L		03/01/24 08:57	03/01/24 17:55	1	
Cadmium	<0.000200		0.000200		mg/L		03/01/24 08:57	03/01/24 17:55	1	
Manganese	<0.0100		0.0100		mg/L		03/01/24 08:57	03/01/24 17:55	1	
Zinc	<0.0200		0.0200		mg/L		03/01/24 08:57	03/01/24 17:55	1	

Lab Sample ID: LCS 310-414978/2-A
Matrix: Water
Analysis Batch: 415067

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 414978

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec
							Added
Aluminum	0.200	0.1813		mg/L		91	80 - 120
Barium	0.100	0.08546		mg/L		85	80 - 120
Cadmium	0.100	0.08387		mg/L		84	80 - 120
Manganese	0.100	0.09190		mg/L		92	80 - 120
Zinc	0.200	0.1751		mg/L		88	80 - 120

Lab Sample ID: 310-275812-1 MS
Matrix: Water
Analysis Batch: 415067

Client Sample ID: MW3
Prep Type: Total/NA
Prep Batch: 414978

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier	Added	Result	Qualifier				Limits
Aluminum	<0.0500		0.200	0.1690		mg/L		85	75 - 125
Cadmium	<0.000200	F1	0.100	0.07594		mg/L		76	75 - 125
Manganese	<0.0100		0.100	0.08250		mg/L		82	75 - 125
Zinc	<0.0200		0.200	0.1584		mg/L		79	75 - 125

Lab Sample ID: 310-275812-1 MS
Matrix: Water
Analysis Batch: 415135

Client Sample ID: MW3
Prep Type: Total/NA
Prep Batch: 414978

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier	Added	Result	Qualifier				Limits
Barium	0.346		0.100	0.4505		mg/L		105	75 - 125

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-275812-1

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

Lab Sample ID: 310-275812-1 MSD
Matrix: Water
Analysis Batch: 415067

Client Sample ID: MW3
Prep Type: Total/NA
Prep Batch: 414978

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
Aluminum	<0.0500		0.200	0.1639		mg/L		82	75 - 125	3	20
Cadmium	<0.000200	F1	0.100	0.07436	F1	mg/L		74	75 - 125	2	20
Manganese	<0.0100		0.100	0.08179		mg/L		82	75 - 125	1	20
Zinc	<0.0200		0.200	0.1582		mg/L		79	75 - 125	0	20

Lab Sample ID: 310-275812-1 MSD
Matrix: Water
Analysis Batch: 415135

Client Sample ID: MW3
Prep Type: Total/NA
Prep Batch: 414978

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
Barium	0.346		0.100	0.4511		mg/L		105	75 - 125	0	20

Lab Sample ID: MB 310-414898/1-B
Matrix: Water
Analysis Batch: 415450

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 414983

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Antimony	<0.00200		0.00200		mg/L		03/01/24 09:14	03/07/24 12:25	1
Arsenic	<0.00200		0.00200		mg/L		03/01/24 09:14	03/07/24 12:25	1
Cobalt	<0.000500		0.000500		mg/L		03/01/24 09:14	03/07/24 12:25	1
Iron	<0.100		0.100		mg/L		03/01/24 09:14	03/07/24 12:25	1
Manganese	<0.0100		0.0100		mg/L		03/01/24 09:14	03/07/24 12:25	1
Molybdenum	<0.00200		0.00200		mg/L		03/01/24 09:14	03/07/24 12:25	1

Lab Sample ID: MB 310-414898/1-B
Matrix: Water
Analysis Batch: 415700

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 414983

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Boron	<0.100		0.100		mg/L		03/01/24 09:14	03/11/24 14:02	1

Lab Sample ID: LCS 310-414898/2-B
Matrix: Water
Analysis Batch: 415450

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 414983

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Antimony	0.200	0.2224		mg/L		111	80 - 120
Arsenic	0.200	0.2198		mg/L		110	80 - 120
Cobalt	0.100	0.1029		mg/L		103	80 - 120
Iron	0.200	0.2251		mg/L		113	80 - 120
Manganese	0.100	0.09873		mg/L		99	80 - 120
Molybdenum	0.200	0.2019		mg/L		101	80 - 120

Lab Sample ID: LCS 310-414898/2-B
Matrix: Water
Analysis Batch: 415700

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 414983

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Boron	0.200	0.1832		mg/L		92	80 - 120

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-275812-1

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

Lab Sample ID: 310-275812-1 MS
Matrix: Water
Analysis Batch: 415450

Client Sample ID: MW3
Prep Type: Dissolved
Prep Batch: 414983

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	
	Result	Qualifier	Added	Result	Qualifier				Limits	
Antimony	<0.00200		0.200	0.2232		mg/L		112	75 - 125	
Arsenic	<0.00200		0.200	0.2230		mg/L		111	75 - 125	
Cobalt	<0.000500		0.100	0.1027		mg/L		103	75 - 125	
Iron	<0.100		0.200	0.1990		mg/L		100	75 - 125	
Manganese	<0.0100		0.100	0.1023		mg/L		102	75 - 125	
Molybdenum	0.00296		0.200	0.2167		mg/L		107	75 - 125	

Lab Sample ID: 310-275812-1 MS
Matrix: Water
Analysis Batch: 415700

Client Sample ID: MW3
Prep Type: Dissolved
Prep Batch: 414983

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	
	Result	Qualifier	Added	Result	Qualifier				Limits	
Boron	<0.100		0.200	0.2131		mg/L		107	75 - 125	

Lab Sample ID: 310-275812-1 MSD
Matrix: Water
Analysis Batch: 415450

Client Sample ID: MW3
Prep Type: Dissolved
Prep Batch: 414983

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec		RPD	
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD	Limit	
Antimony	<0.00200		0.200	0.2248		mg/L		112	75 - 125	1	20	
Arsenic	<0.00200		0.200	0.2242		mg/L		112	75 - 125	1	20	
Cobalt	<0.000500		0.100	0.1030		mg/L		103	75 - 125	0	20	
Iron	<0.100		0.200	0.2055		mg/L		103	75 - 125	3	20	
Manganese	<0.0100		0.100	0.1051		mg/L		105	75 - 125	3	20	
Molybdenum	0.00296		0.200	0.2166		mg/L		107	75 - 125	0	20	

Lab Sample ID: 310-275812-1 MSD
Matrix: Water
Analysis Batch: 415700

Client Sample ID: MW3
Prep Type: Dissolved
Prep Batch: 414983

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec		RPD	
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD	Limit	
Boron	<0.100		0.200	0.2200		mg/L		110	75 - 125	3	20	

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-415535/1-A
Matrix: Water
Analysis Batch: 415606

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 415535

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Ammonia as N	<0.500		0.500		mg/L		03/08/24 09:12	03/08/24 20:04	1

Lab Sample ID: LCS 310-415535/2-A
Matrix: Water
Analysis Batch: 415606

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 415535

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec	
	Added	Result	Qualifier				Limits	
Ammonia as N	4.00	3.932		mg/L		98	90 - 110	

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QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-275812-1

Method: 9020B - Organic Halides, Total (TOX)

Lab Sample ID: MB 680-827091/1-A
Matrix: Water
Analysis Batch: 827102

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 827091

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	<40.0		40.0		ug/L		03/11/24 11:49	03/11/24 13:42	1

Lab Sample ID: LCS 680-827091/2-A
Matrix: Water
Analysis Batch: 827102

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 827091

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	400	359.6		ug/L		90	60 - 140

Lab Sample ID: 310-275812-1 MS
Matrix: Water
Analysis Batch: 827102

Client Sample ID: MW3
Prep Type: Total/NA
Prep Batch: 827091

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	<40.0		400	428.5		ug/L		98	60 - 140

Lab Sample ID: 310-275812-1 MSD
Matrix: Water
Analysis Batch: 827102

Client Sample ID: MW3
Prep Type: Total/NA
Prep Batch: 827091

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Halogens, Total Organic	<40.0		400	430.2		ug/L		99	60 - 140	0	40

Method: 9066 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-415080/1-A
Matrix: Water
Analysis Batch: 415137

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 415080

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0184		0.0184		mg/L		03/04/24 09:34	03/04/24 17:46	1

Lab Sample ID: LCS 310-415080/2-A
Matrix: Water
Analysis Batch: 415137

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 415080

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total	0.100	0.1016		mg/L		102	90 - 110

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

Lab Sample ID: MB 310-414919/1
Matrix: Water
Analysis Batch: 414919

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00		mg/L			02/29/24 17:22	1

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
 Project/Site: Crawford Project

Job ID: 310-275812-1

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

Lab Sample ID: LCS 310-414919/2
 Matrix: Water
 Analysis Batch: 414919

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	84.00		mg/L		84	75 - 116

Method: SM 5220D - COD

Lab Sample ID: MB 310-415515/5
 Matrix: Water
 Analysis Batch: 415515

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	<5.00		5.00		mg/L			03/08/24 08:33	1

Lab Sample ID: LCS 310-415515/3
 Matrix: Water
 Analysis Batch: 415515

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	125	124.9		mg/L		100	85 - 115

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-275812-1

GC/MS VOA

Analysis Batch: 414993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-275812-1	MW3	Total/NA	Water	8260D	
MB 310-414993/5	Method Blank	Total/NA	Water	8260D	
LCS 310-414993/6	Lab Control Sample	Total/NA	Water	8260D	

HPLC/IC

Analysis Batch: 416026

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-275812-1	MW3	Total/NA	Water	9056A	
MB 310-416026/3	Method Blank	Total/NA	Water	9056A	
LCS 310-416026/4	Lab Control Sample	Total/NA	Water	9056A	
310-275812-1 MS	MW3	Total/NA	Water	9056A	
310-275812-1 MSD	MW3	Total/NA	Water	9056A	

Metals

Filtration Batch: 414898

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-275812-1	MW3	Dissolved	Water	Filtration	
MB 310-414898/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-414898/2-B	Lab Control Sample	Dissolved	Water	Filtration	
310-275812-1 MS	MW3	Dissolved	Water	Filtration	
310-275812-1 MSD	MW3	Dissolved	Water	Filtration	

Prep Batch: 414978

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-275812-1	MW3	Total/NA	Water	3005A	
MB 310-414978/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-414978/2-A	Lab Control Sample	Total/NA	Water	3005A	
310-275812-1 MS	MW3	Total/NA	Water	3005A	
310-275812-1 MSD	MW3	Total/NA	Water	3005A	

Prep Batch: 414983

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-275812-1	MW3	Dissolved	Water	3005A	414898
MB 310-414898/1-B	Method Blank	Dissolved	Water	3005A	414898
LCS 310-414898/2-B	Lab Control Sample	Dissolved	Water	3005A	414898
310-275812-1 MS	MW3	Dissolved	Water	3005A	414898
310-275812-1 MSD	MW3	Dissolved	Water	3005A	414898

Analysis Batch: 415067

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-275812-1	MW3	Total/NA	Water	6020B	414978
MB 310-414978/1-A	Method Blank	Total/NA	Water	6020B	414978
LCS 310-414978/2-A	Lab Control Sample	Total/NA	Water	6020B	414978
310-275812-1 MS	MW3	Total/NA	Water	6020B	414978
310-275812-1 MSD	MW3	Total/NA	Water	6020B	414978

Analysis Batch: 415135

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-275812-1 MS	MW3	Total/NA	Water	6020B	414978
310-275812-1 MSD	MW3	Total/NA	Water	6020B	414978

Eurofins Cedar Falls

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-275812-1

Metals

Analysis Batch: 415450

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-275812-1	MW3	Dissolved	Water	6020B	414983
MB 310-414898/1-B	Method Blank	Dissolved	Water	6020B	414983
LCS 310-414898/2-B	Lab Control Sample	Dissolved	Water	6020B	414983
310-275812-1 MS	MW3	Dissolved	Water	6020B	414983
310-275812-1 MSD	MW3	Dissolved	Water	6020B	414983

Analysis Batch: 415700

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-275812-1	MW3	Dissolved	Water	6020B	414983
MB 310-414898/1-B	Method Blank	Dissolved	Water	6020B	414983
LCS 310-414898/2-B	Lab Control Sample	Dissolved	Water	6020B	414983
310-275812-1 MS	MW3	Dissolved	Water	6020B	414983
310-275812-1 MSD	MW3	Dissolved	Water	6020B	414983

General Chemistry

Analysis Batch: 414919

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-275812-1	MW3	Total/NA	Water	I-3765-85	
MB 310-414919/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-414919/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Prep Batch: 415080

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-275812-1	MW3	Total/NA	Water	Distill/Phenol	
MB 310-415080/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-415080/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	

Analysis Batch: 415137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-275812-1	MW3	Total/NA	Water	9066	415080
MB 310-415080/1-A	Method Blank	Total/NA	Water	9066	415080
LCS 310-415080/2-A	Lab Control Sample	Total/NA	Water	9066	415080

Analysis Batch: 415515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-275812-1	MW3	Total/NA	Water	SM 5220D	
MB 310-415515/5	Method Blank	Total/NA	Water	SM 5220D	
LCS 310-415515/3	Lab Control Sample	Total/NA	Water	SM 5220D	

Prep Batch: 415535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-275812-1	MW3	Total/NA	Water	Distill/Ammonia	
MB 310-415535/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-415535/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 415606

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-275812-1	MW3	Total/NA	Water	350.1	415535
MB 310-415535/1-A	Method Blank	Total/NA	Water	350.1	415535
LCS 310-415535/2-A	Lab Control Sample	Total/NA	Water	350.1	415535

Eurofins Cedar Falls

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-275812-1

General Chemistry

Prep Batch: 827091

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-275812-1	MW3	Total/NA	Water	Carbon Trap	
MB 680-827091/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 680-827091/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	
310-275812-1 MS	MW3	Total/NA	Water	Carbon Trap	
310-275812-1 MSD	MW3	Total/NA	Water	Carbon Trap	

Analysis Batch: 827102

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-275812-1	MW3	Total/NA	Water	9020B	827091
MB 680-827091/1-A	Method Blank	Total/NA	Water	9020B	827091
LCS 680-827091/2-A	Lab Control Sample	Total/NA	Water	9020B	827091
310-275812-1 MS	MW3	Total/NA	Water	9020B	827091
310-275812-1 MSD	MW3	Total/NA	Water	9020B	827091

Lab Chronicle

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-275812-1

Client Sample ID: MW3

Lab Sample ID: 310-275812-1

Date Collected: 02/27/24 10:06

Matrix: Water

Date Received: 02/29/24 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	414993	WSE8	EET CF	03/01/24 12:40
Total/NA	Analysis	9056A		5	416026	QTZ5	EET CF	03/13/24 17:40
Dissolved	Filtration	Filtration			414898	DHM5	EET CF	02/29/24 14:54
Dissolved	Prep	3005A			414983	DHM5	EET CF	03/01/24 09:14
Dissolved	Analysis	6020B		1	415700	DHM5	EET CF	03/11/24 14:08
Dissolved	Filtration	Filtration			414898	DHM5	EET CF	02/29/24 14:54
Dissolved	Prep	3005A			414983	DHM5	EET CF	03/01/24 09:14
Dissolved	Analysis	6020B		1	415450	NFT2	EET CF	03/07/24 12:30
Total/NA	Prep	3005A			414978	DHM5	EET CF	03/01/24 08:57
Total/NA	Analysis	6020B		1	415067	A6US	EET CF	03/01/24 18:00
Total/NA	Prep	Distill/Ammonia			415535	A3GU	EET CF	03/08/24 09:12
Total/NA	Analysis	350.1		1	415606	ZJX4	EET CF	03/08/24 20:23
Total/NA	Prep	Carbon Trap			827091	CLJ	EET SAV	03/11/24 11:49
Total/NA	Analysis	9020B		1	827102	CLJ	EET SAV	03/11/24 15:52
Total/NA	Prep	Distill/Phenol			415080	ENB7	EET CF	03/04/24 09:34
Total/NA	Analysis	9066		1	415137	ZJX4	EET CF	03/04/24 17:50
Total/NA	Analysis	I-3765-85		1	414919	A4XP	EET CF	02/29/24 17:22
Total/NA	Analysis	SM 5220D		5	415515	ENB7	EET CF	03/08/24 08:33

Laboratory References:

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

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Accreditation/Certification Summary

Client: EB Solutions, Inc
 Project/Site: Crawford Project

Job ID: 310-275812-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-25

Laboratory: Eurofins Savannah

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

Authority	Program	Identification Number	Expiration Date
	AFCEE	SAVLAB	
Alabama	State	41450	06-30-24
ANAB	Dept. of Defense ELAP	L2463	09-22-24
Arkansas (DW)	State	GA00006	06-30-24
California	State	2939	06-30-24
Florida	NELAP	E87052	06-30-24
Georgia	State	E87052	06-30-24
Georgia (DW)	State	803	06-30-24
Guam	State	19-007R	04-17-24
Hawaii	State	<cert No.>	06-30-24
Illinois	NELAP	200022	11-30-24
Indiana	State	C-GA-02	06-30-24
Iowa	State	353	07-01-25
Kentucky (UST)	State	NA	06-30-24
Louisiana	NELAP	30690	06-30-24
Louisiana (All)	NELAP	30690	06-30-24
Louisiana (DW)	State	LA009	12-31-24
Maine	State	GA00006	09-25-24
Maryland	State	250	12-31-24
Massachusetts	State	M-GA006	06-30-24
Michigan	State	9925	06-30-24
Mississippi	State	<cert No.>	06-30-24
Nebraska	State	NE-OS-7-04	06-30-24
New Jersey	NELAP	GA769	06-30-24
New Mexico	State	GA00006	06-30-24
North Carolina (DW)	State	13701	07-31-24
North Carolina (WW/SW)	State	269	12-31-24
Pennsylvania	NELAP	68-00474	06-30-24
Puerto Rico	State	GA00006	01-01-25
South Carolina	State	98001	06-30-24
Tennessee	State	TN02961	06-30-24
Texas	NELAP	T1047004185	11-30-24
Texas	TCEQ Water Supply	T104704185	06-30-24
USDA	US Federal Programs	P330-18-00313	09-03-24
Virginia	NELAP	460161	06-14-24
Wyoming	State	8TMS-L	06-30-24

Method Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-275812-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
350.1	Nitrogen, Ammonia	EPA	EET CF
9020B	Organic Halides, Total (TOX)	SW846	EET SAV
9066	Phenolics, Total Recoverable	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
SM 5220D	COD	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
Carbon Trap	Carbon Trap Preparation	EPA-17	EET SAV
Distill/Ammonia	Distillation, Ammonia	None	EET CF
Distill/Phenol	Distillation, Phenolics	None	EET CF
Filtration	Sample Filtration	None	EET CF

Protocol References:

EPA = US Environmental Protection Agency

EPA-17 = "Method 1650, Revision A, Adsorbable Organic Halides By Adsorption And Colorimetric Titration," EPA, February 1992

None = None

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

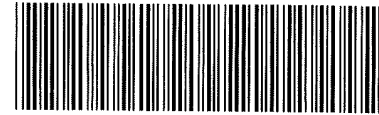
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

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

Laboratory References:

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

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858



Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>EB Solutions</u>			
City/State:	CITY	STATE	Project:
		<u>IA</u>	
Receipt Information			
Date/Time Received:	DATE	TIME	Received By:
	<u>2-29-24</u>	<u>900</u>	<u>MV</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee			
<input type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler ID: _____			
Multiple Coolers? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Cooler # _____ of _____			
Cooler Custody Seals Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Sample Custody Seals Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Trip Blank Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Which VOA samples are in cooler? ↓			
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>X</u>		Correction Factor (°C): <u>0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>2.2</u>		Corrected Temp (°C): <u>2.2</u>	
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g, bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

Chain of Custody Record

Client Information Client Contact: Edward Bertch Company: EB Solutions, Inc. Address: 5060 4th St. SW City: Cedar Rapids State, Zip: IA, 52404 Phone: _____ Email: edbertch@ebsolutionsinc-web.com Project Name: Crawford Project Site: _____		Lab PM: Bindert, Zach T E-Mail: zach.bindert@testamericainc.com Phone: 319-244-3253 Carrier Tracking No(s): _____		COC No: 310-36804-12214.1 Page: Page 1 of 1 Job #: _____				
Due Date Requested: _____ TAT Requested (days): _____ PO #: _____ WO #: _____ Project #: 31007226 SSOW#: _____		Analysis Requested Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> N <input checked="" type="checkbox"/> S Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> N <input checked="" type="checkbox"/> S 8270D - 2,4-Dinitrotoluene, Pyridine, Pentachloro Ammonia - 350, 1, COD - 5220D 9056A_ORGM_28D - Chloride, Fluoride, Sulfate 6020A - Dissolved Metals Total Metals 6020A, 7470A 9068 - Total Recoverable Phenolics 8260C - Benzene and Methyl Ethyl Ketone 13765_85 - Residue, Non-Filterable (TSS) 9020B - Total Organic Halides (TOX)						
Sample Identification MW 3		Sample Date 2-27-24	Sample Time 10:06	Sample Type G-Grab	Matrix Water	Preservation Code: G	Total Number of Containers 12	Special Instructions/Note: _____
Trip Blank _____		_____	_____	_____	_____	_____	_____	_____
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify) _____		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Special Instructions/QC Requirements: _____				
Empty Kit Relinquished by Relinquished by: <i>[Signature]</i> Relinquished by: _____ Relinquished by: _____		Date 2-28-24 / 5:30 _____ _____		Method of Shipment: Received by: _____ Received by: _____ Received by: _____ Date/Time: 2-29-24 1000 Date/Time: _____ Date/Time: _____				
Custody Seals Intact: Yes <input type="checkbox"/> No <input type="checkbox"/>		Cooler Temperature(s) °C and Other Remarks: _____		Company: _____ Company: _____ Company: _____				



Eurofins Cedar Falls

3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab)			Sampler: Bindert, Zach T		Lab PM: Bindert, Zach T		Carrier Tracking No(s):		COC No: 310-70059.1			
Client Contact: Shipping/Receiving			Phone:		E-Mail: Zach.Bindert@et.eurofinsus.com		State of Origin: Iowa		Page: Page 1 of 1			
Company: Eurofins Environment Testing Southeast,					Accreditations Required (See note): State Program - Iowa					Job #: 310-275812-1		
Address: 5102 LaRoche Avenue,			Due Date Requested: 3/20/2024		Analysis Requested						Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify)	
City: Savannah			TAT Requested (days):									
State, Zip: GA, 31404			PO #:									
Phone: 912-354-7858(Tel) 912-352-0165(Fax)			WO #:									
Email:			Project #: 31007226		Project Name: Crawford Project		SSOW#:		Site:			
Sample Identification - Client ID (Lab ID)			Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9020B/Carbon_Trap	Total Number of containers	Special Instructions/Note:	
MW3 (310-275812-1)			2/27/24	10:06 Central		Water		X		1		
Preservation Code:												
Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.												
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)						
Unconfirmed						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months						
Deliverable Requested: I, II, III, IV, Other (specify)				Primary Deliverable Rank: 2		Special Instructions/QC Requirements:						
Empty Kit Relinquished by:			Date:		Time:		Method of Shipment:					
Relinquished by: <i>[Signature]</i>			Date/Time: 2/29/24 1425		Company:		Received by: <i>[Signature]</i>		Date/Time: 3-1-24 1028		Company: <i>[Signature]</i>	
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time:		Company:	
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time:		Company:	
Custody Seals Intact: Δ Yes Δ No			Custody Seal No.:			Cooler Temperature(s) °C and Other Remarks: 0.4/0.4						



Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-275812-1

Login Number: 275812

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Costello, Mackenzie K

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



Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-275812-1

Login Number: 275812

List Number: 2

Creator: Sims, Robert D

List Source: Eurofins Savannah

List Creation: 03/01/24 02:00 PM

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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Edward Bertch
EB Solutions, Inc
5060 4th St. SW
Cedar Rapids, Iowa 52404

Generated 3/20/2024 3:58:24 PM

JOB DESCRIPTION

Crawford Project

JOB NUMBER

310-276133-1

Eurofins Cedar Falls

Job Notes

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

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

Authorization



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3/20/2024 3:58:24 PM

Authorized for release by
Zach Bindert, Client Service Manager
Zach.Bindert@et.eurofinsus.com
(319)277-2401



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Case Narrative

Client: EB Solutions, Inc
Project: Crawford Project

Job ID: 310-276133-1

Job ID: 310-276133-1

Eurofins Cedar Falls

Job Narrative 310-276133-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The samples were received on 3/6/2024 9:15 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was -0.3°C.

GC/MS VOA

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

HPLC/IC

Method 9056A_ORGFM_28D: The following sample was diluted due to the nature of the sample matrix: MW1 (310-276133-1). Elevated reporting limits (RLs) are provided.

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

Metals

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

General Chemistry

Method 9020B: Breakthrough exceeded 10% for the following sample: MW1 (310-276133-1).

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

Eurofins Cedar Falls

Sample Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276133-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-276133-1	MW1	Water	03/04/24 09:03	03/06/24 09:15
310-276133-2	Trip Blank	Water	03/04/24 00:00	03/06/24 09:15

1

2

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Detection Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276133-1

Client Sample ID: MW1

Lab Sample ID: 310-276133-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	6.53		5.00		mg/L	5		9056A	Total/NA
Sulfate	1050		100		mg/L	100		9056A	Total/NA
Barium	0.0210		0.00200		mg/L	1		6020B	Total/NA
Manganese	0.0808		0.0100		mg/L	1		6020B	Total/NA
Boron	0.127		0.100		mg/L	1		6020B	Dissolved
Manganese	0.0770		0.0100		mg/L	1		6020B	Dissolved

Client Sample ID: Trip Blank

Lab Sample ID: 310-276133-2

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls



Client Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276133-1

Client Sample ID: MW1

Lab Sample ID: 310-276133-1

Date Collected: 03/04/24 09:03

Matrix: Water

Date Received: 03/06/24 09:15

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			03/07/24 15:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		80 - 120					03/07/24 15:25	1
Dibromofluoromethane (Surr)	103		73 - 130					03/07/24 15:25	1
Toluene-d8 (Surr)	101		80 - 120					03/07/24 15:25	1

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6.53		5.00		mg/L			03/15/24 12:00	5
Fluoride	<1.00		1.00		mg/L			03/15/24 12:00	5
Sulfate	1050		100		mg/L			03/15/24 18:07	100

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		03/07/24 08:45	03/13/24 17:45	1
Barium	0.0210		0.00200		mg/L		03/07/24 08:45	03/13/24 17:45	1
Cadmium	<0.000200		0.000200		mg/L		03/07/24 08:45	03/13/24 17:45	1
Manganese	0.0808		0.0100		mg/L		03/07/24 08:45	03/13/24 17:45	1
Zinc	<0.0200		0.0200		mg/L		03/07/24 08:45	03/13/24 17:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/08/24 08:55	03/13/24 20:04	1
Arsenic	<0.00200		0.00200		mg/L		03/08/24 08:55	03/13/24 20:04	1
Boron	0.127		0.100		mg/L		03/08/24 08:55	03/13/24 20:04	1
Cobalt	<0.000500		0.000500		mg/L		03/08/24 08:55	03/13/24 20:04	1
Iron	<0.100		0.100		mg/L		03/08/24 08:55	03/13/24 20:04	1
Manganese	0.0770		0.0100		mg/L		03/08/24 08:55	03/13/24 20:04	1
Molybdenum	<0.00200		0.00200		mg/L		03/08/24 08:55	03/13/24 20:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	<0.500		0.500		mg/L		03/14/24 11:33	03/14/24 22:04	1
Halogens, Total Organic (SW846 9020B)	<40.0		40.0		ug/L		03/12/24 11:48	03/12/24 15:19	1
Phenols, Total (SW846 9066)	<0.0200		0.0200		mg/L		03/11/24 08:30	03/11/24 13:20	1
Total Suspended Solids (USGS I-3765-85)	<5.00		5.00		mg/L			03/07/24 19:08	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0		mg/L			03/19/24 09:07	5

Client Sample Results

Client: EB Solutions, Inc
 Project/Site: Crawford Project

Job ID: 310-276133-1

Client Sample ID: Trip Blank

Lab Sample ID: 310-276133-2

Date Collected: 03/04/24 00:00

Matrix: Water

Date Received: 03/06/24 09:15

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			03/07/24 13:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		80 - 120					03/07/24 13:31	1
Dibromofluoromethane (Surr)	108		73 - 130					03/07/24 13:31	1
Toluene-d8 (Surr)	99		80 - 120					03/07/24 13:31	1



Definitions/Glossary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276133-1

Glossary

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

Surrogate Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276133-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	DBFM	TOL
		(80-120)	(73-130)	(80-120)
310-276133-1	MW1	106	103	101
310-276133-2	Trip Blank	110	108	99
LCS 310-415428/6	Lab Control Sample	109	91	99
MB 310-415428/5	Method Blank	108	105	99

Surrogate Legend

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

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276133-1

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

Lab Sample ID: MB 310-415428/5
Matrix: Water
Analysis Batch: 415428

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			03/07/24 12:22	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		80 - 120					03/07/24 12:22	1
Dibromofluoromethane (Surr)	105		73 - 130					03/07/24 12:22	1
Toluene-d8 (Surr)	99		80 - 120					03/07/24 12:22	1

Lab Sample ID: LCS 310-415428/6
Matrix: Water
Analysis Batch: 415428

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2-Butanone (MEK)	40.0	43.76		ug/L		109	50 - 150
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	109		80 - 120				
Dibromofluoromethane (Surr)	91		73 - 130				
Toluene-d8 (Surr)	99		80 - 120				

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-416228/3
Matrix: Water
Analysis Batch: 416228

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			03/15/24 11:32	1
Fluoride	<0.200		0.200		mg/L			03/15/24 11:32	1
Sulfate	<1.00		1.00		mg/L			03/15/24 11:32	1

Lab Sample ID: LCS 310-416228/38
Matrix: Water
Analysis Batch: 416228

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	10.25		mg/L		103	90 - 110
Fluoride	2.00	2.196		mg/L		110	90 - 110
Sulfate	10.0	10.72		mg/L		107	90 - 110

Lab Sample ID: 310-276133-1 MS
Matrix: Water
Analysis Batch: 416228

Client Sample ID: MW1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	6.53		25.0	30.69		mg/L		97	80 - 120
Fluoride	<1.00		5.00	5.100		mg/L		102	80 - 120

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276133-1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: 310-276133-1 MS
Matrix: Water
Analysis Batch: 416228

Client Sample ID: MW1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	1050		500	1518		mg/L		94	80 - 120

Lab Sample ID: 310-276133-1 MSD
Matrix: Water
Analysis Batch: 416228

Client Sample ID: MW1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	6.53		25.0	33.16		mg/L		107	80 - 120	8	15
Fluoride	<1.00		5.00	5.228		mg/L		105	80 - 120	2	15

Lab Sample ID: 310-276133-1 MSD
Matrix: Water
Analysis Batch: 416228

Client Sample ID: MW1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfate	1050		500	1573		mg/L		105	80 - 120	4	15

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-415365/1-A
Matrix: Water
Analysis Batch: 416016

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 415365

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		03/07/24 08:45	03/13/24 17:07	1
Barium	<0.00200		0.00200		mg/L		03/07/24 08:45	03/13/24 17:07	1
Cadmium	<0.000200		0.000200		mg/L		03/07/24 08:45	03/13/24 17:07	1
Manganese	<0.0100		0.0100		mg/L		03/07/24 08:45	03/13/24 17:07	1
Zinc	<0.0200		0.0200		mg/L		03/07/24 08:45	03/13/24 17:07	1

Lab Sample ID: LCS 310-415365/2-A
Matrix: Water
Analysis Batch: 416016

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 415365

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	0.200	0.2038		mg/L		102	80 - 120
Barium	0.100	0.1032		mg/L		103	80 - 120
Cadmium	0.100	0.09595		mg/L		96	80 - 120
Manganese	0.100	0.09223		mg/L		92	80 - 120
Zinc	0.200	0.1867		mg/L		93	80 - 120

Lab Sample ID: MB 310-415335/1-B
Matrix: Water
Analysis Batch: 416017

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 415458

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/08/24 08:55	03/13/24 19:51	1
Arsenic	<0.00200		0.00200		mg/L		03/08/24 08:55	03/13/24 19:51	1
Boron	<0.100		0.100		mg/L		03/08/24 08:55	03/13/24 19:51	1
Cobalt	<0.000500		0.000500		mg/L		03/08/24 08:55	03/13/24 19:51	1

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QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276133-1

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

Lab Sample ID: MB 310-415335/1-B
Matrix: Water
Analysis Batch: 416017

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 415458

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Iron	<0.100		0.100		mg/L		03/08/24 08:55	03/13/24 19:51	1
Manganese	<0.0100		0.0100		mg/L		03/08/24 08:55	03/13/24 19:51	1
Molybdenum	<0.00200		0.00200		mg/L		03/08/24 08:55	03/13/24 19:51	1

Lab Sample ID: LCS 310-415335/2-B
Matrix: Water
Analysis Batch: 416017

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 415458

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Antimony	0.200	0.1961		mg/L		98	80 - 120
Arsenic	0.200	0.1956		mg/L		98	80 - 120
Boron	0.200	0.1957		mg/L		98	80 - 120
Cobalt	0.100	0.09544		mg/L		95	80 - 120
Iron	0.200	0.1900		mg/L		95	80 - 120
Manganese	0.100	0.08997		mg/L		90	80 - 120
Molybdenum	0.200	0.1843		mg/L		92	80 - 120

Lab Sample ID: 310-276133-1 MS
Matrix: Water
Analysis Batch: 416017

Client Sample ID: MW1
Prep Type: Dissolved
Prep Batch: 415458

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	%Rec Limits
				Result	Qualifier				
Antimony	<0.00200		0.200	0.1941		mg/L		97	75 - 125
Arsenic	<0.00200		0.200	0.1978		mg/L		99	75 - 125
Boron	0.127		0.200	0.3041		mg/L		89	75 - 125
Cobalt	<0.000500		0.100	0.09394		mg/L		94	75 - 125
Iron	<0.100		0.200	0.1923		mg/L		96	75 - 125
Manganese	0.0770		0.100	0.1666		mg/L		90	75 - 125
Molybdenum	<0.00200		0.200	0.1918		mg/L		95	75 - 125

Lab Sample ID: 310-276133-1 MSD
Matrix: Water
Analysis Batch: 416017

Client Sample ID: MW1
Prep Type: Dissolved
Prep Batch: 415458

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD MSD		Unit	D	%Rec	%Rec Limits	RPD	
				Result	Qualifier					RPD	Limit
Antimony	<0.00200		0.200	0.1827		mg/L		91	75 - 125	6	20
Arsenic	<0.00200		0.200	0.1953		mg/L		98	75 - 125	1	20
Boron	0.127		0.200	0.2975		mg/L		86	75 - 125	2	20
Cobalt	<0.000500		0.100	0.09254		mg/L		92	75 - 125	2	20
Iron	<0.100		0.200	0.1877		mg/L		94	75 - 125	2	20
Manganese	0.0770		0.100	0.1642		mg/L		87	75 - 125	1	20
Molybdenum	<0.00200		0.200	0.1896		mg/L		94	75 - 125	1	20

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276133-1

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-415991/1-A
Matrix: Water
Analysis Batch: 416045

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 415991

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	<0.500		0.500		mg/L		03/14/24 11:33	03/14/24 23:28	1

Lab Sample ID: LCS 310-415991/2-A
Matrix: Water
Analysis Batch: 416045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 415991

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	4.00	3.676		mg/L		92	90 - 110

Method: 9020B - Organic Halides, Total (TOX)

Lab Sample ID: MB 680-827317/1-A
Matrix: Water
Analysis Batch: 827331

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 827317

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	<40.0		40.0		ug/L		03/12/24 11:48	03/12/24 13:48	1

Lab Sample ID: LCS 680-827317/2-A
Matrix: Water
Analysis Batch: 827331

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 827317

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	400	389.6		ug/L		97	60 - 140

Lab Sample ID: 310-276133-1 MS
Matrix: Water
Analysis Batch: 827331

Client Sample ID: MW1
Prep Type: Total/NA
Prep Batch: 827317

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	<40.0		400	413.4		ug/L		103	60 - 140

Lab Sample ID: 310-276133-1 MSD
Matrix: Water
Analysis Batch: 827331

Client Sample ID: MW1
Prep Type: Total/NA
Prep Batch: 827317

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Halogens, Total Organic	<40.0		400	378.1		ug/L		95	60 - 140	9	40

Method: 9066 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-415620/1-A
Matrix: Water
Analysis Batch: 415691

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 415620

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0200		0.0200		mg/L		03/11/24 08:30	03/11/24 13:19	1

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276133-1

Method: 9066 - Phenolics, Total Recoverable (Continued)

Lab Sample ID: LCS 310-415620/2-A
Matrix: Water
Analysis Batch: 415691

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 415620

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total	0.100	0.09277		mg/L		93	90 - 110

Lab Sample ID: 310-276133-1 MS
Matrix: Water
Analysis Batch: 415691

Client Sample ID: MW1
Prep Type: Total/NA
Prep Batch: 415620

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total	<0.0200		0.100	0.09610		mg/L		96	76 - 124

Lab Sample ID: 310-276133-1 MSD
Matrix: Water
Analysis Batch: 415691

Client Sample ID: MW1
Prep Type: Total/NA
Prep Batch: 415620

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Phenols, Total	<0.0200		0.100	0.09609		mg/L		96	76 - 124	0	14

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

Lab Sample ID: MB 310-415497/1
Matrix: Water
Analysis Batch: 415497

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00		mg/L			03/07/24 19:08	1

Lab Sample ID: LCS 310-415497/2
Matrix: Water
Analysis Batch: 415497

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	103.0		mg/L		103	75 - 116

Method: SM 5220D - COD

Lab Sample ID: MB 310-416301/5
Matrix: Water
Analysis Batch: 416301

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	<5.00		5.00		mg/L			03/19/24 09:07	1

Lab Sample ID: LCS 310-416301/3
Matrix: Water
Analysis Batch: 416301

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	125	122.8		mg/L		98	85 - 115

Eurofins Cedar Falls

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276133-1

GC/MS VOA

Analysis Batch: 415428

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276133-1	MW1	Total/NA	Water	8260D	
310-276133-2	Trip Blank	Total/NA	Water	8260D	
MB 310-415428/5	Method Blank	Total/NA	Water	8260D	
LCS 310-415428/6	Lab Control Sample	Total/NA	Water	8260D	

HPLC/IC

Analysis Batch: 416228

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276133-1	MW1	Total/NA	Water	9056A	
310-276133-1	MW1	Total/NA	Water	9056A	
MB 310-416228/3	Method Blank	Total/NA	Water	9056A	
LCS 310-416228/38	Lab Control Sample	Total/NA	Water	9056A	
310-276133-1 MS	MW1	Total/NA	Water	9056A	
310-276133-1 MS	MW1	Total/NA	Water	9056A	
310-276133-1 MSD	MW1	Total/NA	Water	9056A	
310-276133-1 MSD	MW1	Total/NA	Water	9056A	

Metals

Filtration Batch: 415335

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276133-1	MW1	Dissolved	Water	Filtration	
MB 310-415335/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-415335/2-B	Lab Control Sample	Dissolved	Water	Filtration	
310-276133-1 MS	MW1	Dissolved	Water	Filtration	
310-276133-1 MSD	MW1	Dissolved	Water	Filtration	

Prep Batch: 415365

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276133-1	MW1	Total/NA	Water	3005A	
MB 310-415365/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-415365/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 415458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276133-1	MW1	Dissolved	Water	3005A	415335
MB 310-415335/1-B	Method Blank	Dissolved	Water	3005A	415335
LCS 310-415335/2-B	Lab Control Sample	Dissolved	Water	3005A	415335
310-276133-1 MS	MW1	Dissolved	Water	3005A	415335
310-276133-1 MSD	MW1	Dissolved	Water	3005A	415335

Analysis Batch: 416016

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276133-1	MW1	Total/NA	Water	6020B	415365
MB 310-415365/1-A	Method Blank	Total/NA	Water	6020B	415365
LCS 310-415365/2-A	Lab Control Sample	Total/NA	Water	6020B	415365

Analysis Batch: 416017

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276133-1	MW1	Dissolved	Water	6020B	415458
MB 310-415335/1-B	Method Blank	Dissolved	Water	6020B	415458

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QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276133-1

Metals (Continued)

Analysis Batch: 416017 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-415335/2-B	Lab Control Sample	Dissolved	Water	6020B	415458
310-276133-1 MS	MW1	Dissolved	Water	6020B	415458
310-276133-1 MSD	MW1	Dissolved	Water	6020B	415458

General Chemistry

Analysis Batch: 415497

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276133-1	MW1	Total/NA	Water	I-3765-85	
MB 310-415497/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-415497/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Prep Batch: 415620

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276133-1	MW1	Total/NA	Water	Distill/Phenol	
MB 310-415620/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-415620/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	
310-276133-1 MS	MW1	Total/NA	Water	Distill/Phenol	
310-276133-1 MSD	MW1	Total/NA	Water	Distill/Phenol	

Analysis Batch: 415691

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276133-1	MW1	Total/NA	Water	9066	415620
MB 310-415620/1-A	Method Blank	Total/NA	Water	9066	415620
LCS 310-415620/2-A	Lab Control Sample	Total/NA	Water	9066	415620
310-276133-1 MS	MW1	Total/NA	Water	9066	415620
310-276133-1 MSD	MW1	Total/NA	Water	9066	415620

Prep Batch: 415991

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276133-1	MW1	Total/NA	Water	Distill/Ammonia	
MB 310-415991/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-415991/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 416045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276133-1	MW1	Total/NA	Water	350.1	415991
MB 310-415991/1-A	Method Blank	Total/NA	Water	350.1	415991
LCS 310-415991/2-A	Lab Control Sample	Total/NA	Water	350.1	415991

Analysis Batch: 416301

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276133-1	MW1	Total/NA	Water	SM 5220D	
MB 310-416301/5	Method Blank	Total/NA	Water	SM 5220D	
LCS 310-416301/3	Lab Control Sample	Total/NA	Water	SM 5220D	

Prep Batch: 827317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276133-1	MW1	Total/NA	Water	Carbon Trap	
MB 680-827317/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 680-827317/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	

Eurofins Cedar Falls

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276133-1

General Chemistry (Continued)

Prep Batch: 827317 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276133-1 MS	MW1	Total/NA	Water	Carbon Trap	
310-276133-1 MSD	MW1	Total/NA	Water	Carbon Trap	

Analysis Batch: 827331

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276133-1	MW1	Total/NA	Water	9020B	827317
MB 680-827317/1-A	Method Blank	Total/NA	Water	9020B	827317
LCS 680-827317/2-A	Lab Control Sample	Total/NA	Water	9020B	827317
310-276133-1 MS	MW1	Total/NA	Water	9020B	827317
310-276133-1 MSD	MW1	Total/NA	Water	9020B	827317



Lab Chronicle

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276133-1

Client Sample ID: MW1

Lab Sample ID: 310-276133-1

Date Collected: 03/04/24 09:03

Matrix: Water

Date Received: 03/06/24 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	415428	FE5V	EET CF	03/07/24 15:25
Total/NA	Analysis	9056A		5	416228	QTZ5	EET CF	03/15/24 12:00
Total/NA	Analysis	9056A		100	416228	QTZ5	EET CF	03/15/24 18:07
Dissolved	Filtration	Filtration			415335	QTZ5	EET CF	03/06/24 14:25
Dissolved	Prep	3005A			415458	QTZ5	EET CF	03/08/24 08:55
Dissolved	Analysis	6020B		1	416017	A6US	EET CF	03/13/24 20:04
Total/NA	Prep	3005A			415365	QTZ5	EET CF	03/07/24 08:45
Total/NA	Analysis	6020B		1	416016	A6US	EET CF	03/13/24 17:45
Total/NA	Prep	Distill/Ammonia			415991	MQ8M	EET CF	03/14/24 11:33
Total/NA	Analysis	350.1		1	416045	ZJX4	EET CF	03/14/24 22:04
Total/NA	Prep	Carbon Trap			827317	CLJ	EET SAV	03/12/24 11:48
Total/NA	Analysis	9020B		1	827331	CLJ	EET SAV	03/12/24 15:19
Total/NA	Prep	Distill/Phenol			415620	ENB7	EET CF	03/11/24 08:30
Total/NA	Analysis	9066		1	415691	ENB7	EET CF	03/11/24 13:20
Total/NA	Analysis	I-3765-85		1	415497	D7CP	EET CF	03/07/24 19:08
Total/NA	Analysis	SM 5220D		5	416301	ENB7	EET CF	03/19/24 09:07

Client Sample ID: Trip Blank

Lab Sample ID: 310-276133-2

Date Collected: 03/04/24 00:00

Matrix: Water

Date Received: 03/06/24 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	415428	FE5V	EET CF	03/07/24 13:31

Laboratory References:

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

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Accreditation/Certification Summary

Client: EB Solutions, Inc
 Project/Site: Crawford Project

Job ID: 310-276133-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-25

Laboratory: Eurofins Savannah

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

Authority	Program	Identification Number	Expiration Date
	AFCEE	SAVLAB	
Alabama	State	41450	06-30-24
ANAB	Dept. of Defense ELAP	L2463	09-22-24
Arkansas (DW)	State	GA00006	06-30-24
California	State	2939	06-30-24
Florida	NELAP	E87052	06-30-24
Georgia	State	E87052	06-30-24
Georgia (DW)	State	803	06-30-24
Guam	State	19-007R	04-17-24
Hawaii	State	<cert No.>	06-30-24
Illinois	NELAP	200022	11-30-24
Indiana	State	C-GA-02	06-30-24
Iowa	State	353	07-01-25
Kentucky (UST)	State	NA	06-30-24
Louisiana	NELAP	30690	06-30-24
Louisiana (All)	NELAP	30690	06-30-24
Louisiana (DW)	State	LA009	12-31-24
Maine	State	GA00006	09-25-24
Maryland	State	250	12-31-24
Massachusetts	State	M-GA006	06-30-24
Michigan	State	9925	06-30-24
Mississippi	State	<cert No.>	06-30-24
Nebraska	State	NE-OS-7-04	06-30-24
New Jersey	NELAP	GA769	06-30-24
New Mexico	State	GA00006	06-30-24
North Carolina (DW)	State	13701	07-31-24
North Carolina (WW/SW)	State	269	12-31-24
Pennsylvania	NELAP	68-00474	06-30-24
Puerto Rico	State	GA00006	01-01-25
South Carolina	State	98001	06-30-24
Tennessee	State	TN02961	06-30-24
Texas	NELAP	T1047004185	11-30-24
Texas	TCEQ Water Supply	T104704185	06-30-24
USDA	US Federal Programs	P330-18-00313	09-03-24
Virginia	NELAP	460161	06-14-24
Wyoming	State	8TMS-L	06-30-24

Method Summary

Client: EB Solutions, Inc
 Project/Site: Crawford Project

Job ID: 310-276133-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
350.1	Nitrogen, Ammonia	EPA	EET CF
9020B	Organic Halides, Total (TOX)	SW846	EET SAV
9066	Phenolics, Total Recoverable	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
SM 5220D	COD	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
Carbon Trap	Carbon Trap Preparation	EPA-17	EET SAV
Distill/Ammonia	Distillation, Ammonia	None	EET CF
Distill/Phenol	Distillation, Phenolics	None	EET CF
Filtration	Sample Filtration	None	EET CF

Protocol References:

- EPA = US Environmental Protection Agency
- EPA-17 = "Method 1650, Revision A, Adsorbable Organic Halides By Adsorption And Colormetric Titration," EPA, February 1992
- None = None
- SM = "Standard Methods For The Examination Of Water And Wastewater"
- SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
- USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

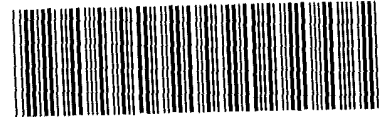
Laboratory References:

- EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401
- EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858





Environment Testing
America



310-276133 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>ER Solutions</u>			
City/State:	CITY	STATE	Project:
		<u>IA</u>	
Receipt Information			
Date/Time Received:	DATE	TIME	Received By:
	<u>3-6-24</u>	<u>9:15</u>	<u>MU</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee			
<input type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler ID.			
Multiple Coolers? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Cooler # _____ of _____			
Cooler Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Sample Custody Seals Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Which VOA samples are in cooler? ↓			
<u>AU</u>			
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>X</u>		Correction Factor (°C): <u>0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>-0.3</u>		Corrected Temp (°C): <u>-0.3</u>	
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g , bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			

Chain of Custody Record

Client Information Company: EB Solutions, Inc Address: 5060 4th St. SW City: Cedar Rapids State, Zip: IA, 52404 Phone: [blank] Email: edbertch@ebsolutionsinc-web.com Project Name: Crawford Project Site: [blank]		Lab Pkt: Bindert, Zach T E-Mail: zach.bindert@testamericainc.com Phone: 319-244-3253		Camer Tracking No(s): COC No: 310-36804-12214 1 Page: 1 of 1 Job #: [blank]	
Due Date Requested: TAT Requested (days): PO #: WO #: Project #: 31007226 SSOW#: [blank]		Analysis Requested			
Sample Identification MW1 Sample Date: 3/4/24 Sample Time: 9:03 Sample Type: Grab Preservation Code: [blank]		Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> 8270D - 2,4-Dichloroethane, Pyridine, Pentachloro Ammonia - 350 f, COP - 5220D 9056A_ORGM_28D - Chloride, Fluoride, Sulfate 6020A - Dissolved Metals Total Metals 6020A, 7470A 9065 - Total Recoverable Phenolics 8260C - Benzene and Methyl Ethyl Ketone 13765_85 - Residue, Non-Filterable (TSS) 9020B - Total Organic Halides (TOX)		Total Number of containers: 12 Special Instructions/Note: [blank]	
Tmp Blank Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> L, N, O Deliverable Requested I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDTA Other: [blank]	
Empty Kit Relinquished by: [Signature] Relinquished by: [Signature] Relinquished by: [Signature]		Date: 3/5/24 9:10 Am Date/Time: 3/5/24 9:15 Date/Time: [blank]		Method of Shipment: [blank]	
Custody Seals Intact: Δ Yes Δ No		Cooler Temperature(s) °C and Other Remarks: [blank]		Company: EB Solutions Company: EB Solutions Company: EB Solutions	



Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-276133-1

Login Number: 276133

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Costello, Mackenzie K

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



Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-276133-1

Login Number: 276133

List Number: 2

Creator: Deal, Katelyn

List Source: Eurofins Savannah

List Creation: 03/07/24 01:17 PM

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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Edward Bertch
EB Solutions, Inc
5060 4th St. SW
Cedar Rapids, Iowa 52404

Generated 4/2/2024 12:23:01 PM

JOB DESCRIPTION

Crawford Project

JOB NUMBER

310-276628-1

Eurofins Cedar Falls

Job Notes

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

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

Authorization



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Authorized for release by
Zach Bindert, Client Service Manager
Zach.Bindert@et.eurofinsus.com
(319)277-2401



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Case Narrative

Client: EB Solutions, Inc
Project: Crawford Project

Job ID: 310-276628-1

Job ID: 310-276628-1

Eurofins Cedar Falls

Job Narrative 310-276628-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The sample was received on 3/13/2024 9:10 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.8°C.

GC/MS VOA

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

HPLC/IC

Method 9056A_ORGFM_28D: The following sample was diluted due to the nature of the sample matrix: MW5 (310-276628-1). Elevated reporting limits (RLs) are provided.

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

Metals

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

General Chemistry

Method 9020B: Breakthrough exceeded 10% for the following sample: MW5 (310-276628-1).

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

Eurofins Cedar Falls

Sample Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276628-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-276628-1	MW5	Water	03/11/24 09:35	03/13/24 09:10

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

Detection Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276628-1

Client Sample ID: MW5

Lab Sample ID: 310-276628-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	22.3		5.00		mg/L	5		9056A	Total/NA
Barium	0.0801		0.00200		mg/L	1		6020B	Total/NA
Manganese	0.0684		0.0100		mg/L	1		6020B	Total/NA
Boron	0.160		0.100		mg/L	1		6020B	Dissolved
Cobalt	0.00211		0.000500		mg/L	1		6020B	Dissolved
Manganese	0.0695		0.0100		mg/L	1		6020B	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276628-1

Client Sample ID: MW5

Lab Sample ID: 310-276628-1

Date Collected: 03/11/24 09:35

Matrix: Water

Date Received: 03/13/24 09:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			03/15/24 19:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		80 - 120					03/15/24 19:24	1
Dibromofluoromethane (Surr)	90		73 - 130					03/15/24 19:24	1
Toluene-d8 (Surr)	115		80 - 120					03/15/24 19:24	1

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			03/20/24 12:37	5
Fluoride	<1.00		1.00		mg/L			03/20/24 12:37	5
Sulfate	22.3		5.00		mg/L			03/20/24 12:37	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		03/18/24 09:00	03/18/24 19:13	1
Barium	0.0801		0.00200		mg/L		03/18/24 09:00	03/18/24 19:13	1
Cadmium	<0.000200		0.000200		mg/L		03/18/24 09:00	03/18/24 19:13	1
Manganese	0.0684		0.0100		mg/L		03/18/24 09:00	03/18/24 19:13	1
Zinc	<0.0200		0.0200		mg/L		03/18/24 09:00	03/18/24 19:13	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/15/24 09:00	03/15/24 18:51	1
Arsenic	<0.00200		0.00200		mg/L		03/15/24 09:00	03/15/24 18:51	1
Boron	0.160		0.100		mg/L		03/15/24 09:00	03/15/24 18:51	1
Cobalt	0.00211		0.000500		mg/L		03/15/24 09:00	03/15/24 18:51	1
Iron	<0.100		0.100		mg/L		03/15/24 09:00	03/15/24 18:51	1
Manganese	0.0695		0.0100		mg/L		03/15/24 09:00	03/15/24 18:51	1
Molybdenum	<0.00200		0.00200		mg/L		03/15/24 09:00	03/15/24 18:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	<0.500		0.500		mg/L		03/22/24 08:55	03/22/24 16:34	1
Halogens, Total Organic (SW846 9020B)	<40.0		40.0		ug/L		04/01/24 08:17	04/02/24 09:06	1
Phenols, Total (SW846 9066)	<0.0200		0.0200		mg/L		03/18/24 08:22	03/18/24 13:08	1
Total Suspended Solids (USGS I-3765-85)	<1.88		1.88		mg/L			03/13/24 12:36	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0		mg/L			03/26/24 08:00	5

Definitions/Glossary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276628-1

Glossary

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

Surrogate Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276628-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	DBFM	TOL
		(80-120)	(73-130)	(80-120)
310-276628-1	MW5	104	90	115
LCS 310-416104/6	Lab Control Sample	102	95	115
MB 310-416104/5	Method Blank	103	94	115

Surrogate Legend

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

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276628-1

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

Lab Sample ID: MB 310-416104/5
Matrix: Water
Analysis Batch: 416104

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			03/15/24 12:02	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		80 - 120					03/15/24 12:02	1
Dibromofluoromethane (Surr)	94		73 - 130					03/15/24 12:02	1
Toluene-d8 (Surr)	115		80 - 120					03/15/24 12:02	1

Lab Sample ID: LCS 310-416104/6
Matrix: Water
Analysis Batch: 416104

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2-Butanone (MEK)	40.0	38.93		ug/L		97	50 - 150
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	102		80 - 120				
Dibromofluoromethane (Surr)	95		73 - 130				
Toluene-d8 (Surr)	115		80 - 120				

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-416611/3
Matrix: Water
Analysis Batch: 416611

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			03/20/24 12:09	1
Fluoride	<0.200		0.200		mg/L			03/20/24 12:09	1
Sulfate	<1.00		1.00		mg/L			03/20/24 12:09	1

Lab Sample ID: LCS 310-416611/4
Matrix: Water
Analysis Batch: 416611

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	10.27		mg/L		103	90 - 110
Fluoride	2.00	2.207		mg/L		110	90 - 110
Sulfate	10.0	10.78		mg/L		108	90 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-416147/1-A
Matrix: Water
Analysis Batch: 416292

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 416147

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		03/18/24 09:00	03/18/24 17:55	1
Barium	<0.00200		0.00200		mg/L		03/18/24 09:00	03/18/24 17:55	1
Cadmium	<0.000200		0.000200		mg/L		03/18/24 09:00	03/18/24 17:55	1

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276628-1

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

Lab Sample ID: MB 310-416147/1-A
Matrix: Water
Analysis Batch: 416292

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 416147

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Manganese	<0.0100		0.0100		mg/L		03/18/24 09:00	03/18/24 17:55	1

Lab Sample ID: LCS 310-416147/2-A
Matrix: Water
Analysis Batch: 416292

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 416147

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	0.100	0.1040		mg/L		104	80 - 120
Cadmium	0.100	0.09466		mg/L		95	80 - 120
Manganese	0.100	0.09259		mg/L		93	80 - 120

Lab Sample ID: MB 310-415893/1-B
Matrix: Water
Analysis Batch: 416229

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 416028

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Antimony	<0.00200		0.00200		mg/L		03/15/24 09:00	03/15/24 18:47	1
Arsenic	<0.00200		0.00200		mg/L		03/15/24 09:00	03/15/24 18:47	1
Boron	<0.100		0.100		mg/L		03/15/24 09:00	03/15/24 18:47	1
Cobalt	<0.000500		0.000500		mg/L		03/15/24 09:00	03/15/24 18:47	1
Iron	<0.100		0.100		mg/L		03/15/24 09:00	03/15/24 18:47	1
Manganese	<0.0100		0.0100		mg/L		03/15/24 09:00	03/15/24 18:47	1
Molybdenum	<0.00200		0.00200		mg/L		03/15/24 09:00	03/15/24 18:47	1

Lab Sample ID: LCS 310-415893/2-B
Matrix: Water
Analysis Batch: 416229

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 416028

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.200	0.2069		mg/L		103	80 - 120
Boron	0.200	0.1742		mg/L		87	80 - 120
Cobalt	0.100	0.09851		mg/L		99	80 - 120
Iron	0.200	0.1979		mg/L		99	80 - 120
Manganese	0.100	0.09348		mg/L		93	80 - 120
Molybdenum	0.200	0.1973		mg/L		99	80 - 120

Lab Sample ID: 310-276628-1 MS
Matrix: Water
Analysis Batch: 416229

Client Sample ID: MW5
Prep Type: Dissolved
Prep Batch: 416028

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	<0.00200		0.200	0.2153		mg/L		108	75 - 125
Boron	0.160		0.200	0.3767		mg/L		108	75 - 125
Cobalt	0.00211		0.100	0.1010		mg/L		99	75 - 125
Iron	<0.100		0.200	0.2086		mg/L		104	75 - 125
Manganese	0.0695		0.100	0.1649		mg/L		95	75 - 125
Molybdenum	<0.00200		0.200	0.2113		mg/L		105	75 - 125

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276628-1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: 310-276628-1 MSD
Matrix: Water
Analysis Batch: 416229

Client Sample ID: MW5
Prep Type: Dissolved
Prep Batch: 416028

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD	
Antimony	<0.00200		0.200	0.2199		mg/L		110	75 - 125	8	20
Arsenic	<0.00200		0.200	0.2134		mg/L		107	75 - 125	1	20
Boron	0.160		0.200	0.3826		mg/L		111	75 - 125	2	20
Cobalt	0.00211		0.100	0.1011		mg/L		99	75 - 125	0	20
Iron	<0.100		0.200	0.2470		mg/L		123	75 - 125	17	20
Manganese	0.0695		0.100	0.1699		mg/L		100	75 - 125	3	20
Molybdenum	<0.00200		0.200	0.2140		mg/L		106	75 - 125	1	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-416700/1-A
Matrix: Water
Analysis Batch: 416773

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 416700

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Ammonia as N	<0.500		0.500		mg/L		03/22/24 08:55	03/22/24 16:27	1

Lab Sample ID: LCS 310-416700/2-A
Matrix: Water
Analysis Batch: 416773

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 416700

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
Ammonia as N	4.00	3.806		mg/L		95	90 - 110

Method: 9020B - Organic Halides, Total (TOX)

Lab Sample ID: MB 680-830914/1-A
Matrix: Water
Analysis Batch: 830918

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 830914

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Halogens, Total Organic	<40.0		40.0		ug/L		04/01/24 08:17	04/01/24 10:54	1

Lab Sample ID: LCS 680-830914/2-A
Matrix: Water
Analysis Batch: 830918

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 830914

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
Halogens, Total Organic	400	424.0		ug/L		106	60 - 140

Method: 9066 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-416190/1-A
Matrix: Water
Analysis Batch: 416246

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 416190

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Phenols, Total	<0.0200		0.0200		mg/L		03/18/24 08:22	03/18/24 13:07	1

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276628-1

Method: 9066 - Phenolics, Total Recoverable (Continued)

Lab Sample ID: LCS 310-416190/2-A
Matrix: Water
Analysis Batch: 416246

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 416190

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total	0.100	0.09643		mg/L		96	90 - 110

Lab Sample ID: 310-276628-1 MS
Matrix: Water
Analysis Batch: 416246

Client Sample ID: MW5
Prep Type: Total/NA
Prep Batch: 416190

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total	<0.0200		0.100	0.09772		mg/L		98	76 - 124

Lab Sample ID: 310-276628-1 MSD
Matrix: Water
Analysis Batch: 416246

Client Sample ID: MW5
Prep Type: Total/NA
Prep Batch: 416190

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Phenols, Total	<0.0200		0.100	0.09870		mg/L		99	76 - 124	1	14

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

Lab Sample ID: MB 310-415890/1
Matrix: Water
Analysis Batch: 415890

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00		mg/L			03/13/24 12:36	1

Lab Sample ID: LCS 310-415890/2
Matrix: Water
Analysis Batch: 415890

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	103.0		mg/L		103	75 - 116

Method: SM 5220D - COD

Lab Sample ID: MB 310-416912/5
Matrix: Water
Analysis Batch: 416912

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	<5.00		5.00		mg/L			03/26/24 08:00	1

Lab Sample ID: LCS 310-416912/3
Matrix: Water
Analysis Batch: 416912

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	125	122.3		mg/L		98	85 - 115

Eurofins Cedar Falls

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276628-1

GC/MS VOA

Analysis Batch: 416104

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276628-1	MW5	Total/NA	Water	8260D	
MB 310-416104/5	Method Blank	Total/NA	Water	8260D	
LCS 310-416104/6	Lab Control Sample	Total/NA	Water	8260D	

HPLC/IC

Analysis Batch: 416611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276628-1	MW5	Total/NA	Water	9056A	
MB 310-416611/3	Method Blank	Total/NA	Water	9056A	
LCS 310-416611/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Filtration Batch: 415893

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276628-1	MW5	Dissolved	Water	Filtration	
MB 310-415893/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-415893/2-B	Lab Control Sample	Dissolved	Water	Filtration	
310-276628-1 MS	MW5	Dissolved	Water	Filtration	
310-276628-1 MSD	MW5	Dissolved	Water	Filtration	

Prep Batch: 416028

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276628-1	MW5	Dissolved	Water	3005A	415893
MB 310-415893/1-B	Method Blank	Dissolved	Water	3005A	415893
LCS 310-415893/2-B	Lab Control Sample	Dissolved	Water	3005A	415893
310-276628-1 MS	MW5	Dissolved	Water	3005A	415893
310-276628-1 MSD	MW5	Dissolved	Water	3005A	415893

Prep Batch: 416147

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276628-1	MW5	Total/NA	Water	3005A	
MB 310-416147/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-416147/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 416229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276628-1	MW5	Dissolved	Water	6020B	416028
MB 310-415893/1-B	Method Blank	Dissolved	Water	6020B	416028
LCS 310-415893/2-B	Lab Control Sample	Dissolved	Water	6020B	416028
310-276628-1 MS	MW5	Dissolved	Water	6020B	416028
310-276628-1 MSD	MW5	Dissolved	Water	6020B	416028

Analysis Batch: 416292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276628-1	MW5	Total/NA	Water	6020B	416147
MB 310-416147/1-A	Method Blank	Total/NA	Water	6020B	416147
LCS 310-416147/2-A	Lab Control Sample	Total/NA	Water	6020B	416147

Eurofins Cedar Falls

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276628-1

General Chemistry

Analysis Batch: 415890

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276628-1	MW5	Total/NA	Water	I-3765-85	
MB 310-415890/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-415890/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Prep Batch: 416190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276628-1	MW5	Total/NA	Water	Distill/Phenol	
MB 310-416190/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-416190/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	
310-276628-1 MS	MW5	Total/NA	Water	Distill/Phenol	
310-276628-1 MSD	MW5	Total/NA	Water	Distill/Phenol	

Analysis Batch: 416246

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276628-1	MW5	Total/NA	Water	9066	416190
MB 310-416190/1-A	Method Blank	Total/NA	Water	9066	416190
LCS 310-416190/2-A	Lab Control Sample	Total/NA	Water	9066	416190
310-276628-1 MS	MW5	Total/NA	Water	9066	416190
310-276628-1 MSD	MW5	Total/NA	Water	9066	416190

Prep Batch: 416700

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276628-1	MW5	Total/NA	Water	Distill/Ammonia	
MB 310-416700/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-416700/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 416773

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276628-1	MW5	Total/NA	Water	350.1	416700
MB 310-416700/1-A	Method Blank	Total/NA	Water	350.1	416700
LCS 310-416700/2-A	Lab Control Sample	Total/NA	Water	350.1	416700

Analysis Batch: 416912

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276628-1	MW5	Total/NA	Water	SM 5220D	
MB 310-416912/5	Method Blank	Total/NA	Water	SM 5220D	
LCS 310-416912/3	Lab Control Sample	Total/NA	Water	SM 5220D	

Prep Batch: 830914

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276628-1	MW5	Total/NA	Water	Carbon Trap	
MB 680-830914/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 680-830914/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	

Analysis Batch: 830918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-276628-1	MW5	Total/NA	Water	9020B	830914
MB 680-830914/1-A	Method Blank	Total/NA	Water	9020B	830914
LCS 680-830914/2-A	Lab Control Sample	Total/NA	Water	9020B	830914

Eurofins Cedar Falls

Lab Chronicle

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276628-1

Client Sample ID: MW5

Lab Sample ID: 310-276628-1

Date Collected: 03/11/24 09:35

Matrix: Water

Date Received: 03/13/24 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	416104	WSE8	EET CF	03/15/24 19:24
Total/NA	Analysis	9056A		5	416611	QTZ5	EET CF	03/20/24 12:37
Dissolved	Filtration	Filtration			415893	QTZ5	EET CF	03/13/24 14:50
Dissolved	Prep	3005A			416028	QTZ5	EET CF	03/15/24 09:00
Dissolved	Analysis	6020B		1	416229	DHM5	EET CF	03/15/24 18:51
Total/NA	Prep	3005A			416147	QTZ5	EET CF	03/18/24 09:00
Total/NA	Analysis	6020B		1	416292	NFT2	EET CF	03/18/24 19:13
Total/NA	Prep	Distill/Ammonia			416700	WZC8	EET CF	03/22/24 08:55
Total/NA	Analysis	350.1		1	416773	ENB7	EET CF	03/22/24 16:34
Total/NA	Prep	Carbon Trap			830914	CLJ	EET SAV	04/01/24 08:17
Total/NA	Analysis	9020B		1	830918	CLJ	EET SAV	04/02/24 09:06
Total/NA	Prep	Distill/Phenol			416190	ENB7	EET CF	03/18/24 08:22
Total/NA	Analysis	9066		1	416246	ENB7	EET CF	03/18/24 13:08
Total/NA	Analysis	I-3765-85		1	415890	WZC8	EET CF	03/13/24 12:36
Total/NA	Analysis	SM 5220D		5	416912	ENB7	EET CF	03/26/24 08:00

Laboratory References:

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

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Accreditation/Certification Summary

Client: EB Solutions, Inc
 Project/Site: Crawford Project

Job ID: 310-276628-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-25

Laboratory: Eurofins Savannah

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

Authority	Program	Identification Number	Expiration Date
	AFCEE	SAVLAB	
Alabama	State	41450	06-30-24
ANAB	Dept. of Defense ELAP	L2463	09-22-24
Arkansas (DW)	State	GA00006	06-30-24
California	State	2939	06-30-24
Florida	NELAP	E87052	06-30-24
Georgia	State	E87052	06-30-24
Georgia (DW)	State	803	06-30-24
Guam	State	19-007R	04-17-24
Hawaii	State	<cert No.>	06-30-24
Illinois	NELAP	200022	11-30-24
Indiana	State	C-GA-02	06-30-24
Iowa	State	353	07-01-25
Kentucky (UST)	State	NA	06-30-24
Louisiana	NELAP	30690	06-30-24
Louisiana (All)	NELAP	30690	06-30-24
Louisiana (DW)	State	LA009	12-31-24
Maine	State	GA00006	09-25-24
Maryland	State	250	12-31-24
Massachusetts	State	M-GA006	06-30-24
Michigan	State	9925	06-30-24
Mississippi	State	<cert No.>	06-30-24
Nebraska	State	NE-OS-7-04	06-30-24
New Jersey	NELAP	GA769	06-30-24
New Mexico	State	GA00006	06-30-24
North Carolina (DW)	State	13701	07-31-24
North Carolina (WW/SW)	State	269	12-31-24
Pennsylvania	NELAP	68-00474	06-30-24
Puerto Rico	State	GA00006	01-01-25
South Carolina	State	98001	06-30-24
Tennessee	State	TN02961	06-30-24
Texas	NELAP	T1047004185	11-30-24
Texas	TCEQ Water Supply	T104704185	06-30-24
USDA	US Federal Programs	P330-18-00313	09-03-24
Virginia	NELAP	460161	06-14-24
Wyoming	State	8TMS-L	06-30-24

Method Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-276628-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
350.1	Nitrogen, Ammonia	EPA	EET CF
9020B	Organic Halides, Total (TOX)	SW846	EET SAV
9066	Phenolics, Total Recoverable	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
SM 5220D	COD	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
Carbon Trap	Carbon Trap Preparation	EPA-17	EET SAV
Distill/Ammonia	Distillation, Ammonia	None	EET CF
Distill/Phenol	Distillation, Phenolics	None	EET CF
Filtration	Sample Filtration	None	EET CF

Protocol References:

EPA = US Environmental Protection Agency

EPA-17 = "Method 1650, Revision A, Adsorbable Organic Halides By Adsorption And Colorimetric Titration," EPA, February 1992

None = None

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

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

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

Laboratory References:

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

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858



Environment Testing
America



310-276628 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>EB Solutions</u>			
City/State:	CITY	STATE	Project:
		<u>IA</u>	
Receipt Information			
Date/Time Received:	DATE	TIME	Received By:
	<u>3-13-24</u>	<u>9:10</u>	<u>ML</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee			
<input type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # _____ of _____	
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>X</u>		Correction Factor (°C): <u>0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>0.8</u>		Corrected Temp (°C): <u>0.8</u>	
• Sample Container Temperature			
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

Chain of Custody Record

Client Information Company: EB Solutions, Inc. Address: 5060 4th St. SW City: Cedar Rapids State, Zip: IA, 52404 Phone: [blank] Email: edbertch@ebolutionsinc-web.com Project Name: Crawford Project Site: [blank]		Lab Pmt: Bindert, Zach T E-Mail: zach.bindert@testamericanc.com Phone: 319-249-3293		Camer Tracking No(s): COC No: 310-36804-12214 1 Page: Page 1 of 1 Job #: [blank]	
Due Date Requested: [blank] TAT Requested (days): [blank]		Analysis Requested			
PO #: [blank] WO #: [blank]		8270D - 2,4-Dinitrotoluene, Pyridine, Pentachloro 9058A_ORGFM_28D - Chloride, Fluoride, Sulfate 6020A - Dissolved Metals Total Metals 6020A, 7470A 9066 - Total Recoverable Phenolics 8260C - Benzene and Methyl Ethyl Ketone 1,3765_65 - Residue, Non-Filterable (TSS) 9020B - Total Organic Halides (TOX)			
Sample Identification mws Sample Date: 3-11-24 Sample Time: 9:35 Sample Type (C=Comp, G=grab): G Matrix (Water, Soil, Other): Water Preservation Code: G		Field Filtered Sample (Yes or No) [X] Perform MS/MSD (Yes or No) [X] Total Number of Containers: 12			
Trip Blank		Special Instructions/Note: [blank]			
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					
Deliverable Requested I, II, III, IV, Other (specify) [blank]					
Empty Kit Relinquished by [Signature] Date: 3-12-24/11:10 Relinquished by [Signature] Date: [blank] Relinquished by [Signature] Date: [blank]					
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temperature(s) °C and Other Remarks: [blank]					



Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-276628-1

Login Number: 276628

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Costello, Mackenzie K

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

Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-276628-1

Login Number: 276628

List Number: 2

Creator: Stewart, Rendaisha

List Source: Eurofins Savannah

List Creation: 03/14/24 05:41 PM

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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Edward Bertch
EB Solutions, Inc
5060 4th St. SW
Cedar Rapids, Iowa 52404

Generated 4/8/2024 1:29:17 PM

JOB DESCRIPTION

Crawford Project

JOB NUMBER

310-277149-1

Eurofins Cedar Falls

Job Notes

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

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

Authorization



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Authorized for release by
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Case Narrative

Client: EB Solutions, Inc
Project: Crawford Project

Job ID: 310-277149-1

Job ID: 310-277149-1

Eurofins Cedar Falls

Job Narrative 310-277149-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The sample was received on 3/20/2024 9:20 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.4°C.

GC/MS VOA

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

HPLC/IC

Method 9056A_ORGFM_28D: The following sample was diluted due to the nature of the sample matrix: MW-2 (310-277149-1). Elevated reporting limits (RLs) are provided.

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

Metals

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

General Chemistry

Method 9020B: Breakthrough exceeded 10% for the following sample:MW-2 (310-277149-1).

Method 9020B: Breakthrough exceeded 10% for the following sample:MW-2 (310-277149-1).

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

Eurofins Cedar Falls

Sample Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277149-1

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Collected</u>	<u>Received</u>
310-277149-1	MW-2	Water	03/18/24 11:30	03/20/24 09:20

1

2

3

4

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12

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15

Detection Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277149-1

Client Sample ID: MW-2

Lab Sample ID: 310-277149-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	14.4		5.00		mg/L	5		9056A	Total/NA
Barium	0.110		0.00200		mg/L	1		6020B	Total/NA
Manganese	0.0109		0.0100		mg/L	1		6020B	Total/NA
Manganese	0.0115		0.0100		mg/L	1		6020B	Dissolved
Total Suspended Solids	2.25		1.88		mg/L	1		I-3765-85	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277149-1

Client Sample ID: MW-2

Lab Sample ID: 310-277149-1

Date Collected: 03/18/24 11:30

Matrix: Water

Date Received: 03/20/24 09:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			03/21/24 18:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		80 - 120					03/21/24 18:51	1
4-Bromofluorobenzene (Surr)	101		80 - 120					03/25/24 13:15	1
Dibromofluoromethane (Surr)	103		73 - 130					03/21/24 18:51	1
Dibromofluoromethane (Surr)	110		73 - 130					03/25/24 13:15	1
Toluene-d8 (Surr)	100		80 - 120					03/21/24 18:51	1
Toluene-d8 (Surr)	97		80 - 120					03/25/24 13:15	1

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			03/25/24 13:04	5
Fluoride	<1.00		1.00		mg/L			03/25/24 13:04	5
Sulfate	14.4		5.00		mg/L			03/25/24 13:04	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		03/21/24 10:00	03/21/24 21:33	1
Barium	0.110		0.00200		mg/L		03/21/24 10:00	03/21/24 21:33	1
Cadmium	<0.000200		0.000200		mg/L		03/21/24 10:00	03/21/24 21:33	1
Manganese	0.0109		0.0100		mg/L		03/21/24 10:00	03/21/24 21:33	1
Zinc	<0.0200		0.0200		mg/L		03/21/24 10:00	03/21/24 21:33	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/25/24 09:00	03/27/24 15:33	1
Arsenic	<0.00200		0.00200		mg/L		03/25/24 09:00	03/27/24 15:33	1
Boron	<0.100		0.100		mg/L		03/25/24 09:00	03/28/24 13:05	1
Cobalt	<0.000500		0.000500		mg/L		03/25/24 09:00	03/27/24 15:33	1
Iron	<0.100		0.100		mg/L		03/25/24 09:00	03/27/24 15:33	1
Manganese	0.0115		0.0100		mg/L		03/25/24 09:00	03/27/24 15:33	1
Molybdenum	<0.00200		0.00200		mg/L		03/25/24 09:00	03/27/24 15:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	<0.500		0.500		mg/L		03/28/24 10:33	03/28/24 20:58	1
Halogens, Total Organic (SW846 9020B)	<40.0		40.0		ug/L		04/04/24 08:09	04/04/24 14:58	1
Phenols, Total (SW846 9066)	<0.0200		0.0200		mg/L		04/01/24 08:20	04/01/24 16:38	1
Total Suspended Solids (USGS I-3765-85)	2.25		1.88		mg/L			03/20/24 15:33	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0		mg/L			03/26/24 08:00	5

Definitions/Glossary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277149-1

Glossary

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

Surrogate Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277149-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BFB (80-120)	DBFM (73-130)	TOL (80-120)
310-277149-1	MW-2	107	103	100
310-277149-1	MW-2	101	110	97
LCS 310-416628/6	Lab Control Sample	98	100	101
LCS 310-416885/6	Lab Control Sample	106	95	101
MB 310-416628/5	Method Blank	106	101	97
MB 310-416885/5	Method Blank	102	110	99

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277149-1

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

Lab Sample ID: MB 310-416628/5
Matrix: Water
Analysis Batch: 416628

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			03/21/24 14:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		80 - 120					03/21/24 14:18	1
Dibromofluoromethane (Surr)	101		73 - 130					03/21/24 14:18	1
Toluene-d8 (Surr)	97		80 - 120					03/21/24 14:18	1

Lab Sample ID: LCS 310-416628/6
Matrix: Water
Analysis Batch: 416628

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2-Butanone (MEK)	40.0	40.76		ug/L		102	50 - 150
Surrogate	%Recovery	Qualifier	Limits				
4-Bromofluorobenzene (Surr)	98		80 - 120				
Dibromofluoromethane (Surr)	100		73 - 130				
Toluene-d8 (Surr)	101		80 - 120				

Lab Sample ID: MB 310-416885/5
Matrix: Water
Analysis Batch: 416885

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			03/25/24 11:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		80 - 120					03/25/24 11:43	1
Dibromofluoromethane (Surr)	110		73 - 130					03/25/24 11:43	1
Toluene-d8 (Surr)	99		80 - 120					03/25/24 11:43	1

Lab Sample ID: LCS 310-416885/6
Matrix: Water
Analysis Batch: 416885

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2-Butanone (MEK)	40.0	53.79		ug/L		134	50 - 150
Surrogate	%Recovery	Qualifier	Limits				
4-Bromofluorobenzene (Surr)	106		80 - 120				
Dibromofluoromethane (Surr)	95		73 - 130				
Toluene-d8 (Surr)	101		80 - 120				

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277149-1

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-417010/3
Matrix: Water
Analysis Batch: 417010

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	<1.00		1.00		mg/L			03/25/24 10:57	1
Fluoride	<0.200		0.200		mg/L			03/25/24 10:57	1
Sulfate	<1.00		1.00		mg/L			03/25/24 10:57	1

Lab Sample ID: LCS 310-417010/4
Matrix: Water
Analysis Batch: 417010

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

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Chloride	10.0	10.19		mg/L		102	90 - 110
Fluoride	2.00	2.194		mg/L		110	90 - 110
Sulfate	10.0	10.68		mg/L		107	90 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-416518/1-A
Matrix: Water
Analysis Batch: 416699

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 416518

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aluminum	<0.0500		0.0500		mg/L		03/21/24 10:00	03/21/24 20:14	1
Barium	<0.00200		0.00200		mg/L		03/21/24 10:00	03/21/24 20:14	1
Cadmium	<0.000200		0.000200		mg/L		03/21/24 10:00	03/21/24 20:14	1
Manganese	<0.0100		0.0100		mg/L		03/21/24 10:00	03/21/24 20:14	1
Zinc	<0.0200		0.0200		mg/L		03/21/24 10:00	03/21/24 20:14	1

Lab Sample ID: LCS 310-416518/2-A
Matrix: Water
Analysis Batch: 416699

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 416518

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Aluminum	0.200	0.2167		mg/L		108	80 - 120
Barium	0.100	0.1012		mg/L		101	80 - 120
Cadmium	0.100	0.1024		mg/L		102	80 - 120
Manganese	0.100	0.09612		mg/L		96	80 - 120
Zinc	0.200	0.2029		mg/L		101	80 - 120

Lab Sample ID: MB 310-416643/1-B
Matrix: Water
Analysis Batch: 417197

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 416768

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Antimony	<0.00200		0.00200		mg/L		03/25/24 09:00	03/27/24 15:28	1
Arsenic	<0.00200		0.00200		mg/L		03/25/24 09:00	03/27/24 15:28	1
Cobalt	<0.000500		0.000500		mg/L		03/25/24 09:00	03/27/24 15:28	1
Iron	<0.100		0.100		mg/L		03/25/24 09:00	03/27/24 15:28	1
Manganese	<0.0100		0.0100		mg/L		03/25/24 09:00	03/27/24 15:28	1
Molybdenum	<0.00200		0.00200		mg/L		03/25/24 09:00	03/27/24 15:28	1

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277149-1

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

Lab Sample ID: MB 310-416643/1-B
Matrix: Water
Analysis Batch: 417345

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 416768

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.100		0.100		mg/L		03/25/24 09:00	03/28/24 13:00	1

Lab Sample ID: LCS 310-416643/2-B
Matrix: Water
Analysis Batch: 417197

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 416768

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.2205		mg/L		110	80 - 120
Arsenic	0.200	0.2075		mg/L		104	80 - 120
Cobalt	0.100	0.1056		mg/L		106	80 - 120
Iron	0.200	0.1910		mg/L		96	80 - 120
Manganese	0.100	0.09403		mg/L		94	80 - 120
Molybdenum	0.200	0.2139		mg/L		107	80 - 120

Lab Sample ID: LCS 310-416643/2-B
Matrix: Water
Analysis Batch: 417345

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 416768

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	0.200	0.1971		mg/L		99	80 - 120

Lab Sample ID: 310-277149-1 MS
Matrix: Water
Analysis Batch: 417197

Client Sample ID: MW-2
Prep Type: Dissolved
Prep Batch: 416768

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	<0.00200		0.200	0.2170		mg/L		108	75 - 125
Arsenic	<0.00200		0.200	0.2107		mg/L		105	75 - 125
Cobalt	<0.000500		0.100	0.1036		mg/L		104	75 - 125
Iron	<0.100		0.200	0.2072		mg/L		104	75 - 125
Manganese	0.0115		0.100	0.1130		mg/L		101	75 - 125
Molybdenum	<0.00200		0.200	0.2216		mg/L		110	75 - 125

Lab Sample ID: 310-277149-1 MS
Matrix: Water
Analysis Batch: 417345

Client Sample ID: MW-2
Prep Type: Dissolved
Prep Batch: 416768

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Boron	<0.100		0.200	0.2959		mg/L		107	75 - 125

Lab Sample ID: 310-277149-1 MSD
Matrix: Water
Analysis Batch: 417197

Client Sample ID: MW-2
Prep Type: Dissolved
Prep Batch: 416768

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	<0.00200		0.200	0.2151		mg/L		108	75 - 125	1	20
Arsenic	<0.00200		0.200	0.2078		mg/L		104	75 - 125	1	20
Cobalt	<0.000500		0.100	0.1020		mg/L		102	75 - 125	2	20
Iron	<0.100		0.200	0.2081		mg/L		104	75 - 125	0	20
Manganese	0.0115		0.100	0.1128		mg/L		101	75 - 125	0	20

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277149-1

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

Lab Sample ID: 310-277149-1 MSD
Matrix: Water
Analysis Batch: 417197

Client Sample ID: MW-2
Prep Type: Dissolved
Prep Batch: 416768

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Molybdenum	<0.00200		0.200	0.2194		mg/L		109	75 - 125	1	20

Lab Sample ID: 310-277149-1 MSD
Matrix: Water
Analysis Batch: 417345

Client Sample ID: MW-2
Prep Type: Dissolved
Prep Batch: 416768

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	<0.100		0.200	0.2913		mg/L		105	75 - 125	2	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-417228/1-A
Matrix: Water
Analysis Batch: 417284

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 417228

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	<0.500		0.500		mg/L		03/28/24 10:33	03/28/24 20:39	1

Lab Sample ID: LCS 310-417228/2-A
Matrix: Water
Analysis Batch: 417284

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 417228

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	4.00	3.804		mg/L		95	90 - 110

Method: 9020B - Organic Halides, Total (TOX)

Lab Sample ID: MB 680-831755/1-A
Matrix: Water
Analysis Batch: 831758

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 831755

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	<40.0		40.0		ug/L		04/04/24 08:09	04/04/24 13:45	1

Lab Sample ID: LCS 680-831755/2-A
Matrix: Water
Analysis Batch: 831758

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 831755

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	400	394.8		ug/L		99	60 - 140

Lab Sample ID: 310-277149-1 MS
Matrix: Water
Analysis Batch: 831758

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 831755

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	<40.0		400	410.0		ug/L		99	60 - 140

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277149-1

Method: 9020B - Organic Halides, Total (TOX) (Continued)

Lab Sample ID: 310-277149-1 MSD
Matrix: Water
Analysis Batch: 831758

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 831755

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Halogens, Total Organic	<40.0		400	401.9		ug/L		97	60 - 140	2	40

Method: 9066 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-417442/1-A
Matrix: Water
Analysis Batch: 417518

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 417442

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0200		0.0200		mg/L		04/01/24 08:20	04/01/24 16:37	1

Lab Sample ID: LCS 310-417442/2-A
Matrix: Water
Analysis Batch: 417518

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 417442

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total	0.100	0.09860		mg/L		99	90 - 110

Lab Sample ID: 310-277149-1 MS
Matrix: Water
Analysis Batch: 417518

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 417442

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total	<0.0200		0.100	0.1000		mg/L		100	76 - 124

Lab Sample ID: 310-277149-1 MSD
Matrix: Water
Analysis Batch: 417518

Client Sample ID: MW-2
Prep Type: Total/NA
Prep Batch: 417442

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Phenols, Total	<0.0200		0.100	0.1025		mg/L		102	76 - 124	2	14

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

Lab Sample ID: MB 310-416510/1
Matrix: Water
Analysis Batch: 416510

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00		mg/L			03/20/24 15:33	1

Lab Sample ID: LCS 310-416510/2
Matrix: Water
Analysis Batch: 416510

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	87.00		mg/L		87	75 - 116

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
 Project/Site: Crawford Project

Job ID: 310-277149-1

Method: SM 5220D - COD

Lab Sample ID: MB 310-416912/5
Matrix: Water
Analysis Batch: 416912

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	<5.00		5.00		mg/L			03/26/24 08:00	1

Lab Sample ID: LCS 310-416912/3
Matrix: Water
Analysis Batch: 416912

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	125	122.3		mg/L		98	85 - 115

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

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277149-1

GC/MS VOA

Analysis Batch: 416628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277149-1	MW-2	Total/NA	Water	8260D	
MB 310-416628/5	Method Blank	Total/NA	Water	8260D	
LCS 310-416628/6	Lab Control Sample	Total/NA	Water	8260D	

Analysis Batch: 416885

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277149-1	MW-2	Total/NA	Water	8260D	
MB 310-416885/5	Method Blank	Total/NA	Water	8260D	
LCS 310-416885/6	Lab Control Sample	Total/NA	Water	8260D	

HPLC/IC

Analysis Batch: 417010

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277149-1	MW-2	Total/NA	Water	9056A	
MB 310-417010/3	Method Blank	Total/NA	Water	9056A	
LCS 310-417010/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 416518

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277149-1	MW-2	Total/NA	Water	3005A	
MB 310-416518/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-416518/2-A	Lab Control Sample	Total/NA	Water	3005A	

Filtration Batch: 416643

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277149-1	MW-2	Dissolved	Water	Filtration	
MB 310-416643/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-416643/2-B	Lab Control Sample	Dissolved	Water	Filtration	
310-277149-1 MS	MW-2	Dissolved	Water	Filtration	
310-277149-1 MSD	MW-2	Dissolved	Water	Filtration	

Analysis Batch: 416699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277149-1	MW-2	Total/NA	Water	6020B	416518
MB 310-416518/1-A	Method Blank	Total/NA	Water	6020B	416518
LCS 310-416518/2-A	Lab Control Sample	Total/NA	Water	6020B	416518

Prep Batch: 416768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277149-1	MW-2	Dissolved	Water	3005A	416643
MB 310-416643/1-B	Method Blank	Dissolved	Water	3005A	416643
LCS 310-416643/2-B	Lab Control Sample	Dissolved	Water	3005A	416643
310-277149-1 MS	MW-2	Dissolved	Water	3005A	416643
310-277149-1 MSD	MW-2	Dissolved	Water	3005A	416643

Analysis Batch: 417197

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277149-1	MW-2	Dissolved	Water	6020B	416768
MB 310-416643/1-B	Method Blank	Dissolved	Water	6020B	416768

Eurofins Cedar Falls

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277149-1

Metals (Continued)

Analysis Batch: 417197 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-416643/2-B	Lab Control Sample	Dissolved	Water	6020B	416768
310-277149-1 MS	MW-2	Dissolved	Water	6020B	416768
310-277149-1 MSD	MW-2	Dissolved	Water	6020B	416768

Analysis Batch: 417345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277149-1	MW-2	Dissolved	Water	6020B	416768
MB 310-416643/1-B	Method Blank	Dissolved	Water	6020B	416768
LCS 310-416643/2-B	Lab Control Sample	Dissolved	Water	6020B	416768
310-277149-1 MS	MW-2	Dissolved	Water	6020B	416768
310-277149-1 MSD	MW-2	Dissolved	Water	6020B	416768

General Chemistry

Analysis Batch: 416510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277149-1	MW-2	Total/NA	Water	I-3765-85	
MB 310-416510/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-416510/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 416912

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277149-1	MW-2	Total/NA	Water	SM 5220D	
MB 310-416912/5	Method Blank	Total/NA	Water	SM 5220D	
LCS 310-416912/3	Lab Control Sample	Total/NA	Water	SM 5220D	

Prep Batch: 417228

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277149-1	MW-2	Total/NA	Water	Distill/Ammonia	
MB 310-417228/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-417228/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 417284

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277149-1	MW-2	Total/NA	Water	350.1	417228
MB 310-417228/1-A	Method Blank	Total/NA	Water	350.1	417228
LCS 310-417228/2-A	Lab Control Sample	Total/NA	Water	350.1	417228

Prep Batch: 417442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277149-1	MW-2	Total/NA	Water	Distill/Phenol	
MB 310-417442/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-417442/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	
310-277149-1 MS	MW-2	Total/NA	Water	Distill/Phenol	
310-277149-1 MSD	MW-2	Total/NA	Water	Distill/Phenol	

Analysis Batch: 417518

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277149-1	MW-2	Total/NA	Water	9066	417442
MB 310-417442/1-A	Method Blank	Total/NA	Water	9066	417442
LCS 310-417442/2-A	Lab Control Sample	Total/NA	Water	9066	417442

Eurofins Cedar Falls

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277149-1

General Chemistry (Continued)

Analysis Batch: 417518 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277149-1 MS	MW-2	Total/NA	Water	9066	417442
310-277149-1 MSD	MW-2	Total/NA	Water	9066	417442

Prep Batch: 831755

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277149-1	MW-2	Total/NA	Water	Carbon Trap	
MB 680-831755/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 680-831755/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	
310-277149-1 MS	MW-2	Total/NA	Water	Carbon Trap	
310-277149-1 MSD	MW-2	Total/NA	Water	Carbon Trap	

Analysis Batch: 831758

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277149-1	MW-2	Total/NA	Water	9020B	831755
MB 680-831755/1-A	Method Blank	Total/NA	Water	9020B	831755
LCS 680-831755/2-A	Lab Control Sample	Total/NA	Water	9020B	831755
310-277149-1 MS	MW-2	Total/NA	Water	9020B	831755
310-277149-1 MSD	MW-2	Total/NA	Water	9020B	831755

Lab Chronicle

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277149-1

Client Sample ID: MW-2

Lab Sample ID: 310-277149-1

Date Collected: 03/18/24 11:30

Matrix: Water

Date Received: 03/20/24 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	416885	FE5V	EET CF	03/25/24 13:15
Total/NA	Analysis	8260D		1	416628	FE5V	EET CF	03/21/24 18:51
Total/NA	Analysis	9056A		5	417010	QTZ5	EET CF	03/25/24 13:04
Dissolved	Filtration	Filtration			416643	QTZ5	EET CF	03/21/24 14:50
Dissolved	Prep	3005A			416768	QTZ5	EET CF	03/25/24 09:00
Dissolved	Analysis	6020B		1	417197	NFT2	EET CF	03/27/24 15:33
Dissolved	Filtration	Filtration			416643	QTZ5	EET CF	03/21/24 14:50
Dissolved	Prep	3005A			416768	QTZ5	EET CF	03/25/24 09:00
Dissolved	Analysis	6020B		1	417345	DHM5	EET CF	03/28/24 13:05
Total/NA	Prep	3005A			416518	QTZ5	EET CF	03/21/24 10:00
Total/NA	Analysis	6020B		1	416699	NFT2	EET CF	03/21/24 21:33
Total/NA	Prep	Distill/Ammonia			417228	MQ8M	EET CF	03/28/24 10:33
Total/NA	Analysis	350.1		1	417284	ZJX4	EET CF	03/28/24 20:58
Total/NA	Prep	Carbon Trap			831755	CLJ	EET SAV	04/04/24 08:09
Total/NA	Analysis	9020B		1	831758	CLJ	EET SAV	04/04/24 14:58
Total/NA	Prep	Distill/Phenol			417442	ENB7	EET CF	04/01/24 08:20
Total/NA	Analysis	9066		1	417518	ZJX4	EET CF	04/01/24 16:38
Total/NA	Analysis	I-3765-85		1	416510	ENB7	EET CF	03/20/24 15:33
Total/NA	Analysis	SM 5220D		5	416912	ENB7	EET CF	03/26/24 08:00

Laboratory References:

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

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Accreditation/Certification Summary

Client: EB Solutions, Inc
 Project/Site: Crawford Project

Job ID: 310-277149-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-25

Laboratory: Eurofins Savannah

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

Authority	Program	Identification Number	Expiration Date
	AFCEE	SAVLAB	
Alabama	State	41450	06-30-24
ANAB	Dept. of Defense ELAP	L2463	09-22-24
Arkansas (DW)	State	GA00006	06-30-24
California	State	2939	06-30-24
Florida	NELAP	E87052	06-30-24
Georgia	State	E87052	06-30-24
Georgia (DW)	State	803	06-30-24
Guam	State	19-007R	04-17-24
Hawaii	State	<cert No.>	06-30-24
Illinois	NELAP	200022	11-30-24
Indiana	State	C-GA-02	06-30-24
Iowa	State	353	07-01-25
Kentucky (UST)	State	NA	06-30-24
Louisiana	NELAP	30690	06-30-24
Louisiana (All)	NELAP	30690	06-30-24
Louisiana (DW)	State	LA009	12-31-24
Maine	State	GA00006	09-25-24
Maryland	State	250	12-31-24
Massachusetts	State	M-GA006	06-30-24
Michigan	State	9925	06-30-24
Mississippi	State	<cert No.>	06-30-24
Nebraska	State	NE-OS-7-04	06-30-24
New Jersey	NELAP	GA769	06-30-24
New Mexico	State	GA00006	06-30-24
North Carolina (DW)	State	13701	07-31-24
North Carolina (WW/SW)	State	269	12-31-24
Pennsylvania	NELAP	68-00474	06-30-24
Puerto Rico	State	GA00006	01-01-25
South Carolina	State	98001	06-30-24
Tennessee	State	TN02961	06-30-24
Texas	NELAP	T1047004185	11-30-24
Texas	TCEQ Water Supply	T104704185	06-30-24
USDA	US Federal Programs	P330-18-00313	09-03-24
Virginia	NELAP	460161	06-14-24
Wyoming	State	8TMS-L	06-30-24

Method Summary

Client: EB Solutions, Inc
 Project/Site: Crawford Project

Job ID: 310-277149-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
350.1	Nitrogen, Ammonia	EPA	EET CF
9020B	Organic Halides, Total (TOX)	SW846	EET SAV
9066	Phenolics, Total Recoverable	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
SM 5220D	COD	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
Carbon Trap	Carbon Trap Preparation	EPA-17	EET SAV
Distill/Ammonia	Distillation, Ammonia	None	EET CF
Distill/Phenol	Distillation, Phenolics	None	EET CF
Filtration	Sample Filtration	None	EET CF

Protocol References:

- EPA = US Environmental Protection Agency
- EPA-17 = "Method 1650, Revision A, Adsorbable Organic Halides By Adsorption And Colormetric Titration," EPA, February 1992
- None = None
- SM = "Standard Methods For The Examination Of Water And Wastewater"
- SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
- USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

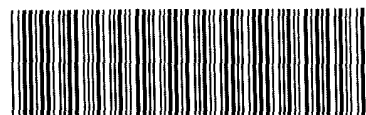
Laboratory References:

- EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401
- EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858





Environment Testing
America



310-277149 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>CB Solutions</u>			
City/State:	CITY	STATE <u>IA</u>	Project:
Receipt Information			
Date/Time Received:	DATE <u>3/20/24</u>	TIME <u>0920</u>	Received By: <u>[Signature]</u>
Delivery Type:	<input type="checkbox"/> UPS	<input checked="" type="checkbox"/> FedEx	<input type="checkbox"/> FedEx Ground
	<input type="checkbox"/> Lab Courier	<input type="checkbox"/> Lab Field Services	<input type="checkbox"/> Client Drop-off
		<input type="checkbox"/> US Mail	<input type="checkbox"/> Spee-Dee
		<input type="checkbox"/> Other:	
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	If yes: Cooler ID:
Multiple Coolers?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	If yes: Cooler # ____ of ____
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓
Temperature Record			
Coolant:	<input checked="" type="checkbox"/> Wet ice	<input type="checkbox"/> Blue ice	<input type="checkbox"/> Dry ice
			<input type="checkbox"/> Other: _____
			<input type="checkbox"/> NONE
Thermometer ID:	<u>T</u>	Correction Factor (°C):	<u>+0.0</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>2.4</u>	Corrected Temp (°C):	<u>2.4</u>
• Sample Container Temperature			
Container(s) used:	<u>CONTAINER 1</u>	<u>CONTAINER 2</u>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

Chain of Custody Record

Client Information Client Contact: Edward Bertsch Company: EB Solutions, Inc. Address: 5060 4th St. SW City: Cedar Rapids State: IA, Zip: 52404 Phone: [blank] Email: edbertsch@ebolutionsinc-web.com Project Name: Crawford Project Site: [blank]		Lab PM: Bindert, Zach T E-Mail: zach.bindert@testamericainc.com Phone: 319-289-3253 Due Date Requested: [blank] TAT Requested (days): [blank]		Sampler: Ed Bertsch Camer Tracking No(s): 310-36804-12214 1 Page: Page 1 of 1 Job #: [blank]	
Sample Date: 3-18-24 Sample Time: 11:30 Sample Type (C=Comp, G=grab): G Matrix (W=Water, S=solid, O=on-site, A=lab): Water Preservation Code: G		Analysis Requested 8270D - 2,4-Dinitrotoluene, Pyridine, Pentachloro 9066A - DRGM_28D - Chloride, Fluoride, Sulfate 6020A - Dissolved Metals Total Metals 6020A, 7470A 9066 - Total Recoverable Phenolics 8260C - Benzene and Methyl Ethyl Ketone 1,3765_85 - Residue, Non filterable (TSS) 9020B - Total Organic Halides (TOX)			
Field Filtered Sample (Yes or No) [X] Perform MS/MSD (Yes or No) [X]		Special Instructions/Note: Total Number of Containers: 12 12 12 12 12 12 12 12 12 12 12 3			
Trip Blank Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Empty Kit Relinquished by Relinquished by [Signature] Relinquished by [Signature] Relinquished by [Signature]		Method of Shipment Date/Time: 3-19-24 / 10:36 Date/Time: [blank] Date/Time: [blank]			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No. [blank]		Cooler Temperature(s) °C and Other Remarks: [blank]			



Eurofins Cedar Falls

3019 Venture Way
 Cedar Falls, IA 50613
 Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab)		Sampler:		Lab PM: Bindert, Zach T		Carrier Tracking No(s):		COC No: 310-70552.1			
Client Contact: Shipping/Receiving		Phone:		E-Mail: Zach.Bindert@et.eurofinsus.com		State of Origin: Iowa		Page: Page 1 of 1			
Company: Eurofins Environment Testing Southeast				Accreditations Required (See note): State Program - Iowa				Job #: 310-277149-1			
Address: 5102 LaRoche Avenue, City: Savannah State, Zip: GA, 31404		Due Date Requested: 4/9/2024		Analysis Requested						Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify) Other:	
Project Name: Crawford Project		Project #: 31007226									
Site:		SSOW#:									
Email:		WO #:									
Phone: 912-354-7858(Tel) 912-352-0165(Fax)		PO #:		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		9020BI/Carbon_Trap		Total Number of containers	
Email:		WO #:									
Project Name: Crawford Project		Project #: 31007226		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		9020BI/Carbon_Trap		Total Number of containers	
Site:		SSOW#:									
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=soils/oil, ST=Tissue, AA=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9020BI/Carbon_Trap	Total Number of containers	Special Instructions/Note:	
MW-2 (310-277149-1)		3/18/24	11:30 Central		Water		X		1		
Preservation Code:											
Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.											
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
Unconfirmed						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested: I, II, III, IV, Other (specify)				Primary Deliverable Rank: 2		Special Instructions/QC Requirements:					
Empty Kit Relinquished by:			Date:		Time:		Method of Shipment:				
Relinquished by:			Date/Time: 3/20/24 1505		Company:		Received by:		Date/Time:		
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time:		
Relinquished by:			Date/Time:		Company:		Received by:		Date/Time: 3/21/24 1029		
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:				Cooler Temperature(s) °C and Other Remarks: 0.570-5					



Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-277149-1

SDG Number:

Login Number: 277149

List Number: 1

Creator: Homolar, Dana J

List Source: Eurofins Cedar Falls

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



Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-277149-1

SDG Number:

Login Number: 277149

List Number: 2

Creator: Johnson, Corey M

List Source: Eurofins Savannah

List Creation: 03/21/24 07:14 PM

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?	N/A	
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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Edward Bertch
EB Solutions, Inc
5060 4th St. SW
Cedar Rapids, Iowa 52404

Generated 4/8/2024 3:48:48 PM

JOB DESCRIPTION

Crawford Project

JOB NUMBER

310-277571-1

Eurofins Cedar Falls

Job Notes

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

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

Authorization



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Authorized for release by
Zach Bindert, Client Service Manager
Zach.Bindert@et.eurofinsus.com
(319)277-2401



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Case Narrative

Client: EB Solutions, Inc
Project: Crawford Project

Job ID: 310-277571-1

Job ID: 310-277571-1

Eurofins Cedar Falls

Job Narrative 310-277571-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The sample was received on 3/27/2024 9:55 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.1°C.

GC/MS VOA

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

HPLC/IC

Method 9056A_ORGFM_28D: The following sample was diluted due to the nature of the sample matrix: MW4 (310-277571-1). Elevated reporting limits (RLs) are provided.

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

Metals

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

General Chemistry

Method 9020B: Breakthrough exceeded 10% for the following sample: MW4 (310-277571-1).

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

Eurofins Cedar Falls

Sample Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277571-1

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Collected</u>	<u>Received</u>
310-277571-1	MW4	Water	03/25/24 09:00	03/27/24 09:55

1

2

3

4

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15

Detection Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277571-1

Client Sample ID: MW4

Lab Sample ID: 310-277571-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	177		5.00		mg/L	5		9056A	Total/NA
Barium	0.112		0.00200		mg/L	1		6020B	Total/NA
Manganese	0.0785		0.0100		mg/L	1		6020B	Total/NA
Manganese	0.0764		0.0100		mg/L	1		6020B	Dissolved
Molybdenum	0.00222		0.00200		mg/L	1		6020B	Dissolved
Halogens, Total Organic	80.8		40.0		ug/L	1		9020B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277571-1

Client Sample ID: MW4

Lab Sample ID: 310-277571-1

Date Collected: 03/25/24 09:00

Matrix: Water

Date Received: 03/27/24 09:55

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			03/29/24 15:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		80 - 120					03/29/24 15:32	1
Dibromofluoromethane (Surr)	106		73 - 130					03/29/24 15:32	1
Toluene-d8 (Surr)	97		80 - 120					03/29/24 15:32	1

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00		5.00		mg/L			04/04/24 09:49	5
Fluoride	<1.00		1.00		mg/L			04/04/24 09:49	5
Sulfate	177		5.00		mg/L			04/04/24 09:49	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		03/29/24 09:30	04/04/24 22:28	1
Barium	0.112		0.00200		mg/L		03/29/24 09:30	04/04/24 22:28	1
Cadmium	<0.000200		0.000200		mg/L		03/29/24 09:30	04/04/24 22:28	1
Manganese	0.0785		0.0100		mg/L		03/29/24 09:30	04/04/24 22:28	1
Zinc	<0.0200		0.0200		mg/L		03/29/24 09:30	04/04/24 22:28	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		03/28/24 10:00	04/01/24 16:59	1
Arsenic	<0.00200		0.00200		mg/L		03/28/24 10:00	04/01/24 16:59	1
Boron	<0.100	F1	0.100		mg/L		03/28/24 10:00	04/02/24 15:15	1
Cobalt	<0.000500		0.000500		mg/L		03/28/24 10:00	04/01/24 16:59	1
Iron	<0.100		0.100		mg/L		03/28/24 10:00	04/01/24 16:59	1
Manganese	0.0764		0.0100		mg/L		03/28/24 10:00	04/01/24 16:59	1
Molybdenum	0.00222		0.00200		mg/L		03/28/24 10:00	04/01/24 16:59	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	<0.500		0.500		mg/L		04/04/24 09:25	04/04/24 19:36	1
Halogens, Total Organic (SW846 9020B)	80.8		40.0		ug/L		04/03/24 09:40	04/03/24 15:18	1
Phenols, Total (SW846 9066)	<0.0200		0.0200		mg/L		04/01/24 08:20	04/01/24 16:40	1
Total Suspended Solids (USGS I-3765-85)	<5.00		5.00		mg/L			03/27/24 12:11	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0		mg/L			04/05/24 10:12	5

Definitions/Glossary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277571-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.

Glossary

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

Surrogate Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277571-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	DBFM	TOL
		(80-120)	(73-130)	(80-120)
310-277571-1	MW4	105	106	97
LCS 310-417342/6	Lab Control Sample	98	98	101
MB 310-417342/5	Method Blank	103	104	97

Surrogate Legend

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

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277571-1

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

Lab Sample ID: MB 310-417342/5
Matrix: Water
Analysis Batch: 417342

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			03/29/24 11:40	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		80 - 120					03/29/24 11:40	1
Dibromofluoromethane (Surr)	104		73 - 130					03/29/24 11:40	1
Toluene-d8 (Surr)	97		80 - 120					03/29/24 11:40	1

Lab Sample ID: LCS 310-417342/6
Matrix: Water
Analysis Batch: 417342

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2-Butanone (MEK)	40.0	33.96		ug/L		85	50 - 150
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	98		80 - 120				
Dibromofluoromethane (Surr)	98		73 - 130				
Toluene-d8 (Surr)	101		80 - 120				

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-418009/3
Matrix: Water
Analysis Batch: 418009

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			04/04/24 09:21	1
Fluoride	<0.200		0.200		mg/L			04/04/24 09:21	1
Sulfate	<1.00		1.00		mg/L			04/04/24 09:21	1

Lab Sample ID: LCS 310-418009/4
Matrix: Water
Analysis Batch: 418009

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.893		mg/L		99	90 - 110
Fluoride	2.00	2.145		mg/L		107	90 - 110
Sulfate	10.0	10.57		mg/L		106	90 - 110

Lab Sample ID: 310-277571-1 MS
Matrix: Water
Analysis Batch: 418009

Client Sample ID: MW4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	<5.00		25.0	27.75		mg/L		95	80 - 120
Fluoride	<1.00		5.00	5.434		mg/L		109	80 - 120
Sulfate	177		25.0	195.4	4	mg/L		73	80 - 120

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277571-1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: 310-277571-1 MSD
Matrix: Water
Analysis Batch: 418009

Client Sample ID: MW4
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Chloride	<5.00		25.0	28.48		mg/L		97	80 - 120	3	15
Fluoride	<1.00		5.00	5.642		mg/L		113	80 - 120	4	15
Sulfate	177		25.0	198.3	4	mg/L		85	80 - 120	1	15

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-417274/1-A
Matrix: Water
Analysis Batch: 417969

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 417274

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aluminum	<0.0500		0.0500		mg/L		03/29/24 09:30	04/04/24 20:25	1
Barium	<0.00200		0.00200		mg/L		03/29/24 09:30	04/04/24 20:25	1
Cadmium	<0.000200		0.000200		mg/L		03/29/24 09:30	04/04/24 20:25	1
Manganese	<0.0100		0.0100		mg/L		03/29/24 09:30	04/04/24 20:25	1
Zinc	<0.0200		0.0200		mg/L		03/29/24 09:30	04/04/24 20:25	1

Lab Sample ID: LCS 310-417274/2-A
Matrix: Water
Analysis Batch: 417969

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 417274

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
Aluminum	0.200	0.2005		mg/L		100	80 - 120
Barium	0.100	0.09869		mg/L		99	80 - 120
Cadmium	0.100	0.08916		mg/L		89	80 - 120
Manganese	0.100	0.1022		mg/L		102	80 - 120
Zinc	0.200	0.1912		mg/L		96	80 - 120

Lab Sample ID: MB 310-417151/1-B
Matrix: Water
Analysis Batch: 417551

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 417369

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Antimony	<0.00200		0.00200		mg/L		03/28/24 10:00	04/01/24 16:55	1
Arsenic	<0.00200		0.00200		mg/L		03/28/24 10:00	04/01/24 16:55	1
Cobalt	<0.000500		0.000500		mg/L		03/28/24 10:00	04/01/24 16:55	1
Iron	<0.100		0.100		mg/L		03/28/24 10:00	04/01/24 16:55	1
Manganese	<0.0100		0.0100		mg/L		03/28/24 10:00	04/01/24 16:55	1
Molybdenum	<0.00200		0.00200		mg/L		03/28/24 10:00	04/01/24 16:55	1

Lab Sample ID: MB 310-417151/1-B
Matrix: Water
Analysis Batch: 417680

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 417369

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Boron	<0.100		0.100		mg/L		03/28/24 10:00	04/02/24 15:09	1

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277571-1

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

Lab Sample ID: LCS 310-417151/2-B
Matrix: Water
Analysis Batch: 417551

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 417369

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Antimony	0.200	0.2043		mg/L		102	80 - 120	
Arsenic	0.200	0.2042		mg/L		102	80 - 120	
Cobalt	0.100	0.1058		mg/L		106	80 - 120	
Iron	0.200	0.1979		mg/L		99	80 - 120	
Manganese	0.100	0.09975		mg/L		100	80 - 120	
Molybdenum	0.200	0.2005		mg/L		100	80 - 120	

Lab Sample ID: LCS 310-417151/2-B
Matrix: Water
Analysis Batch: 417680

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 417369

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Boron	0.200	0.2013		mg/L		101	80 - 120	

Lab Sample ID: 310-277571-1 MS
Matrix: Water
Analysis Batch: 417551

Client Sample ID: MW4
Prep Type: Dissolved
Prep Batch: 417369

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	
Antimony	<0.00200		0.200	0.2118		mg/L		106	75 - 125	
Arsenic	<0.00200		0.200	0.2101		mg/L		105	75 - 125	
Cobalt	<0.000500		0.100	0.1056		mg/L		105	75 - 125	
Iron	<0.100		0.200	0.2021		mg/L		101	75 - 125	
Manganese	0.0764		0.100	0.1782		mg/L		102	75 - 125	
Molybdenum	0.00222		0.200	0.2083		mg/L		103	75 - 125	

Lab Sample ID: 310-277571-1 MS
Matrix: Water
Analysis Batch: 417680

Client Sample ID: MW4
Prep Type: Dissolved
Prep Batch: 417369

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	
Boron	<0.100	F1	0.200	0.2593	F1	mg/L		130	75 - 125	

Lab Sample ID: 310-277571-1 MSD
Matrix: Water
Analysis Batch: 417551

Client Sample ID: MW4
Prep Type: Dissolved
Prep Batch: 417369

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits		RPD	
											RPD	Limit
Antimony	<0.00200		0.200	0.2077		mg/L		104	75 - 125	2	20	
Arsenic	<0.00200		0.200	0.2097		mg/L		105	75 - 125	0	20	
Cobalt	<0.000500		0.100	0.1057		mg/L		105	75 - 125	0	20	
Iron	<0.100		0.200	0.2065		mg/L		103	75 - 125	2	20	
Manganese	0.0764		0.100	0.1765		mg/L		100	75 - 125	1	20	
Molybdenum	0.00222		0.200	0.2098		mg/L		104	75 - 125	1	20	

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277571-1

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

Lab Sample ID: 310-277571-1 MSD
Matrix: Water
Analysis Batch: 417680

Client Sample ID: MW4
Prep Type: Dissolved
Prep Batch: 417369

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD	Limit
Boron	<0.100	F1	0.200	0.2624	F1	mg/L		131	75 - 125	1	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-417842/1-A
Matrix: Water
Analysis Batch: 417912

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 417842

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Ammonia as N	<0.500		0.500		mg/L		04/04/24 09:25	04/04/24 19:29	1

Lab Sample ID: LCS 310-417842/2-A
Matrix: Water
Analysis Batch: 417912

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 417842

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
Ammonia as N	4.00	3.997		mg/L		100	90 - 110

Method: 9020B - Organic Halides, Total (TOX)

Lab Sample ID: MB 680-831319/1-A
Matrix: Water
Analysis Batch: 831342

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 831319

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Halogens, Total Organic	<40.0		40.0		ug/L		04/03/24 09:40	04/03/24 13:17	1

Lab Sample ID: LCS 680-831319/2-A
Matrix: Water
Analysis Batch: 831342

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 831319

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
Halogens, Total Organic	400	415.6		ug/L		104	60 - 140

Lab Sample ID: 310-277571-1 MS
Matrix: Water
Analysis Batch: 831342

Client Sample ID: MW4
Prep Type: Total/NA
Prep Batch: 831319

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier	Added	Result	Qualifier				Limits
Halogens, Total Organic	80.8		400	481.3		ug/L		100	60 - 140

Lab Sample ID: 310-277571-1 MSD
Matrix: Water
Analysis Batch: 831342

Client Sample ID: MW4
Prep Type: Total/NA
Prep Batch: 831319

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD	Limit
Halogens, Total Organic	80.8		400	450.6		ug/L		92	60 - 140	7	40

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277571-1

Method: 9066 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-417442/1-A
Matrix: Water
Analysis Batch: 417518

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 417442

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0200		0.0200		mg/L		04/01/24 08:20	04/01/24 16:37	1

Lab Sample ID: LCS 310-417442/2-A
Matrix: Water
Analysis Batch: 417518

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 417442

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total	0.100	0.09860		mg/L		99	90 - 110

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

Lab Sample ID: MB 310-417115/1
Matrix: Water
Analysis Batch: 417115

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00		mg/L			03/27/24 12:11	1

Lab Sample ID: LCS 310-417115/2
Matrix: Water
Analysis Batch: 417115

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

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

Method: SM 5220D - COD

Lab Sample ID: MB 310-417970/5
Matrix: Water
Analysis Batch: 417970

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	<5.00		5.00		mg/L			04/05/24 10:12	1

Lab Sample ID: LCS 310-417970/3
Matrix: Water
Analysis Batch: 417970

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	125	122.2		mg/L		97	85 - 115

Lab Sample ID: 310-277571-1 MS
Matrix: Water
Analysis Batch: 417970

Client Sample ID: MW4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	<25.0		250	284.3		mg/L		114	81 - 144

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277571-1

Method: SM 5220D - COD (Continued)

Lab Sample ID: 310-277571-1 MSD

Matrix: Water

Analysis Batch: 417970

Client Sample ID: MW4

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chemical Oxygen Demand	<25.0		250	280.9		mg/L		112	81 - 144	1	15

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

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277571-1

GC/MS VOA

Analysis Batch: 417342

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277571-1	MW4	Total/NA	Water	8260D	
MB 310-417342/5	Method Blank	Total/NA	Water	8260D	
LCS 310-417342/6	Lab Control Sample	Total/NA	Water	8260D	

HPLC/IC

Analysis Batch: 418009

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277571-1	MW4	Total/NA	Water	9056A	
MB 310-418009/3	Method Blank	Total/NA	Water	9056A	
LCS 310-418009/4	Lab Control Sample	Total/NA	Water	9056A	
310-277571-1 MS	MW4	Total/NA	Water	9056A	
310-277571-1 MSD	MW4	Total/NA	Water	9056A	

Metals

Filtration Batch: 417151

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277571-1	MW4	Dissolved	Water	Filtration	
MB 310-417151/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-417151/2-B	Lab Control Sample	Dissolved	Water	Filtration	
310-277571-1 MS	MW4	Dissolved	Water	Filtration	
310-277571-1 MSD	MW4	Dissolved	Water	Filtration	

Prep Batch: 417274

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277571-1	MW4	Total/NA	Water	3005A	
MB 310-417274/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-417274/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 417369

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277571-1	MW4	Dissolved	Water	3005A	417151
MB 310-417151/1-B	Method Blank	Dissolved	Water	3005A	417151
LCS 310-417151/2-B	Lab Control Sample	Dissolved	Water	3005A	417151
310-277571-1 MS	MW4	Dissolved	Water	3005A	417151
310-277571-1 MSD	MW4	Dissolved	Water	3005A	417151

Analysis Batch: 417551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277571-1	MW4	Dissolved	Water	6020B	417369
MB 310-417151/1-B	Method Blank	Dissolved	Water	6020B	417369
LCS 310-417151/2-B	Lab Control Sample	Dissolved	Water	6020B	417369
310-277571-1 MS	MW4	Dissolved	Water	6020B	417369
310-277571-1 MSD	MW4	Dissolved	Water	6020B	417369

Analysis Batch: 417680

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277571-1	MW4	Dissolved	Water	6020B	417369
MB 310-417151/1-B	Method Blank	Dissolved	Water	6020B	417369
LCS 310-417151/2-B	Lab Control Sample	Dissolved	Water	6020B	417369
310-277571-1 MS	MW4	Dissolved	Water	6020B	417369

Eurofins Cedar Falls

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277571-1

Metals (Continued)

Analysis Batch: 417680 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277571-1 MSD	MW4	Dissolved	Water	6020B	417369

Analysis Batch: 417969

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277571-1	MW4	Total/NA	Water	6020B	417274
MB 310-417274/1-A	Method Blank	Total/NA	Water	6020B	417274
LCS 310-417274/2-A	Lab Control Sample	Total/NA	Water	6020B	417274

General Chemistry

Analysis Batch: 417115

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277571-1	MW4	Total/NA	Water	I-3765-85	
MB 310-417115/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-417115/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Prep Batch: 417442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277571-1	MW4	Total/NA	Water	Distill/Phenol	
MB 310-417442/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-417442/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	

Analysis Batch: 417518

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277571-1	MW4	Total/NA	Water	9066	417442
MB 310-417442/1-A	Method Blank	Total/NA	Water	9066	417442
LCS 310-417442/2-A	Lab Control Sample	Total/NA	Water	9066	417442

Prep Batch: 417842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277571-1	MW4	Total/NA	Water	Distill/Ammonia	
MB 310-417842/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-417842/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 417912

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277571-1	MW4	Total/NA	Water	350.1	417842
MB 310-417842/1-A	Method Blank	Total/NA	Water	350.1	417842
LCS 310-417842/2-A	Lab Control Sample	Total/NA	Water	350.1	417842

Analysis Batch: 417970

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277571-1	MW4	Total/NA	Water	SM 5220D	
MB 310-417970/5	Method Blank	Total/NA	Water	SM 5220D	
LCS 310-417970/3	Lab Control Sample	Total/NA	Water	SM 5220D	
310-277571-1 MS	MW4	Total/NA	Water	SM 5220D	
310-277571-1 MSD	MW4	Total/NA	Water	SM 5220D	

Prep Batch: 831319

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277571-1	MW4	Total/NA	Water	Carbon Trap	

Eurofins Cedar Falls

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277571-1

General Chemistry (Continued)

Prep Batch: 831319 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 680-831319/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 680-831319/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	
310-277571-1 MS	MW4	Total/NA	Water	Carbon Trap	
310-277571-1 MSD	MW4	Total/NA	Water	Carbon Trap	

Analysis Batch: 831342

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-277571-1	MW4	Total/NA	Water	9020B	831319
MB 680-831319/1-A	Method Blank	Total/NA	Water	9020B	831319
LCS 680-831319/2-A	Lab Control Sample	Total/NA	Water	9020B	831319
310-277571-1 MS	MW4	Total/NA	Water	9020B	831319
310-277571-1 MSD	MW4	Total/NA	Water	9020B	831319

Lab Chronicle

Client: EB Solutions, Inc
 Project/Site: Crawford Project

Job ID: 310-277571-1

Client Sample ID: MW4

Lab Sample ID: 310-277571-1

Date Collected: 03/25/24 09:00

Matrix: Water

Date Received: 03/27/24 09:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	417342	FE5V	EET CF	03/29/24 15:32
Total/NA	Analysis	9056A		5	418009	QTZ5	EET CF	04/04/24 09:49
Dissolved	Filtration	Filtration			417151	QTZ5	EET CF	03/27/24 16:00
Dissolved	Prep	3005A			417369	QTZ5	EET CF	03/28/24 10:00
Dissolved	Analysis	6020B		1	417551	NFT2	EET CF	04/01/24 16:59
Dissolved	Filtration	Filtration			417151	QTZ5	EET CF	03/27/24 16:00
Dissolved	Prep	3005A			417369	QTZ5	EET CF	03/28/24 10:00
Dissolved	Analysis	6020B		1	417680	NFT2	EET CF	04/02/24 15:15
Total/NA	Prep	3005A			417274	KM3E	EET CF	03/29/24 09:30
Total/NA	Analysis	6020B		1	417969	DHM5	EET CF	04/04/24 22:28
Total/NA	Prep	Distill/Ammonia			417842	MQ8M	EET CF	04/04/24 09:25
Total/NA	Analysis	350.1		1	417912	ZJX4	EET CF	04/04/24 19:36
Total/NA	Prep	Carbon Trap			831319	CLJ	EET SAV	04/03/24 09:40
Total/NA	Analysis	9020B		1	831342	CLJ	EET SAV	04/03/24 15:18
Total/NA	Prep	Distill/Phenol			417442	ENB7	EET CF	04/01/24 08:20
Total/NA	Analysis	9066		1	417518	ZJX4	EET CF	04/01/24 16:40
Total/NA	Analysis	I-3765-85		1	417115	DGU1	EET CF	03/27/24 12:11
Total/NA	Analysis	SM 5220D		5	417970	D7CP	EET CF	04/05/24 10:12

Laboratory References:

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

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Accreditation/Certification Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277571-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-25

Laboratory: Eurofins Savannah

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

Authority	Program	Identification Number	Expiration Date
	AFCEE	SAVLAB	
Alabama	State	41450	06-30-24
ANAB	Dept. of Defense ELAP	L2463	09-22-24
Arkansas (DW)	State	GA00006	06-30-24
California	State	2939	06-30-24
Florida	NELAP	E87052	06-30-24
Georgia	State	E87052	06-30-24
Georgia (DW)	State	803	06-30-24
Guam	State	19-007R	04-17-24
Hawaii	State	<cert No.>	06-30-24
Illinois	NELAP	200022	11-30-24
Indiana	State	C-GA-02	06-30-24
Iowa	State	353	07-01-25
Kentucky (UST)	State	NA	06-30-24
Louisiana	NELAP	30690	06-30-24
Louisiana (All)	NELAP	30690	06-30-24
Louisiana (DW)	State	LA009	12-31-24
Maine	State	GA00006	09-25-24
Maryland	State	250	12-31-24
Massachusetts	State	M-GA006	06-30-24
Michigan	State	9925	06-30-24
Mississippi	State	<cert No.>	06-30-24
Nebraska	State	NE-OS-7-04	06-30-24
New Jersey	NELAP	GA769	06-30-24
New Mexico	State	GA00006	06-30-24
North Carolina (DW)	State	13701	07-31-24
North Carolina (WW/SW)	State	269	12-31-24
Pennsylvania	NELAP	68-00474	06-30-24
Puerto Rico	State	GA00006	01-01-25
South Carolina	State	98001	06-30-24
Tennessee	State	TN02961	06-30-24
Texas	NELAP	T1047004185	11-30-24
Texas	TCEQ Water Supply	T104704185	06-30-24
USDA	US Federal Programs	P330-18-00313	09-03-24
Virginia	NELAP	460161	06-14-24
Wyoming	State	8TMS-L	06-30-24

Method Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-277571-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
350.1	Nitrogen, Ammonia	EPA	EET CF
9020B	Organic Halides, Total (TOX)	SW846	EET SAV
9066	Phenolics, Total Recoverable	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
SM 5220D	COD	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
Carbon Trap	Carbon Trap Preparation	EPA-17	EET SAV
Distill/Ammonia	Distillation, Ammonia	None	EET CF
Distill/Phenol	Distillation, Phenolics	None	EET CF
Filtration	Sample Filtration	None	EET CF

Protocol References:

EPA = US Environmental Protection Agency

EPA-17 = "Method 1650, Revision A, Adsorbable Organic Halides By Adsorption And Colormetric Titration," EPA, February 1992

None = None

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

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

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

Laboratory References:

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

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858



Environment Testing
America



310-277571 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>EP Solutions</u>			
City/State:	CITY	STATE	Project:
		<u>IA</u>	
Receipt Information			
Date/Time Received:	DATE	TIME	Received By:
	<u>3/27/24</u>	<u>0955</u>	<u>[Signature]</u>
Delivery Type:	<input type="checkbox"/> UPS	<input checked="" type="checkbox"/> FedEx	<input type="checkbox"/> FedEx Ground
	<input type="checkbox"/> Lab Courier	<input type="checkbox"/> Lab Field Services	<input type="checkbox"/> Client Drop-off
		<input type="checkbox"/> US Mail	<input type="checkbox"/> Spee-Dee
		<input type="checkbox"/> Other:	
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	If yes: Cooler ID:
Multiple Coolers?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	If yes: Cooler # ____ of ____
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓
Temperature Record			
Coolant:	<input checked="" type="checkbox"/> Wet ice	<input type="checkbox"/> Blue ice	<input type="checkbox"/> Dry ice
			<input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE
Thermometer ID:	<u>1</u>	Correction Factor (°C):	<u>to 0</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>21</u>	Corrected Temp (°C):	<u>21</u>
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE. If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

Chain of Custody Record



Client Information Client Contact: Edward Bertch Company: EB Solutions, Inc. Address: 5060 4th St. SW City: Cedar Rapids State/Zip: IA 52404 Phone: [Redacted]		Lab PM: Bindert, Zach T E-Mail: zach.bindert@testamericainc.com		Carrier Tracking No(s): COC No: 310-36604-12214 1 Page: Page 1 of 1 Job #:	
Due Date Requested: TAT Requested (days): PO #: WO #: Project #: SSON#:		Analysis Requested 8270D 2,4-Dinitrofluorene, Pyridine Pentachloro Ammonia 3501 COD 5220D 9056A_ORGFM_28D Chloride, Fluoride, Sulfate 6020A Dissolved Metals Total Metals 6020A, 7470A 9066 Total Recoverable Phenolics 8260C Benzene and Methyl Ethyl Ketone 13765_85 Residue Non filterable (TSS) 9020B Total Organic Halides (TOX)			
Sample Identification Sample Date: 3-25-24 Sample Time: 9:00 Sample Type (C=Comp, G=grab): G Matrix (W=water, S=solid, O=soil, G=grab, I=ice, A=air): W		Field Filtered Sample (Yes or No) [X] Perform MS/MSD (Yes or No) [X] Total Number of Containers: 12			
Preservation Codes: A HCL B NaOH C Zn Acetate D Nitric Acid E NaHSO4 F MeOH G Amchlor H Ascorbic Acid I Ice J DI Water K EDTA L EDA Other:		Special Instructions/Note Trip Blank			
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested I II III IV Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Empty Kit Relinquished by: [Signature] Relinquished by: [Signature] Relinquished by: [Signature]		Method of Shipment: Date/Time: 3-26-24 / 10:00 Date/Time: [Redacted] Date/Time: [Redacted]			
Custody Seals Intact <input type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No:		Cooler Temperature(s) °C and Other Remarks:			

Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-277571-1

SDG Number:

Login Number: 277571

List Number: 1

Creator: Homolar, Dana J

List Source: Eurofins Cedar Falls

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



Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-277571-1

SDG Number:

Login Number: 277571

List Number: 2

Creator: Munro, Caroline

List Source: Eurofins Savannah

List Creation: 03/28/24 06:09 PM

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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HC0002

EB Solutions, Inc.

Project Name: Environmental Sampling

Ed Bertch
5060 4th St SW
Cedar Rapids, IA 52404

Project / PO Number: N/A
Received: 02/29/2024
Reported: 03/05/2024

Analytical Testing Parameters

Client Sample ID:	MW3	Collected By:	Ed Bertch
Sample Matrix:	Water	Collection Date:	02/27/2024 10:06
Lab Sample ID:	1HC0002-01		

Analyses Performed by: Microbac Laboratories, Inc., Newton

Determination of Carbonyl Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 8315								
Formaldehyde	<10.0	10.0	ug/L	1		03/01/24 1013	03/04/24 1446	EPP

Definitions

RL: Reporting Limit

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <<https://www.microbac.com/standard-terms-conditions>>.

Reviewed and Approved By:

Heather Murphy
Customer Relationship Specialist
heather.murphy@microbac.com
03/05/24 10:59



Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HC0344

EB Solutions, Inc.

Project Name: Crawford

Ed Bertch
5060 4th St SW
Cedar Rapids, IA 52404

Project / PO Number: N/A
Received: 03/06/2024
Reported: 03/08/2024

Analytical Testing Parameters

Client Sample ID:	MW1	Collected By:	Bertch, Ed
Sample Matrix:	Water	Collection Date:	03/04/2024 9:03
Lab Sample ID:	1HC0344-01		

Determination of Carbonyl Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 8315								
Formaldehyde	<10.0	10.0	ug/L	1		03/06/24 0913	03/08/24 0943	EPP

Definitions

RL: Reporting Limit

Report Comments

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Reviewed and Approved By:

Heather Murphy
Customer Relationship Specialist
heather.murphy@microbac.com
03/08/24 16:41

CHAIN OF CUSTODY



LABORATORIES, INC.

600 E. 17th St. S
 Newton, IA. 50208
 Phone: 641-792-8451

3012 Ans
 Waterloo
 Phone: 3-

EB Solutions, Inc.
 Pmt: Heather Murphy

E Van Buren St
 terville, IA. 52544
 ne: 641-437-7023



PRINT OR TYPE INFO BELOW:

SAMPLER: Ed Betch
 SITE NAME: Crawford
 ADDRESS: 5707 F Avenue NW
 CITY/ST/ZIP: Cedar Rapids, Iowa
 PHONE: _____

REPORT TO:

NAME: Ed Betch
 CO. NAME: EB Solutions, Inc.
 ADDRESS: 5060 4th Street SW
 CITY/ST/ZIP: Cedar Rapids, Iowa 52404
 PHONE: 319-249-3293
 Email: edbertch@ebolutionsinc-web.com

BILL TO:

NAME: Same as Report
 CO. NAME: _____
 ADDRESS: _____
 CITY/ST/ZIP: _____
 PHONE: _____
 Email: _____

CLIENT SAMPLE #	DATE	TIME	# OF CONTAINERS	MATRIX	GRAB/COMPOSITE	Formaldehyde	ANALYSES REQUIRED				Sample Condition	Sample #	
MMW1	3/4/24	9:03	2	GW	Grab	X							

Relinquished by: (Signature) *[Signature]* Date: 3/5/24 Time: 5:10 AM

Received by: (Signature) *[Signature]* Date: 3/6/24 Time: 1:50

Relinquished by: (Signature) *[Signature]* Date: _____ Time: _____

Received for Lab by: (Signature) *[Signature]* Date: _____ Time: _____

Remarks: _____

LAB USE ONLY

Wk Order #: IHC0344

Short Hold: _____

Rush: _____

Temp: oC 0.0710



Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HC0888

EB Solutions, Inc.

Ed Bertch
5060 4th St SW
Cedar Rapids, IA 52404

Project Name: Water Analysis

Project / PO Number: N/A
Received: 03/12/2024
Reported: 03/21/2024

Analytical Testing Parameters

Client Sample ID:	MW5	Collected By:	Ed Bertch
Sample Matrix:	Water	Collection Date:	03/11/2024 9:35
Lab Sample ID:	1HC0888-01		

Determination of Carbonyl Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 8315								
Formaldehyde	<10.0	10.0	ug/L	1		03/14/24 1358	03/15/24 1447	PDS

Definitions

RL: Reporting Limit

Report Comments

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Reviewed and Approved By:

Heather Murphy
Customer Relationship Specialist
heather.murphy@microbac.com
03/21/24 14:12



Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HC1280

EB Solutions, Inc.

Project Name: Environmental Sampling

Ed Bertch
5060 4th St SW
Cedar Rapids, IA 52404

Project / PO Number: N/A
Received: 03/20/2024
Reported: 03/29/2024

Analytical Testing Parameters

Client Sample ID:	MW2	Collected By:	Bertch, Ed
Sample Matrix:	Water	Collection Date:	03/18/2024 11:30
Lab Sample ID:	1HC1280-01		

Determination of Carbonyl Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 8315								
Formaldehyde	<10.0	10.0	ug/L	1		03/21/24 1318	03/22/24 1407	PDS

Definitions

RL: Reporting Limit

Report Comments

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Reviewed and Approved By:

Heather Murphy
Customer Relationship Specialist
heather.murphy@microbac.com
03/29/24 08:23



Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HC1767

EB Solutions, Inc.

Project Name: Water Analysis

Ed Bertch
5060 4th St SW
Cedar Rapids, IA 52404

Project / PO Number: N/A
Received: 03/27/2024
Reported: 04/01/2024

Case Narrative

CASE NARRATIVE

The samples received on 03/27/24 11:53 for Work Order 1HC1767 were contained in client supplied containers.

Analytical Testing Parameters

Client Sample ID:	MW4	Collected By:	Bertch, Ed
Sample Matrix:	Water	Collection Date:	03/25/2024 9:00
Lab Sample ID:	1HC1767-01		

Determination of Carbonyl Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 8315								
Formaldehyde	<10.0	10.0	ug/L	1	I-05	03/28/24 1345	04/01/24 1225	PDS

Definitions

- I-05: Sample received at laboratory past hold time for this analyte.
- RL: Reporting Limit

Report Comments

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Reviewed and Approved By:

Heather Murphy
Customer Relationship Specialist
heather.murphy@microbac.com
04/01/24 16:43



ANALYTICAL REPORT

PREPARED FOR

Attn: Edward Bertch
EB Solutions, Inc
5060 4th St. SW
Cedar Rapids, Iowa 52404

Generated 8/7/2024 4:18:58 PM

JOB DESCRIPTION

Crawford Project

JOB NUMBER

310-286677-1

Eurofins Cedar Falls

Job Notes

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

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

Authorization



Generated
8/7/2024 4:18:58 PM

Authorized for release by
Zach Bindert, Senior Project Manager
Zach.Bindert@et.eurofinsus.com
(319)595-2016



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Case Narrative

Client: EB Solutions, Inc
Project: Crawford Project

Job ID: 310-286677-1

Job ID: 310-286677-1

Eurofins Cedar Falls

Job Narrative 310-286677-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The samples were received on 7/25/2024 9:05 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.7°C.

GC/MS VOA

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

HPLC/IC

Method 9056A_ORGFM_28D: The following sample was diluted due to the nature of the sample matrix: MW4 (310-286677-1). Elevated reporting limits (RLs) are provided.

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

Metals

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

General Chemistry

Method 9020B: Breakthrough exceeded 10% for the following sample: MW4 (310-286677-1).

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

Eurofins Cedar Falls

Sample Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-286677-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-286677-1	MW4	Water	07/23/24 10:15	07/25/24 09:05
310-286677-2	Trip Blank	Water	07/23/24 00:00	07/25/24 09:05

1

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Detection Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-286677-1

Client Sample ID: MW4

Lab Sample ID: 310-286677-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.92		5.00		mg/L	5		9056A	Total/NA
Sulfate	234		5.00		mg/L	5		9056A	Total/NA
Barium	0.118		0.00200		mg/L	1		6020B	Total/NA
Manganese	0.0996		0.0100		mg/L	1		6020B	Total/NA
Manganese	0.0912		0.0100		mg/L	1		6020B	Dissolved
Molybdenum	0.00234		0.00200		mg/L	1		6020B	Dissolved

Client Sample ID: Trip Blank

Lab Sample ID: 310-286677-2

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls



Client Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-286677-1

Client Sample ID: MW4

Lab Sample ID: 310-286677-1

Date Collected: 07/23/24 10:15

Matrix: Water

Date Received: 07/25/24 09:05

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			07/27/24 06:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		80 - 120					07/27/24 06:18	1
Dibromofluoromethane (Surr)	100		73 - 130					07/27/24 06:18	1
Toluene-d8 (Surr)	98		80 - 120					07/27/24 06:18	1

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.92		5.00		mg/L			08/06/24 20:39	5
Fluoride	<1.00		1.00		mg/L			08/06/24 20:39	5
Sulfate	234		5.00		mg/L			08/06/24 20:39	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		07/26/24 09:00	07/29/24 16:51	1
Barium	0.118		0.00200		mg/L		07/26/24 09:00	07/29/24 16:51	1
Cadmium	<0.000200		0.000200		mg/L		07/26/24 09:00	07/29/24 16:51	1
Manganese	0.0996		0.0100		mg/L		07/26/24 09:00	07/29/24 16:51	1
Zinc	<0.0200		0.0200		mg/L		07/26/24 09:00	07/29/24 16:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		08/05/24 09:45	08/06/24 14:56	1
Arsenic	<0.00200		0.00200		mg/L		08/05/24 09:45	08/06/24 14:56	1
Boron	<0.100		0.100		mg/L		08/05/24 09:45	08/06/24 14:56	1
Cobalt	<0.000500		0.000500		mg/L		08/05/24 09:45	08/06/24 14:56	1
Iron	<0.100		0.100		mg/L		08/05/24 09:45	08/06/24 14:56	1
Manganese	0.0912		0.0100		mg/L		08/05/24 09:45	08/06/24 14:56	1
Molybdenum	0.00234		0.00200		mg/L		08/05/24 09:45	08/07/24 12:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	<0.500		0.500		mg/L		07/31/24 12:52	07/31/24 22:34	1
Halogens, Total Organic (SW846 9020B)	<40.0		40.0		ug/L		07/31/24 09:04	07/31/24 14:24	1
Phenols, Total (SW846 9066)	<0.0200		0.0200		mg/L		07/26/24 09:03	07/26/24 19:14	1
Total Suspended Solids (USGS I-3765-85)	<1.88		1.88		mg/L			07/29/24 12:16	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0		mg/L			08/02/24 10:11	5

Client Sample Results

Client: EB Solutions, Inc
 Project/Site: Crawford Project

Job ID: 310-286677-1

Client Sample ID: Trip Blank

Lab Sample ID: 310-286677-2

Date Collected: 07/23/24 00:00

Matrix: Water

Date Received: 07/25/24 09:05

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			07/27/24 00:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		80 - 120					07/27/24 00:16	1
Dibromofluoromethane (Surr)	100		73 - 130					07/27/24 00:16	1
Toluene-d8 (Surr)	99		80 - 120					07/27/24 00:16	1

Definitions/Glossary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-286677-1

Glossary

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

Surrogate Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-286677-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	DBFM	TOL
		(80-120)	(73-130)	(80-120)
310-286677-1	MW4	101	100	98
310-286677-2	Trip Blank	103	100	99
LCS 310-428535/6	Lab Control Sample	99	100	100
MB 310-428535/5	Method Blank	102	101	97

Surrogate Legend

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

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-286677-1

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

Lab Sample ID: MB 310-428535/5
Matrix: Water
Analysis Batch: 428535

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			07/26/24 22:01	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		80 - 120					07/26/24 22:01	1
Dibromofluoromethane (Surr)	101		73 - 130					07/26/24 22:01	1
Toluene-d8 (Surr)	97		80 - 120					07/26/24 22:01	1

Lab Sample ID: LCS 310-428535/6
Matrix: Water
Analysis Batch: 428535

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2-Butanone (MEK)	40.0	38.05		ug/L		95	50 - 150
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	99		80 - 120				
Dibromofluoromethane (Surr)	100		73 - 130				
Toluene-d8 (Surr)	100		80 - 120				

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-429686/3
Matrix: Water
Analysis Batch: 429686

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			08/06/24 17:38	1
Fluoride	<0.200		0.200		mg/L			08/06/24 17:38	1
Sulfate	<1.00		1.00		mg/L			08/06/24 17:38	1

Lab Sample ID: LCS 310-429686/4
Matrix: Water
Analysis Batch: 429686

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.626		mg/L		96	90 - 110
Fluoride	2.00	2.030		mg/L		102	90 - 110
Sulfate	10.0	10.13		mg/L		101	90 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-428469/1-A
Matrix: Water
Analysis Batch: 428782

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 428469

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		07/26/24 09:00	07/29/24 15:02	1
Barium	<0.00200		0.00200		mg/L		07/26/24 09:00	07/29/24 15:02	1
Cadmium	<0.000200		0.000200		mg/L		07/26/24 09:00	07/29/24 15:02	1

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-286677-1

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

Lab Sample ID: MB 310-428469/1-A
Matrix: Water
Analysis Batch: 428782

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 428469

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Zinc	<0.0200		0.0200		mg/L		07/26/24 09:00	07/29/24 15:02	1
Manganese	<0.0100		0.0100		mg/L		07/26/24 09:00	07/29/24 15:02	1

Lab Sample ID: LCS 310-428469/2-A
Matrix: Water
Analysis Batch: 428782

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 428469

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Aluminum	0.200	0.2034		mg/L		102	80 - 120
Barium	0.100	0.1021		mg/L		102	80 - 120
Cadmium	0.100	0.09631		mg/L		96	80 - 120
Zinc	0.200	0.1929		mg/L		96	80 - 120
Manganese	0.100	0.1040		mg/L		104	80 - 120

Lab Sample ID: MB 310-429274/1-B
Matrix: Water
Analysis Batch: 429628

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 429358

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Antimony	<0.00200		0.00200		mg/L		08/05/24 09:45	08/06/24 13:54	1
Arsenic	<0.00200		0.00200		mg/L		08/05/24 09:45	08/06/24 13:54	1
Boron	<0.100		0.100		mg/L		08/05/24 09:45	08/06/24 13:54	1
Cobalt	<0.000500		0.000500		mg/L		08/05/24 09:45	08/06/24 13:54	1
Iron	<0.100		0.100		mg/L		08/05/24 09:45	08/06/24 13:54	1
Manganese	<0.0100		0.0100		mg/L		08/05/24 09:45	08/06/24 13:54	1
Molybdenum	<0.00200		0.00200		mg/L		08/05/24 09:45	08/06/24 13:54	1

Lab Sample ID: LCS 310-429274/2-B
Matrix: Water
Analysis Batch: 429628

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 429358

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Antimony	0.200	0.2316		mg/L		116	80 - 120
Arsenic	0.200	0.2148		mg/L		107	80 - 120
Boron	0.200	0.2095		mg/L		105	80 - 120
Cobalt	0.100	0.1129		mg/L		113	80 - 120
Iron	0.200	0.2234		mg/L		112	80 - 120
Manganese	0.100	0.1066		mg/L		107	80 - 120
Molybdenum	0.200	0.2265		mg/L		113	80 - 120

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-428990/1-A
Matrix: Water
Analysis Batch: 429045

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 428990

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Ammonia as N	<0.500		0.500		mg/L		07/31/24 12:52	07/31/24 22:18	1

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-286677-1

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: LCS 310-428990/2-A
Matrix: Water
Analysis Batch: 429045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 428990

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	4.00	3.655		mg/L		91	90 - 110

Method: 9020B - Organic Halides, Total (TOX)

Lab Sample ID: MB 680-849514/1-A
Matrix: Water
Analysis Batch: 849586

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 849514

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	<40.0		40.0		ug/L		07/31/24 09:04	07/31/24 12:55	1

Lab Sample ID: LCS 680-849514/2-A
Matrix: Water
Analysis Batch: 849586

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 849514

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	400	381.6		ug/L		95	60 - 140

Lab Sample ID: 310-286677-1 MS
Matrix: Water
Analysis Batch: 849586

Client Sample ID: MW4
Prep Type: Total/NA
Prep Batch: 849514

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	<40.0		400	445.1		ug/L		105	60 - 140

Lab Sample ID: 310-286677-1 MSD
Matrix: Water
Analysis Batch: 849586

Client Sample ID: MW4
Prep Type: Total/NA
Prep Batch: 849514

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Halogens, Total Organic	<40.0		400	402.4		ug/L		94	60 - 140	10	40

Method: 9066 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-428527/1-A
Matrix: Water
Analysis Batch: 428640

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 428527

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0200		0.0200		mg/L		07/26/24 09:03	07/26/24 19:13	1

Lab Sample ID: LCS 310-428527/2-A
Matrix: Water
Analysis Batch: 428640

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 428527

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total	0.100	0.1004		mg/L		100	90 - 110

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-286677-1

Method: 9066 - Phenolics, Total Recoverable (Continued)

Lab Sample ID: 310-286677-1 MS
Matrix: Water
Analysis Batch: 428640

Client Sample ID: MW4
Prep Type: Total/NA
Prep Batch: 428527

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total	<0.0200		0.100	0.08080		mg/L		81	76 - 119

Lab Sample ID: 310-286677-1 MSD
Matrix: Water
Analysis Batch: 428640

Client Sample ID: MW4
Prep Type: Total/NA
Prep Batch: 428527

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Phenols, Total	<0.0200		0.100	0.08346		mg/L		83	76 - 119	3	16

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

Lab Sample ID: MB 310-428725/1
Matrix: Water
Analysis Batch: 428725

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00		mg/L			07/29/24 12:16	1

Lab Sample ID: LCS 310-428725/2
Matrix: Water
Analysis Batch: 428725

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	97.00		mg/L		97	81 - 116

Method: SM 5220D - COD

Lab Sample ID: MB 310-429223/5
Matrix: Water
Analysis Batch: 429223

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	<5.00		5.00		mg/L			08/02/24 10:11	1

Lab Sample ID: MB 310-429223/60
Matrix: Water
Analysis Batch: 429223

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	<5.00		5.00		mg/L			08/02/24 10:11	1

Lab Sample ID: LCS 310-429223/3
Matrix: Water
Analysis Batch: 429223

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	125	119.4		mg/L		95	85 - 110

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-286677-1

Method: SM 5220D - COD (Continued)

Lab Sample ID: LCS 310-429223/63

Matrix: Water

Analysis Batch: 429223

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	125	125.7		mg/L		100	85 - 110

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QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-286677-1

GC/MS VOA

Analysis Batch: 428535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-286677-1	MW4	Total/NA	Water	8260D	
310-286677-2	Trip Blank	Total/NA	Water	8260D	
MB 310-428535/5	Method Blank	Total/NA	Water	8260D	
LCS 310-428535/6	Lab Control Sample	Total/NA	Water	8260D	

HPLC/IC

Analysis Batch: 429686

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-286677-1	MW4	Total/NA	Water	9056A	
MB 310-429686/3	Method Blank	Total/NA	Water	9056A	
LCS 310-429686/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 428469

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-286677-1	MW4	Total/NA	Water	3005A	
MB 310-428469/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-428469/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 428782

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-286677-1	MW4	Total/NA	Water	6020B	428469
MB 310-428469/1-A	Method Blank	Total/NA	Water	6020B	428469
LCS 310-428469/2-A	Lab Control Sample	Total/NA	Water	6020B	428469

Filtration Batch: 429274

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-286677-1	MW4	Dissolved	Water	Filtration	
MB 310-429274/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-429274/2-B	Lab Control Sample	Dissolved	Water	Filtration	

Prep Batch: 429358

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-286677-1	MW4	Dissolved	Water	3005A	429274
MB 310-429274/1-B	Method Blank	Dissolved	Water	3005A	429274
LCS 310-429274/2-B	Lab Control Sample	Dissolved	Water	3005A	429274

Analysis Batch: 429628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-286677-1	MW4	Dissolved	Water	6020B	429358
MB 310-429274/1-B	Method Blank	Dissolved	Water	6020B	429358
LCS 310-429274/2-B	Lab Control Sample	Dissolved	Water	6020B	429358

Analysis Batch: 429696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-286677-1	MW4	Dissolved	Water	6020B	429358

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-286677-1

General Chemistry

Prep Batch: 428527

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-286677-1	MW4	Total/NA	Water	Distill/Phenol	
MB 310-428527/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-428527/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	
310-286677-1 MS	MW4	Total/NA	Water	Distill/Phenol	
310-286677-1 MSD	MW4	Total/NA	Water	Distill/Phenol	

Analysis Batch: 428640

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-286677-1	MW4	Total/NA	Water	9066	428527
MB 310-428527/1-A	Method Blank	Total/NA	Water	9066	428527
LCS 310-428527/2-A	Lab Control Sample	Total/NA	Water	9066	428527
310-286677-1 MS	MW4	Total/NA	Water	9066	428527
310-286677-1 MSD	MW4	Total/NA	Water	9066	428527

Analysis Batch: 428725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-286677-1	MW4	Total/NA	Water	I-3765-85	
MB 310-428725/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-428725/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Prep Batch: 428990

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-286677-1	MW4	Total/NA	Water	Distill/Ammonia	
MB 310-428990/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-428990/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 429045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-286677-1	MW4	Total/NA	Water	350.1	428990
MB 310-428990/1-A	Method Blank	Total/NA	Water	350.1	428990
LCS 310-428990/2-A	Lab Control Sample	Total/NA	Water	350.1	428990

Analysis Batch: 429223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-286677-1	MW4	Total/NA	Water	SM 5220D	
MB 310-429223/5	Method Blank	Total/NA	Water	SM 5220D	
MB 310-429223/60	Method Blank	Total/NA	Water	SM 5220D	
LCS 310-429223/3	Lab Control Sample	Total/NA	Water	SM 5220D	
LCS 310-429223/63	Lab Control Sample	Total/NA	Water	SM 5220D	

Prep Batch: 849514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-286677-1	MW4	Total/NA	Water	Carbon Trap	
MB 680-849514/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 680-849514/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	
310-286677-1 MS	MW4	Total/NA	Water	Carbon Trap	
310-286677-1 MSD	MW4	Total/NA	Water	Carbon Trap	

Analysis Batch: 849586

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-286677-1	MW4	Total/NA	Water	9020B	849514

Eurofins Cedar Falls

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-286677-1

General Chemistry (Continued)

Analysis Batch: 849586 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 680-849514/1-A	Method Blank	Total/NA	Water	9020B	849514
LCS 680-849514/2-A	Lab Control Sample	Total/NA	Water	9020B	849514
310-286677-1 MS	MW4	Total/NA	Water	9020B	849514
310-286677-1 MSD	MW4	Total/NA	Water	9020B	849514

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Lab Chronicle

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-286677-1

Client Sample ID: MW4

Lab Sample ID: 310-286677-1

Date Collected: 07/23/24 10:15

Matrix: Water

Date Received: 07/25/24 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	428535	WSE8	EET CF	07/27/24 06:18
Total/NA	Analysis	9056A		5	429686	QTZ5	EET CF	08/06/24 20:39
Dissolved	Filtration	Filtration			429274	QTZ5	EET CF	08/02/24 15:38
Dissolved	Prep	3005A			429358	QTZ5	EET CF	08/05/24 09:45
Dissolved	Analysis	6020B		1	429628	NFT2	EET CF	08/06/24 14:56
Dissolved	Filtration	Filtration			429274	QTZ5	EET CF	08/02/24 15:38
Dissolved	Prep	3005A			429358	QTZ5	EET CF	08/05/24 09:45
Dissolved	Analysis	6020B		1	429696	NFT2	EET CF	08/07/24 12:02
Total/NA	Prep	3005A			428469	QTZ5	EET CF	07/26/24 09:00
Total/NA	Analysis	6020B		1	428782	NFT2	EET CF	07/29/24 16:51
Total/NA	Prep	Distill/Ammonia			428990	A3GU	EET CF	07/31/24 12:52
Total/NA	Analysis	350.1		1	429045	ZJX4	EET CF	07/31/24 22:34
Total/NA	Prep	Carbon Trap			849514	CLJ	EET SAV	07/31/24 09:04
Total/NA	Analysis	9020B		1	849586	CLJ	EET SAV	07/31/24 14:24
Total/NA	Prep	Distill/Phenol			428527	A3GU	EET CF	07/26/24 09:03
Total/NA	Analysis	9066		1	428640	ZJX4	EET CF	07/26/24 19:14
Total/NA	Analysis	I-3765-85		1	428725	ENB7	EET CF	07/29/24 12:16
Total/NA	Analysis	SM 5220D		5	429223	ENB7	EET CF	08/02/24 10:11

Client Sample ID: Trip Blank

Lab Sample ID: 310-286677-2

Date Collected: 07/23/24 00:00

Matrix: Water

Date Received: 07/25/24 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	428535	WSE8	EET CF	07/27/24 00:16

Laboratory References:

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

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Accreditation/Certification Summary

Client: EB Solutions, Inc
 Project/Site: Crawford Project

Job ID: 310-286677-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-25

Laboratory: Eurofins Savannah

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

Authority	Program	Identification Number	Expiration Date
	AFCEE	SAVLAB	
ANAB	Dept. of Defense ELAP	L2463	09-22-24
Arkansas DEQ	State	88-00692	02-01-25
Florida	NELAP	E87052	06-30-25
Georgia	State	E87052	06-30-25
Guam	State	24-05R	04-17-25
Illinois	NELAP	200022	11-30-24
Iowa	State	353	07-01-25
Louisiana (All)	NELAP	30690	06-30-25
Louisiana (DW)	State	LA009	12-31-24
Maine	State	GA00006	09-25-24
Maryland	State	250	12-31-24
North Carolina (DW)	State	13701	07-31-24
North Carolina (WW/SW)	State	269	12-31-24
Puerto Rico	State	GA00006	01-01-25
South Carolina	State	98001	06-30-24 *
Tennessee	State	TN02961	06-30-25
Texas	NELAP	T1047004185	11-30-24
USDA	US Federal Programs	P330-18-00313	04-04-27
Virginia	NELAP	460161	06-14-25

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

Method Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-286677-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
350.1	Nitrogen, Ammonia	EPA	EET CF
9020B	Organic Halides, Total (TOX)	SW846	EET SAV
9066	Phenolics, Total Recoverable	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
SM 5220D	COD	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
Carbon Trap	Carbon Trap Preparation	EPA-17	EET SAV
Distill/Ammonia	Distillation, Ammonia	None	EET CF
Distill/Phenol	Distillation, Phenolics	None	EET CF
Filtration	Sample Filtration	None	EET CF

Protocol References:

EPA = US Environmental Protection Agency

EPA-17 = "Method 1650, Revision A, Adsorbable Organic Halides By Adsorption And Colormetric Titration," EPA, February 1992

None = None

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

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

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

Laboratory References:

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

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858



Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>EB Solutions Inc</u>			
City/State:	CITY	STATE	Project:
		<u>IA</u>	
Receipt Information			
Date/Time Received:	DATE	TIME	Received By:
	<u>7-25-24</u>	<u>0905</u>	<u>SM</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler ID: _____			
Multiple Coolers? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Cooler # _____ of _____			
Cooler Custody Seals Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Sample Custody Seals Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Trip Blank Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Which VOA samples are in cooler? ↓			
<u>all</u>			
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>R</u>		Correction Factor (°C): <u>0</u>	
*Temp Blank Temperature - If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):		Corrected Temp (°C):	
Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
	<u>plastic 250mL</u>		
Uncorrected Temp (°C):	<u>4.7</u>		
Corrected Temp (°C):	<u>4.7</u>		
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			



Chain of Custody Record



Client Information Client Contact: Edward Bertsch Company: EB Solutions Inc Address: 5060 4th St. SW City: Cedar Rapids State, Zip: IA, 52404 Phone: Email: edbertsch@ebolutionsinc-web.com Project Name: Crawford Project Site:		Sampler: Ed Bertsch Lab Pkt: Bindert, Zach T E-Mail: zach.bindert@testamericainc.com Company:		COC No.: 310-36804-12214 1 Page: Page 1 of 1 Job #:		Carrier Tracking No(s):	
Due Date Requested: TAT Requested (days): PO #: WO #: Project #: SSOW#:		Analysis Requested 8270D 2 Dinitrotoluene, Pyridine Pentachlor Ammonia 350 1 COD 5220D 9056A ORGM_28D Chloride, Fluoride, Sulfate 6020A Dissolved Metals Total Metals 6020A 7470A 9086 Total Recoverable Phenolics 8260C Benzene and Methyl Ethyl Ketone 13765_85 Residue Non filterable (TSS) 9020B Total Organic Halides (TOX)					
Sample Identification MW4 Sample Date: 7/23/24 Sample Time: 10:15 Sample Type (C=Comp, G=grab): G Matrix (Water, Soil, Other): Water Preservation Code:		Field Filtered Sample (Yes or No): Perform MS/MSD (Yes or No): 9056A ORGM_28D Chloride, Fluoride, Sulfate 6020A Dissolved Metals Total Metals 6020A 7470A 9086 Total Recoverable Phenolics 8260C Benzene and Methyl Ethyl Ketone 13765_85 Residue Non filterable (TSS) 9020B Total Organic Halides (TOX)		Total Number of Containers: 12 Special Instructions/Note:		Preservation Codes: A HCL B NaOH C Zn-Acetate D Nitric Acid E NaHSO4 F MeOH G Amchlor H Ascorbic Acid I Ice J DI Water K EDTA L EDA Other:	
Trip Blank Date: 7/23/24		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab Archive For: Months		Special Instructions/QC Requirements		Method of Shipment:	
Relinquished by: [Signature] Date: 7/24/24 10:15 Company: EB Solutions		Relinquished by: [Signature] Date: 7-23-24 09:05 Company:		Relinquished by: [Signature] Date:		Relinquished by: [Signature] Date:	
Relinquished by: [Signature] Date:		Relinquished by: [Signature] Date:		Relinquished by: [Signature] Date:		Relinquished by: [Signature] Date:	
Custody Seals Intact Δ Yes Δ No		Custody Seal No		Cooler Temperature(s) °C and Other Remarks:		Ver: 08/04/2016	



Eurofins Cedar Falls

3019 Venture Way
 Cedar Falls, IA 50613
 Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab)		Sampler:		Lab PM: Bindert, Zach T		Carrier Tracking No(s):		COC No: 310-74783.1			
Client Contact: Shipping/Receiving		Phone:		E-Mail: Zach.Bindert@et.eurofinsus.com		State of Origin: Iowa		Page: Page 1 of 1			
Company: Eurofins Environment Testing Southeast L				Accreditations Required (See note): State Program - Iowa				Job #: 310-286677-1			
Address: 5102 LaRoche Avenue,		Due Date Requested: 8/7/2024		Analysis Requested						Preservation Codes: -	
City: Savannah		TAT Requested (days):									
State, Zip: GA, 31404		PO #:									
Phone: 912-354-7858(Tel) 912-352-0165(Fax)		WO #:									
Email:		Project #: 31007226									
Project Name: Crawford Project		SSOW#:		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of containers			
Site:		Other:		9020B/Carbon_Trap							
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (Water, Soild, Onwaste/oil, BT-Tissue, Air)		Special Instructions/Note:	
MW4 (310-286677-1)		7/23/24		10:15 Central		Water		X		1	
<p>Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.</p>											
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
Unconfirmed						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested: I, II, III, IV, Other (specify)				Primary Deliverable Rank: 2		Special Instructions/QC Requirements:					
Empty Kit Relinquished by:				Date:		Time:		Method of Shipment:			
Relinquished by:		Date/Time:		Company		Received by:		Date/Time:		Company	
Relinquished by:		Date/Time:		Company		Received by:		Date/Time:		Company	
Relinquished by:		Date/Time:		Company		Received by:		Date/Time:		Company	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:				Cooler Temperature(s) °C and Other Remarks: 0.5705					

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Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-286677-1

Login Number: 286677

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Miller, Samuel

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



Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-286677-1

Login Number: 286677

List Number: 2

Creator: Johnson, Corey M

List Source: Eurofins Savannah

List Creation: 07/26/24 01:30 PM

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?	N/A	
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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Edward Bertch
EB Solutions, Inc
5060 4th St. SW
Cedar Rapids, Iowa 52404

Generated 8/13/2024 9:43:16 AM

JOB DESCRIPTION

Crawford Project

JOB NUMBER

310-287077-1

Eurofins Cedar Falls

Job Notes

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

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

Authorization



Generated
8/13/2024 9:43:16 AM

Authorized for release by
Zach Bindert, Senior Project Manager
Zach.Bindert@et.eurofinsus.com
(319)595-2016



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Case Narrative

Client: EB Solutions, Inc
Project: Crawford Project

Job ID: 310-287077-1

Job ID: 310-287077-1

Eurofins Cedar Falls

Job Narrative 310-287077-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The sample was received on 7/31/2024 9:05 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.5°C.

GC/MS VOA

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

HPLC/IC

Method 9056A_ORGFM_28D: The following sample was diluted due to the nature of the sample matrix: MW1 (310-287077-1). Elevated reporting limits (RLs) are provided.

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

Metals

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

General Chemistry

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

Eurofins Cedar Falls

Sample Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287077-1

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Collected</u>	<u>Received</u>
310-287077-1	MW1	Water	07/29/24 09:40	07/31/24 09:05

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Detection Summary

Client: EB Solutions, Inc
 Project/Site: Crawford Project

Job ID: 310-287077-1

Client Sample ID: MW1

Lab Sample ID: 310-287077-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.97		5.00		mg/L	5		9056A	Total/NA
Sulfate	1010		50.0		mg/L	50		9056A	Total/NA
Barium	0.0203		0.00200		mg/L	1		6020B	Total/NA
Manganese	0.0727		0.0100		mg/L	1		6020B	Total/NA
Boron	0.120		0.100		mg/L	1		6020B	Dissolved
Cobalt	0.000752		0.000500		mg/L	1		6020B	Dissolved
Manganese	0.0757	F1	0.0100		mg/L	1		6020B	Dissolved
Molybdenum	0.00233	F1	0.00200		mg/L	1		6020B	Dissolved
Halogens, Total Organic	45.8		40.0		ug/L	1		9020B	Total/NA
Chemical Oxygen Demand	39.8		25.0		mg/L	5		SM 5220D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls



Client Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287077-1

Client Sample ID: MW1

Lab Sample ID: 310-287077-1

Date Collected: 07/29/24 09:40

Matrix: Water

Date Received: 07/31/24 09:05

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			08/01/24 16:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		80 - 120					08/01/24 16:52	1
Dibromofluoromethane (Surr)	101		73 - 130					08/01/24 16:52	1
Toluene-d8 (Surr)	95		80 - 120					08/01/24 16:52	1

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.97		5.00		mg/L			08/09/24 16:00	5
Fluoride	<1.00		1.00		mg/L			08/09/24 16:00	5
Sulfate	1010		50.0		mg/L			08/09/24 16:25	50

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		08/01/24 09:00	08/05/24 17:42	1
Barium	0.0203		0.00200		mg/L		08/01/24 09:00	08/05/24 17:42	1
Cadmium	<0.000200		0.000200		mg/L		08/01/24 09:00	08/05/24 17:42	1
Manganese	0.0727		0.0100		mg/L		08/01/24 09:00	08/05/24 17:42	1
Zinc	<0.0200		0.0200		mg/L		08/01/24 09:00	08/05/24 17:42	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		08/05/24 09:45	08/06/24 13:58	1
Arsenic	<0.00200		0.00200		mg/L		08/05/24 09:45	08/06/24 13:58	1
Boron	0.120		0.100		mg/L		08/05/24 09:45	08/06/24 13:58	1
Cobalt	0.000752		0.000500		mg/L		08/05/24 09:45	08/06/24 13:58	1
Iron	<0.100		0.100		mg/L		08/05/24 09:45	08/06/24 13:58	1
Manganese	0.0757	F1	0.0100		mg/L		08/05/24 09:45	08/06/24 13:58	1
Molybdenum	0.00233	F1	0.00200		mg/L		08/05/24 09:45	08/06/24 13:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	<0.500		0.500		mg/L		08/06/24 09:11	08/06/24 19:18	1
Halogens, Total Organic (SW846 9020B)	45.8		40.0		ug/L		08/12/24 06:45	08/12/24 12:02	1
Phenols, Total (SW846 9066)	<0.0200		0.0200		mg/L		08/05/24 08:23	08/05/24 23:36	1
Total Suspended Solids (USGS I-3765-85)	<1.88		1.88		mg/L			07/31/24 13:44	1
Chemical Oxygen Demand (SM 5220D)	39.8		25.0		mg/L			08/07/24 09:47	5

Definitions/Glossary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287077-1

Qualifiers

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.

Glossary

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

Surrogate Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287077-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	DBFM	TOL
		(80-120)	(73-130)	(80-120)
310-287077-1	MW1	103	101	95
LCS 310-429138/6	Lab Control Sample	100	93	100
MB 310-429138/5	Method Blank	103	105	100

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287077-1

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

Lab Sample ID: MB 310-429138/5
Matrix: Water
Analysis Batch: 429138

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			08/01/24 11:12	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		80 - 120					08/01/24 11:12	1
Dibromofluoromethane (Surr)	105		73 - 130					08/01/24 11:12	1
Toluene-d8 (Surr)	100		80 - 120					08/01/24 11:12	1

Lab Sample ID: LCS 310-429138/6
Matrix: Water
Analysis Batch: 429138

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2-Butanone (MEK)	40.0	40.17		ug/L		100	50 - 150
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	100		80 - 120				
Dibromofluoromethane (Surr)	93		73 - 130				
Toluene-d8 (Surr)	100		80 - 120				

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-430008/3
Matrix: Water
Analysis Batch: 430008

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			08/09/24 11:11	1
Fluoride	<0.200		0.200		mg/L			08/09/24 11:11	1
Sulfate	<1.00		1.00		mg/L			08/09/24 11:11	1

Lab Sample ID: LCS 310-430008/4
Matrix: Water
Analysis Batch: 430008

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.752		mg/L		98	90 - 110
Fluoride	2.00	2.012		mg/L		101	90 - 110
Sulfate	10.0	10.10		mg/L		101	90 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-429041/1-A
Matrix: Water
Analysis Batch: 429475

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 429041

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		08/01/24 09:00	08/05/24 16:43	1
Barium	<0.00200		0.00200		mg/L		08/01/24 09:00	08/05/24 16:43	1
Cadmium	<0.000200		0.000200		mg/L		08/01/24 09:00	08/05/24 16:43	1

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287077-1

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

Lab Sample ID: MB 310-429041/1-A
Matrix: Water
Analysis Batch: 429475

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 429041

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Zinc	<0.0200		0.0200		mg/L		08/01/24 09:00	08/05/24 16:43	1
Manganese	<0.0100		0.0100		mg/L		08/01/24 09:00	08/05/24 16:43	1

Lab Sample ID: LCS 310-429041/2-A
Matrix: Water
Analysis Batch: 429475

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 429041

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	
Aluminum	0.200	0.2055		mg/L		103	80 - 120	
Barium	0.100	0.1030		mg/L		103	80 - 120	
Cadmium	0.100	0.09773		mg/L		98	80 - 120	
Zinc	0.200	0.1908		mg/L		95	80 - 120	
Manganese	0.100	0.09662		mg/L		97	80 - 120	

Lab Sample ID: MB 310-429274/1-B
Matrix: Water
Analysis Batch: 429628

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 429358

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Antimony	<0.00200		0.00200		mg/L		08/05/24 09:45	08/06/24 13:54	1
Arsenic	<0.00200		0.00200		mg/L		08/05/24 09:45	08/06/24 13:54	1
Boron	<0.100		0.100		mg/L		08/05/24 09:45	08/06/24 13:54	1
Cobalt	<0.000500		0.000500		mg/L		08/05/24 09:45	08/06/24 13:54	1
Iron	<0.100		0.100		mg/L		08/05/24 09:45	08/06/24 13:54	1
Manganese	<0.0100		0.0100		mg/L		08/05/24 09:45	08/06/24 13:54	1
Molybdenum	<0.00200		0.00200		mg/L		08/05/24 09:45	08/06/24 13:54	1

Lab Sample ID: LCS 310-429274/2-B
Matrix: Water
Analysis Batch: 429628

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 429358

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	
Antimony	0.200	0.2316		mg/L		116	80 - 120	
Arsenic	0.200	0.2148		mg/L		107	80 - 120	
Boron	0.200	0.2095		mg/L		105	80 - 120	
Cobalt	0.100	0.1129		mg/L		113	80 - 120	
Iron	0.200	0.2234		mg/L		112	80 - 120	
Manganese	0.100	0.1066		mg/L		107	80 - 120	
Molybdenum	0.200	0.2265		mg/L		113	80 - 120	

Lab Sample ID: 310-287077-1 MS
Matrix: Water
Analysis Batch: 429628

Client Sample ID: MW1
Prep Type: Dissolved
Prep Batch: 429358

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec	
									Limits	
Antimony	<0.00200		0.200	0.2304		mg/L		115	75 - 125	
Arsenic	<0.00200		0.200	0.2171		mg/L		109	75 - 125	
Boron	0.120		0.200	0.3439		mg/L		112	75 - 125	
Cobalt	0.000752		0.100	0.1092		mg/L		108	75 - 125	
Iron	<0.100		0.200	0.2364		mg/L		118	75 - 125	

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287077-1

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

Lab Sample ID: 310-287077-1 MS
Matrix: Water
Analysis Batch: 429628

Client Sample ID: MW1
Prep Type: Dissolved
Prep Batch: 429358

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	0.0757	F1	0.100	0.2127	F1	mg/L		137	75 - 125
Molybdenum	0.00233	F1	0.200	0.2613	F1	mg/L		129	75 - 125

Lab Sample ID: 310-287077-1 MSD
Matrix: Water
Analysis Batch: 429628

Client Sample ID: MW1
Prep Type: Dissolved
Prep Batch: 429358

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	<0.00200		0.200	0.2282		mg/L		114	75 - 125	1	20
Arsenic	<0.00200		0.200	0.2142		mg/L		107	75 - 125	1	20
Boron	0.120		0.200	0.3435		mg/L		112	75 - 125	0	20
Cobalt	0.000752		0.100	0.1088		mg/L		108	75 - 125	0	20
Iron	<0.100		0.200	0.2374		mg/L		119	75 - 125	0	20
Manganese	0.0757	F1	0.100	0.2093	F1	mg/L		134	75 - 125	2	20
Molybdenum	0.00233	F1	0.200	0.2700	F1	mg/L		134	75 - 125	3	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-429502/1-A
Matrix: Water
Analysis Batch: 429594

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 429502

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	<0.500		0.500		mg/L		08/06/24 09:11	08/06/24 19:11	1

Lab Sample ID: LCS 310-429502/2-A
Matrix: Water
Analysis Batch: 429594

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 429502

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	4.00	4.014		mg/L		100	90 - 110

Method: 9020B - Organic Halides, Total (TOX)

Lab Sample ID: MB 680-851077/1-A
Matrix: Water
Analysis Batch: 851078

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 851077

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	<40.0		40.0		ug/L		08/12/24 06:45	08/12/24 07:36	1

Lab Sample ID: LCS 680-851077/2-A
Matrix: Water
Analysis Batch: 851078

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 851077

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	400	396.8		ug/L		99	60 - 140

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287077-1

Method: 9020B - Organic Halides, Total (TOX) (Continued)

Lab Sample ID: 310-287077-1 MS
Matrix: Water
Analysis Batch: 851078

Client Sample ID: MW1
Prep Type: Total/NA
Prep Batch: 851077

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	45.8		400	457.8		ug/L		103	60 - 140

Lab Sample ID: 310-287077-1 MSD
Matrix: Water
Analysis Batch: 851078

Client Sample ID: MW1
Prep Type: Total/NA
Prep Batch: 851077

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Halogens, Total Organic	45.8		400	436.0		ug/L		98	60 - 140	5	40

Method: 9066 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-429341/1-A
Matrix: Water
Analysis Batch: 429448

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 429341

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0192		0.0192		mg/L		08/05/24 08:23	08/05/24 23:34	1

Lab Sample ID: LCS 310-429341/9-A
Matrix: Water
Analysis Batch: 429448

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 429341

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total	0.100	0.09816		mg/L		98	90 - 110

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

Lab Sample ID: MB 310-429002/1
Matrix: Water
Analysis Batch: 429002

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00		mg/L			07/31/24 13:44	1

Lab Sample ID: LCS 310-429002/2
Matrix: Water
Analysis Batch: 429002

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	97.00		mg/L		97	81 - 116

Method: SM 5220D - COD

Lab Sample ID: MB 310-429659/5
Matrix: Water
Analysis Batch: 429659

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	<5.00		5.00		mg/L			08/07/24 09:47	1

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287077-1

Method: SM 5220D - COD (Continued)

Lab Sample ID: LCS 310-429659/3

Matrix: Water

Analysis Batch: 429659

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	125	127.3		mg/L		102	85 - 110

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QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287077-1

GC/MS VOA

Analysis Batch: 429138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287077-1	MW1	Total/NA	Water	8260D	
MB 310-429138/5	Method Blank	Total/NA	Water	8260D	
LCS 310-429138/6	Lab Control Sample	Total/NA	Water	8260D	

HPLC/IC

Analysis Batch: 430008

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287077-1	MW1	Total/NA	Water	9056A	
310-287077-1	MW1	Total/NA	Water	9056A	
MB 310-430008/3	Method Blank	Total/NA	Water	9056A	
LCS 310-430008/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 429041

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287077-1	MW1	Total/NA	Water	3005A	
MB 310-429041/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-429041/2-A	Lab Control Sample	Total/NA	Water	3005A	

Filtration Batch: 429274

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287077-1	MW1	Dissolved	Water	Filtration	
MB 310-429274/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-429274/2-B	Lab Control Sample	Dissolved	Water	Filtration	
310-287077-1 MS	MW1	Dissolved	Water	Filtration	
310-287077-1 MSD	MW1	Dissolved	Water	Filtration	

Prep Batch: 429358

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287077-1	MW1	Dissolved	Water	3005A	429274
MB 310-429274/1-B	Method Blank	Dissolved	Water	3005A	429274
LCS 310-429274/2-B	Lab Control Sample	Dissolved	Water	3005A	429274
310-287077-1 MS	MW1	Dissolved	Water	3005A	429274
310-287077-1 MSD	MW1	Dissolved	Water	3005A	429274

Analysis Batch: 429475

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287077-1	MW1	Total/NA	Water	6020B	429041
MB 310-429041/1-A	Method Blank	Total/NA	Water	6020B	429041
LCS 310-429041/2-A	Lab Control Sample	Total/NA	Water	6020B	429041

Analysis Batch: 429628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287077-1	MW1	Dissolved	Water	6020B	429358
MB 310-429274/1-B	Method Blank	Dissolved	Water	6020B	429358
LCS 310-429274/2-B	Lab Control Sample	Dissolved	Water	6020B	429358
310-287077-1 MS	MW1	Dissolved	Water	6020B	429358
310-287077-1 MSD	MW1	Dissolved	Water	6020B	429358

Eurofins Cedar Falls

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287077-1

General Chemistry

Analysis Batch: 429002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287077-1	MW1	Total/NA	Water	I-3765-85	
MB 310-429002/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-429002/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Prep Batch: 429341

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287077-1	MW1	Total/NA	Water	Distill/Phenol	
MB 310-429341/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-429341/9-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	

Analysis Batch: 429448

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287077-1	MW1	Total/NA	Water	9066	429341
MB 310-429341/1-A	Method Blank	Total/NA	Water	9066	429341
LCS 310-429341/9-A	Lab Control Sample	Total/NA	Water	9066	429341

Prep Batch: 429502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287077-1	MW1	Total/NA	Water	Distill/Ammonia	
MB 310-429502/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-429502/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 429594

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287077-1	MW1	Total/NA	Water	350.1	429502
MB 310-429502/1-A	Method Blank	Total/NA	Water	350.1	429502
LCS 310-429502/2-A	Lab Control Sample	Total/NA	Water	350.1	429502

Analysis Batch: 429659

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287077-1	MW1	Total/NA	Water	SM 5220D	
MB 310-429659/5	Method Blank	Total/NA	Water	SM 5220D	
LCS 310-429659/3	Lab Control Sample	Total/NA	Water	SM 5220D	

Prep Batch: 851077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287077-1	MW1	Total/NA	Water	Carbon Trap	
MB 680-851077/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 680-851077/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	
310-287077-1 MS	MW1	Total/NA	Water	Carbon Trap	
310-287077-1 MSD	MW1	Total/NA	Water	Carbon Trap	

Analysis Batch: 851078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287077-1	MW1	Total/NA	Water	9020B	851077
MB 680-851077/1-A	Method Blank	Total/NA	Water	9020B	851077
LCS 680-851077/2-A	Lab Control Sample	Total/NA	Water	9020B	851077
310-287077-1 MS	MW1	Total/NA	Water	9020B	851077
310-287077-1 MSD	MW1	Total/NA	Water	9020B	851077

Eurofins Cedar Falls

Lab Chronicle

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287077-1

Client Sample ID: MW1

Lab Sample ID: 310-287077-1

Date Collected: 07/29/24 09:40

Matrix: Water

Date Received: 07/31/24 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	429138	FE5V	EET CF	08/01/24 16:52
Total/NA	Analysis	9056A		5	430008	QTZ5	EET CF	08/09/24 16:00
Total/NA	Analysis	9056A		50	430008	QTZ5	EET CF	08/09/24 16:25
Dissolved	Filtration	Filtration			429274	QTZ5	EET CF	08/02/24 15:38
Dissolved	Prep	3005A			429358	QTZ5	EET CF	08/05/24 09:45
Dissolved	Analysis	6020B		1	429628	NFT2	EET CF	08/06/24 13:58
Total/NA	Prep	3005A			429041	QTZ5	EET CF	08/01/24 09:00
Total/NA	Analysis	6020B		1	429475	NFT2	EET CF	08/05/24 17:42
Total/NA	Prep	Distill/Ammonia			429502	MQ8M	EET CF	08/06/24 09:11
Total/NA	Analysis	350.1		1	429594	ZJX4	EET CF	08/06/24 19:18
Total/NA	Prep	Carbon Trap			851077	CLJ	EET SAV	08/12/24 06:45
Total/NA	Analysis	9020B		1	851078	CLJ	EET SAV	08/12/24 12:02
Total/NA	Prep	Distill/Phenol			429341	ENB7	EET CF	08/05/24 08:23
Total/NA	Analysis	9066		1	429448	ZJX4	EET CF	08/05/24 23:36
Total/NA	Analysis	I-3765-85		1	429002	WZC8	EET CF	07/31/24 13:44
Total/NA	Analysis	SM 5220D		5	429659	ENB7	EET CF	08/07/24 09:47

Laboratory References:

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

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858



Accreditation/Certification Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287077-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-25

Laboratory: Eurofins Savannah

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

Authority	Program	Identification Number	Expiration Date
	AFCEE	SAVLAB	
ANAB	Dept. of Defense ELAP	L2463	09-22-24
Arkansas DEQ	State	88-00692	02-01-25
Florida	NELAP	E87052	06-30-25
Georgia	State	E87052	06-30-25
Guam	State	24-05R	04-17-25
Illinois	NELAP	200022	11-30-24
Iowa	State	353	07-01-25
Louisiana (All)	NELAP	30690	06-30-25
Louisiana (DW)	State	LA009	12-31-24
Maine	State	GA00006	09-25-24
Maryland	State	250	12-31-24
North Carolina (WW/SW)	State	269	12-31-24
Puerto Rico	State	GA00006	01-01-25
South Carolina	State	98001	06-30-24 *
Tennessee	State	TN02961	06-30-25
Texas	NELAP	T1047004185	11-30-24
USDA	US Federal Programs	P330-18-00313	04-04-27
Virginia	NELAP	460161	06-14-25

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

Method Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287077-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
350.1	Nitrogen, Ammonia	EPA	EET CF
9020B	Organic Halides, Total (TOX)	SW846	EET SAV
9066	Phenolics, Total Recoverable	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
SM 5220D	COD	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
Carbon Trap	Carbon Trap Preparation	EPA-17	EET SAV
Distill/Ammonia	Distillation, Ammonia	None	EET CF
Distill/Phenol	Distillation, Phenolics	None	EET CF
Filtration	Sample Filtration	None	EET CF

Protocol References:

EPA = US Environmental Protection Agency

EPA-17 = "Method 1650, Revision A, Adsorbable Organic Halides By Adsorption And Colorimetric Titration," EPA, February 1992

None = None

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

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

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

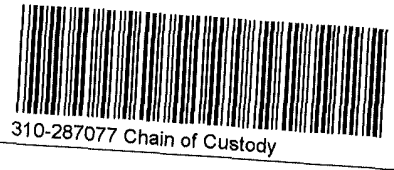
Laboratory References:

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

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858



Environment Testing
America



Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>EB Solutions</u>			
City/State:	CITY	STATE	Project:
Receipt Information			
Date/Time Received:	DATE	TIME	Received By:
	<u>7.31.24</u>	<u>0905</u>	<u>CGC</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # _____ of _____	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant:	<input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE		
Thermometer ID:	<u>P</u>	Correction Factor (°C):	<u>0</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):		Corrected Temp (°C):	
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
	<u>250ml Plastic HNO₃</u>		
Uncorrected Temp (°C):	<u>5.5</u>		
Corrected Temp (°C):	<u>5.5</u>		
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			



Chain of Custody Record



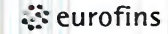
Client Information Client Contact: Edward Bertch Company: EB Solutions Inc Address: 5060 4th St. SW City: Cedar Rapids State: IA 52404 Phone: [Redacted]		Lab PM: Bindert, Zach T E-Mail: zach.bindert@testamericainc.com Carnet Tracking No(s): 310-36604-12214 1 Page: Page 1 of 1 Job #:	
Due Date Requested: TAT Requested (days): PO #: WG #: Project # 31007226 SOW#:		Analysis Requested 8270D 2,4-Dinitrofluorene, Pyridine Pentachloro 9056A ORGM_28D Chloride, Fluoride Sulfate 6020A Dissolved Metals Total Metals 6020A 7470A 9066 Total Recoverable Phenolics 8260C Benzene and Methyl Ethyl Ketone L3765.85 Residue Non filterable (TSS) 9020B Total Organic Halides (TOX)	
Sample Identification Sample Date: 7-27-24 Sample Time: 9:40 Sample Type (C=Comp, G=grab): G Matrix (W=water, S=solid, O=soil, etc.): Water Preservation Code: 6		Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Total Number of Containers: 12	
Trip Blank Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested I II III IV Other (specify)		Special Instructions/Note Special Instructions/OC Requirements Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Empty Kit Relinquished by Relinquished by: [Signature] Date: 7-30-24 / 11:00 Relinquished by: [Signature] Date/Time:		Method of Shipment Date/Time: 7-31-24 09:05 Date/Time:	
Relinquished by: [Signature] Date/Time:		Received by: CAC Date/Time:	
Relinquished by: [Signature] Date/Time:		Received by: [Signature] Date/Time:	
Relinquished by: [Signature] Date/Time:		Received by: [Signature] Date/Time:	
Custody Seals Intact. <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks:	



Eurofins Cedar Falls

3019 Venture Way
 Cedar Falls, IA 50613
 Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab)		Sampler: Bindert, Zach T		Lab PM: Bindert, Zach T		Carrier Tracking No(s):		COC No: 310-74953.1			
Client Contact: Shipping/Receiving		Phone:		E-Mail: Zach.Bindert@et.eurofinsus.com		State of Origin: Iowa		Page: Page 1 of 1			
Company: Eurofins Environment Testing Southeast L				Accreditations Required (See note): State Program - Iowa				Job #: 310-287077-1			
Address: 5102 LaRoche Avenue, City: Savannah State, Zip: GA, 31404		Due Date Requested: 8/13/2024		Analysis Requested						Preservation Codes:	
City: Savannah		TAT Requested (days):								Other:	
State, Zip: GA, 31404		PO #:									
Phone: 912-354-7858(Tel) 912-352-0165(Fax)		WO #:									
Email:		Project #: 31007226		Project Name: Crawford Project		SSOW#:		Site:			
Project Name: Crawford Project		Project #: 31007226		SSOW#:		Site:		Special Instructions/Note:			
Site:		SSOW#:		Site:		Special Instructions/Note:		Special Instructions/Note:			
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=soil/sediment, BT=Tissue, AA=Air)			
MW1 (310-287077-1)		7/29/24		09:40 Central		Water		1			
Preservation Code:		X		X		X		X			
<p>Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.</p>											
Possible Hazard Identification					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)						
Unconfirmed					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months						
Deliverable Requested: I, II, III, IV, Other (specify)			Primary Deliverable Rank: 2		Special Instructions/QC Requirements:						
Empty Kit Relinquished by:			Date:		Time:		Method of Shipment:				
Relinquished by: <i>[Signature]</i>		Date/Time: 7/29/24 12:50		Company:		Received by: <i>[Signature]</i>		Date/Time: 08/01/24 10:19			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:			
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:			
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:			Cooler Temperature(s) °C and Other Remarks: 1.6 / 1.6						



Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-287077-1

Login Number: 287077

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Collins, Charlotte

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



Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-287077-1

Login Number: 287077

List Number: 2

Creator: Lincoln, Alyssa

List Source: Eurofins Savannah

List Creation: 08/01/24 12:24 PM

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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Edward Bertch
EB Solutions, Inc
5060 4th St. SW
Cedar Rapids, Iowa 52404

Generated 8/26/2024 12:53:25 PM

JOB DESCRIPTION

Crawford Project

JOB NUMBER

310-287553-1

Eurofins Cedar Falls

Job Notes

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

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

Authorization



Generated
8/26/2024 12:53:25 PM

Authorized for release by
Zach Bindert, Senior Project Manager
Zach.Bindert@et.eurofinsus.com
(319)595-2016



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Case Narrative

Client: EB Solutions, Inc
Project: Crawford Project

Job ID: 310-287553-1

Job ID: 310-287553-1

Eurofins Cedar Falls

Job Narrative 310-287553-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The sample was received on 8/7/2024 9:00 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.8°C.

GC/MS VOA

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

HPLC/IC

Method 9056A_ORGFM_28D: The following sample was diluted due to the nature of the sample matrix: MW2 (310-287553-1). Elevated reporting limits (RLs) are provided.

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

Metals

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

General Chemistry

Method 9020B: Breakthrough exceeded 10% for the following sample: MW2 (310-287553-1).

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

Eurofins Cedar Falls

Sample Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287553-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-287553-1	MW2	Water	08/05/24 11:32	08/07/24 09:00

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

Detection Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287553-1

Client Sample ID: MW2

Lab Sample ID: 310-287553-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.68		5.00		mg/L	5		9056A	Total/NA
Sulfate	19.0		5.00		mg/L	5		9056A	Total/NA
Barium	0.118		0.00200		mg/L	1		6020B	Total/NA
Manganese	0.0562		0.0100		mg/L	1		6020B	Total/NA
Manganese	0.0692		0.0100		mg/L	1		6020B	Dissolved
Molybdenum	0.00202		0.00200		mg/L	1		6020B	Dissolved
Halogens, Total Organic	41.1		40.0		ug/L	1		9020B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287553-1

Client Sample ID: MW2

Lab Sample ID: 310-287553-1

Date Collected: 08/05/24 11:32

Matrix: Water

Date Received: 08/07/24 09:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			08/10/24 03:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		80 - 120					08/10/24 03:52	1
Dibromofluoromethane (Surr)	101		73 - 130					08/10/24 03:52	1
Toluene-d8 (Surr)	95		80 - 120					08/10/24 03:52	1

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.68		5.00		mg/L			08/19/24 17:35	5
Fluoride	<1.00		1.00		mg/L			08/19/24 17:35	5
Sulfate	19.0		5.00		mg/L			08/19/24 17:35	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		08/08/24 09:30	08/09/24 14:25	1
Barium	0.118		0.00200		mg/L		08/08/24 09:30	08/09/24 14:25	1
Cadmium	<0.000200		0.000200		mg/L		08/08/24 09:30	08/09/24 14:25	1
Manganese	0.0562		0.0100		mg/L		08/08/24 09:30	08/09/24 14:25	1
Zinc	<0.0200		0.0200		mg/L		08/08/24 09:30	08/09/24 14:25	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		08/12/24 09:00	08/14/24 18:15	1
Arsenic	<0.00200		0.00200		mg/L		08/12/24 09:00	08/13/24 15:48	1
Boron	<0.100		0.100		mg/L		08/12/24 09:00	08/13/24 15:48	1
Cobalt	<0.000500		0.000500		mg/L		08/12/24 09:00	08/13/24 15:48	1
Iron	<0.100		0.100		mg/L		08/12/24 09:00	08/13/24 15:48	1
Manganese	0.0692		0.0100		mg/L		08/12/24 09:00	08/13/24 15:48	1
Molybdenum	0.00202		0.00200		mg/L		08/12/24 09:00	08/13/24 15:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	<0.500		0.500		mg/L		08/19/24 10:47	08/19/24 20:42	1
Halogens, Total Organic (SW846 9020B)	41.1		40.0		ug/L		08/25/24 11:15	08/26/24 07:19	1
Phenols, Total (SW846 9066)	<0.0200		0.0200		mg/L		08/09/24 08:46	08/09/24 14:33	1
Total Suspended Solids (USGS I-3765-85)	<1.88		1.88		mg/L			08/08/24 07:31	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0		mg/L			08/16/24 10:21	5

Definitions/Glossary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287553-1

Glossary

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

Surrogate Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287553-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	DBFM	TOL
		(80-120)	(73-130)	(80-120)
310-287553-1	MW2	98	101	95
LCS 310-429931/6	Lab Control Sample	99	101	97
MB 310-429931/5	Method Blank	99	103	98

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287553-1

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

Lab Sample ID: MB 310-429931/5
Matrix: Water
Analysis Batch: 429931

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			08/09/24 22:58	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		80 - 120					08/09/24 22:58	1
Dibromofluoromethane (Surr)	103		73 - 130					08/09/24 22:58	1
Toluene-d8 (Surr)	98		80 - 120					08/09/24 22:58	1

Lab Sample ID: LCS 310-429931/6
Matrix: Water
Analysis Batch: 429931

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2-Butanone (MEK)	40.0	43.40		ug/L		108	50 - 150
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	99		80 - 120				
Dibromofluoromethane (Surr)	101		73 - 130				
Toluene-d8 (Surr)	97		80 - 120				

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-430901/3
Matrix: Water
Analysis Batch: 430901

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			08/19/24 17:11	1
Fluoride	<0.200		0.200		mg/L			08/19/24 17:11	1
Sulfate	<1.00		1.00		mg/L			08/19/24 17:11	1

Lab Sample ID: LCS 310-430901/4
Matrix: Water
Analysis Batch: 430901

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	10.53		mg/L		105	90 - 110
Fluoride	2.00	2.046		mg/L		102	90 - 110
Sulfate	10.0	10.42		mg/L		104	90 - 110

Lab Sample ID: 310-287553-1 MS
Matrix: Water
Analysis Batch: 430901

Client Sample ID: MW2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	7.68		25.0	30.15		mg/L		90	80 - 120
Fluoride	<1.00		5.00	5.619		mg/L		101	80 - 120
Sulfate	19.0		25.0	43.92		mg/L		100	80 - 120

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287553-1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: 310-287553-1 MSD
Matrix: Water
Analysis Batch: 430901

Client Sample ID: MW2
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Chloride	7.68		25.0	30.15		mg/L		90	80 - 120	0	15
Fluoride	<1.00		5.00	5.600		mg/L		101	80 - 120	0	15
Sulfate	19.0		25.0	43.65		mg/L		99	80 - 120	1	15

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-429757/1-A
Matrix: Water
Analysis Batch: 429986

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 429757

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aluminum	<0.0500		0.0500		mg/L		08/08/24 09:30	08/09/24 13:29	1
Barium	<0.00200		0.00200		mg/L		08/08/24 09:30	08/09/24 13:29	1
Cadmium	<0.000200		0.000200		mg/L		08/08/24 09:30	08/09/24 13:29	1
Zinc	<0.0200		0.0200		mg/L		08/08/24 09:30	08/09/24 13:29	1
Manganese	<0.0100		0.0100		mg/L		08/08/24 09:30	08/09/24 13:29	1

Lab Sample ID: LCS 310-429757/2-A
Matrix: Water
Analysis Batch: 429986

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 429757

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec
		Result	Qualifier				Limits
Aluminum	0.200	0.2004		mg/L		100	80 - 120
Barium	0.100	0.1022		mg/L		102	80 - 120
Cadmium	0.100	0.1000		mg/L		100	80 - 120
Zinc	0.200	0.1922		mg/L		96	80 - 120
Manganese	0.100	0.09608		mg/L		96	80 - 120

Lab Sample ID: MB 310-429834/1-B
Matrix: Water
Analysis Batch: 430288

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 430001

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	<0.00200		0.00200		mg/L		08/12/24 09:00	08/13/24 15:44	1
Boron	<0.100		0.100		mg/L		08/12/24 09:00	08/13/24 15:44	1
Cobalt	<0.000500		0.000500		mg/L		08/12/24 09:00	08/13/24 15:44	1
Iron	<0.100		0.100		mg/L		08/12/24 09:00	08/13/24 15:44	1
Manganese	<0.0100		0.0100		mg/L		08/12/24 09:00	08/13/24 15:44	1
Molybdenum	<0.00200		0.00200		mg/L		08/12/24 09:00	08/13/24 15:44	1

Lab Sample ID: MB 310-429834/1-B
Matrix: Water
Analysis Batch: 430431

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 430001

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Antimony	<0.00200		0.00200		mg/L		08/12/24 09:00	08/14/24 18:08	1

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287553-1

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

Lab Sample ID: LCS 310-429834/2-B
Matrix: Water
Analysis Batch: 430288

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 430001

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	
Arsenic	0.200	0.1928		mg/L		96	80 - 120	
Boron	0.200	0.1758		mg/L		88	80 - 120	
Cobalt	0.100	0.1025		mg/L		102	80 - 120	
Iron	0.200	0.2228		mg/L		111	80 - 120	
Manganese	0.100	0.09426		mg/L		94	80 - 120	
Molybdenum	0.200	0.1970		mg/L		99	80 - 120	

Lab Sample ID: LCS 310-429834/2-B
Matrix: Water
Analysis Batch: 430431

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 430001

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	
Antimony	0.200	0.2029		mg/L		101	80 - 120	

Lab Sample ID: 310-287553-1 MS
Matrix: Water
Analysis Batch: 430288

Client Sample ID: MW2
Prep Type: Dissolved
Prep Batch: 430001

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec	
									Limits	
Arsenic	<0.00200		0.200	0.1872		mg/L		94	75 - 125	
Boron	<0.100		0.200	0.2700		mg/L		95	75 - 125	
Cobalt	<0.000500		0.100	0.08775		mg/L		88	75 - 125	
Iron	<0.100		0.200	0.2131		mg/L		107	75 - 125	
Manganese	0.0692		0.100	0.1573		mg/L		88	75 - 125	
Molybdenum	0.00202		0.200	0.1944		mg/L		96	75 - 125	

Lab Sample ID: 310-287553-1 MS
Matrix: Water
Analysis Batch: 430431

Client Sample ID: MW2
Prep Type: Dissolved
Prep Batch: 430001

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec	
									Limits	
Antimony	<0.00200		0.200	0.1985		mg/L		99	75 - 125	

Lab Sample ID: 310-287553-1 MSD
Matrix: Water
Analysis Batch: 430288

Client Sample ID: MW2
Prep Type: Dissolved
Prep Batch: 430001

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec		RPD	
									Limits		RPD	Limit
Arsenic	<0.00200		0.200	0.1884		mg/L		94	75 - 125	1	20	
Boron	<0.100		0.200	0.2684		mg/L		94	75 - 125	1	20	
Cobalt	<0.000500		0.100	0.08918		mg/L		89	75 - 125	2	20	
Iron	<0.100		0.200	0.2148		mg/L		107	75 - 125	1	20	
Manganese	0.0692		0.100	0.1588		mg/L		90	75 - 125	1	20	
Molybdenum	0.00202		0.200	0.1960		mg/L		97	75 - 125	1	20	

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287553-1

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

Lab Sample ID: 310-287553-1 MSD
Matrix: Water
Analysis Batch: 430431

Client Sample ID: MW2
Prep Type: Dissolved
Prep Batch: 430001

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	<0.00200		0.200	0.1948		mg/L		97	75 - 125	2	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-430764/1-A
Matrix: Water
Analysis Batch: 430813

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 430764

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	<0.500		0.500		mg/L		08/19/24 10:47	08/19/24 20:37	1

Lab Sample ID: LCS 310-430764/2-A
Matrix: Water
Analysis Batch: 430813

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 430764

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	4.00	3.863		mg/L		97	90 - 110

Method: 9020B - Organic Halides, Total (TOX)

Lab Sample ID: MB 680-853206/1-A
Matrix: Water
Analysis Batch: 853236

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 853206

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	<40.0		40.0		ug/L		08/25/24 11:15	08/25/24 12:53	1

Lab Sample ID: LCS 680-853206/2-A
Matrix: Water
Analysis Batch: 853236

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 853206

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	400	412.0		ug/L		103	60 - 140

Lab Sample ID: 310-287553-1 MS
Matrix: Water
Analysis Batch: 853236

Client Sample ID: MW2
Prep Type: Total/NA
Prep Batch: 853206

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	41.1		400	482.5		ug/L		110	60 - 140

Lab Sample ID: 310-287553-1 MSD
Matrix: Water
Analysis Batch: 853236

Client Sample ID: MW2
Prep Type: Total/NA
Prep Batch: 853206

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Halogens, Total Organic	41.1		400	515.8		ug/L		119	60 - 140	7	40

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287553-1

Method: 9066 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-429902/1-A
Matrix: Water
Analysis Batch: 429972

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 429902

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0200		0.0200		mg/L		08/09/24 08:46	08/09/24 14:31	1

Lab Sample ID: LCS 310-429902/2-A
Matrix: Water
Analysis Batch: 429972

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 429902

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total	0.100	0.09854		mg/L		99	90 - 110

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

Lab Sample ID: MB 310-429742/1
Matrix: Water
Analysis Batch: 429742

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00		mg/L			08/08/24 07:31	1

Lab Sample ID: LCS 310-429742/2
Matrix: Water
Analysis Batch: 429742

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	95.00		mg/L		95	81 - 116

Method: SM 5220D - COD

Lab Sample ID: MB 310-430587/5
Matrix: Water
Analysis Batch: 430587

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	<5.00		5.00		mg/L			08/16/24 10:21	1

Lab Sample ID: LCS 310-430587/3
Matrix: Water
Analysis Batch: 430587

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	125	122.5		mg/L		98	85 - 110

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287553-1

GC/MS VOA

Analysis Batch: 429931

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287553-1	MW2	Total/NA	Water	8260D	
MB 310-429931/5	Method Blank	Total/NA	Water	8260D	
LCS 310-429931/6	Lab Control Sample	Total/NA	Water	8260D	

HPLC/IC

Analysis Batch: 430901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287553-1	MW2	Total/NA	Water	9056A	
MB 310-430901/3	Method Blank	Total/NA	Water	9056A	
LCS 310-430901/4	Lab Control Sample	Total/NA	Water	9056A	
310-287553-1 MS	MW2	Total/NA	Water	9056A	
310-287553-1 MSD	MW2	Total/NA	Water	9056A	

Metals

Prep Batch: 429757

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287553-1	MW2	Total/NA	Water	3005A	
MB 310-429757/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-429757/2-A	Lab Control Sample	Total/NA	Water	3005A	

Filtration Batch: 429834

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287553-1	MW2	Dissolved	Water	Filtration	
MB 310-429834/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-429834/2-B	Lab Control Sample	Dissolved	Water	Filtration	
310-287553-1 MS	MW2	Dissolved	Water	Filtration	
310-287553-1 MSD	MW2	Dissolved	Water	Filtration	

Analysis Batch: 429986

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287553-1	MW2	Total/NA	Water	6020B	429757
MB 310-429757/1-A	Method Blank	Total/NA	Water	6020B	429757
LCS 310-429757/2-A	Lab Control Sample	Total/NA	Water	6020B	429757

Prep Batch: 430001

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287553-1	MW2	Dissolved	Water	3005A	429834
MB 310-429834/1-B	Method Blank	Dissolved	Water	3005A	429834
LCS 310-429834/2-B	Lab Control Sample	Dissolved	Water	3005A	429834
310-287553-1 MS	MW2	Dissolved	Water	3005A	429834
310-287553-1 MSD	MW2	Dissolved	Water	3005A	429834

Analysis Batch: 430288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287553-1	MW2	Dissolved	Water	6020B	430001
MB 310-429834/1-B	Method Blank	Dissolved	Water	6020B	430001
LCS 310-429834/2-B	Lab Control Sample	Dissolved	Water	6020B	430001
310-287553-1 MS	MW2	Dissolved	Water	6020B	430001
310-287553-1 MSD	MW2	Dissolved	Water	6020B	430001

Eurofins Cedar Falls

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287553-1

Metals

Analysis Batch: 430431

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287553-1	MW2	Dissolved	Water	6020B	430001
MB 310-429834/1-B	Method Blank	Dissolved	Water	6020B	430001
LCS 310-429834/2-B	Lab Control Sample	Dissolved	Water	6020B	430001
310-287553-1 MS	MW2	Dissolved	Water	6020B	430001
310-287553-1 MSD	MW2	Dissolved	Water	6020B	430001

General Chemistry

Analysis Batch: 429742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287553-1	MW2	Total/NA	Water	I-3765-85	
MB 310-429742/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-429742/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Prep Batch: 429902

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287553-1	MW2	Total/NA	Water	Distill/Phenol	
MB 310-429902/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-429902/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	

Analysis Batch: 429972

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287553-1	MW2	Total/NA	Water	9066	429902
MB 310-429902/1-A	Method Blank	Total/NA	Water	9066	429902
LCS 310-429902/2-A	Lab Control Sample	Total/NA	Water	9066	429902

Analysis Batch: 430587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287553-1	MW2	Total/NA	Water	SM 5220D	
MB 310-430587/5	Method Blank	Total/NA	Water	SM 5220D	
LCS 310-430587/3	Lab Control Sample	Total/NA	Water	SM 5220D	

Prep Batch: 430764

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287553-1	MW2	Total/NA	Water	Distill/Ammonia	
MB 310-430764/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-430764/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 430813

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287553-1	MW2	Total/NA	Water	350.1	430764
MB 310-430764/1-A	Method Blank	Total/NA	Water	350.1	430764
LCS 310-430764/2-A	Lab Control Sample	Total/NA	Water	350.1	430764

Prep Batch: 853206

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287553-1	MW2	Total/NA	Water	Carbon Trap	
MB 680-853206/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 680-853206/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	
310-287553-1 MS	MW2	Total/NA	Water	Carbon Trap	
310-287553-1 MSD	MW2	Total/NA	Water	Carbon Trap	

Eurofins Cedar Falls

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287553-1

General Chemistry

Analysis Batch: 853236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-287553-1	MW2	Total/NA	Water	9020B	853206
MB 680-853206/1-A	Method Blank	Total/NA	Water	9020B	853206
LCS 680-853206/2-A	Lab Control Sample	Total/NA	Water	9020B	853206
310-287553-1 MS	MW2	Total/NA	Water	9020B	853206
310-287553-1 MSD	MW2	Total/NA	Water	9020B	853206

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Lab Chronicle

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287553-1

Client Sample ID: MW2

Lab Sample ID: 310-287553-1

Date Collected: 08/05/24 11:32

Matrix: Water

Date Received: 08/07/24 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	429931	WSE8	EET CF	08/10/24 03:52
Total/NA	Analysis	9056A		5	430901	QTZ5	EET CF	08/19/24 17:35
Dissolved	Filtration	Filtration			429834	QTZ5	EET CF	08/08/24 14:20
Dissolved	Prep	3005A			430001	QTZ5	EET CF	08/12/24 09:00
Dissolved	Analysis	6020B		1	430431	NFT2	EET CF	08/14/24 18:15
Dissolved	Filtration	Filtration			429834	QTZ5	EET CF	08/08/24 14:20
Dissolved	Prep	3005A			430001	QTZ5	EET CF	08/12/24 09:00
Dissolved	Analysis	6020B		1	430288	NFT2	EET CF	08/13/24 15:48
Total/NA	Prep	3005A			429757	QTZ5	EET CF	08/08/24 09:30
Total/NA	Analysis	6020B		1	429986	NFT2	EET CF	08/09/24 14:25
Total/NA	Prep	Distill/Ammonia			430764	MQ8M	EET CF	08/19/24 10:47
Total/NA	Analysis	350.1		1	430813	ZJX4	EET CF	08/19/24 20:42
Total/NA	Prep	Carbon Trap			853206	CLJ	EET SAV	08/25/24 11:15
Total/NA	Analysis	9020B		1	853236	CLJ	EET SAV	08/26/24 07:19
Total/NA	Prep	Distill/Phenol			429902	A3GU	EET CF	08/09/24 08:46
Total/NA	Analysis	9066		1	429972	ENB7	EET CF	08/09/24 14:33
Total/NA	Analysis	I-3765-85		1	429742	DGU1	EET CF	08/08/24 07:31
Total/NA	Analysis	SM 5220D		5	430587	ENB7	EET CF	08/16/24 10:21

Laboratory References:

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

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Accreditation/Certification Summary

Client: EB Solutions, Inc
 Project/Site: Crawford Project

Job ID: 310-287553-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-25

Laboratory: Eurofins Savannah

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

Authority	Program	Identification Number	Expiration Date
	AFCEE	SAVLAB	
Alabama	State	41450	06-30-25
ANAB	Dept. of Defense ELAP	L2463	09-22-24
Arkansas (DW)	State	GA00006	06-30-24 *
Arkansas DEQ	State	88-00692	02-01-25
Florida	NELAP	E87052	06-30-25
Georgia	State	E87052	06-30-25
Georgia (DW)	State	803	06-30-24 *
Guam	State	24-05R	04-17-25
Hawaii	State	<cert No.>	06-30-25
Illinois	NELAP	200022	11-30-24
Iowa	State	353	07-01-25
Kentucky (UST)	State	NA	06-30-24 *
Louisiana (All)	NELAP	30690	06-30-25
Louisiana (DW)	State	LA009	12-31-24
Maine	State	GA00006	09-25-24
Maryland	State	250	12-31-24
Massachusetts	State	M-GA006	06-30-24 *
Michigan	State	9925	06-30-24 *
Mississippi	State	<cert No.>	06-30-24 *
Nebraska	State	NE-OS-7-04	06-30-24 *
New Mexico	State	GA00006	06-30-24 *
North Carolina (DW)	State	13701	07-31-25
North Carolina (WW/SW)	State	269	12-31-24
Puerto Rico	State	GA00006	01-01-25
South Carolina	State	98001	06-30-24 *
Tennessee	State	TN02961	06-30-25
Texas	NELAP	T1047004185	11-30-24
Texas	TCEQ Water Supply	T104704185	06-30-24 *
USDA	US Federal Programs	P330-18-00313	04-04-27
Virginia	NELAP	460161	06-14-25

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

Method Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-287553-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
350.1	Nitrogen, Ammonia	EPA	EET CF
9020B	Organic Halides, Total (TOX)	SW846	EET SAV
9066	Phenolics, Total Recoverable	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
SM 5220D	COD	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
Carbon Trap	Carbon Trap Preparation	EPA-17	EET SAV
Distill/Ammonia	Distillation, Ammonia	None	EET CF
Distill/Phenol	Distillation, Phenolics	None	EET CF
Filtration	Sample Filtration	None	EET CF

Protocol References:

EPA = US Environmental Protection Agency

EPA-17 = "Method 1650, Revision A, Adsorbable Organic Halides By Adsorption And Colorimetric Titration," EPA, February 1992

None = None

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

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

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

Laboratory References:

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

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858



Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client <u>EB solutions</u>			
City/State:	<u> </u> <small>CITY</small>	<u> </u> <small>STATE</small>	Project:
Receipt Information			
Date/Time Received	<u>8/7/24</u> <small>DATE</small>	<u>9:00</u> <small>TIME</small>	Received By: <u>XB</u>
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # _____ of _____	
Cooler Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler custody seals intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID:	<u>X</u>	Correction Factor (°C):	<u>0</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):	<u>1.8</u>	Corrected Temp (°C):	<u>1.8</u>
• Sample Container Temperature			
Container(s) used:	<u> </u> <small>CONTAINER 1</small>	<u> </u> <small>CONTAINER 2</small>	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No			
a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			



Chain of Custody Record

Client Information Client Contact: Edward Bertsch Company: EB Solutions Inc Address: 5060 4th St. SW City: Cedar Rapids State/Zip: IA, 52404 Phone: 319-249-3253 Email: edbertsch@ebsolutionsinc-web.com Project Name: Crawford Project Site:		Lab PM: Bindert Zach T E-Mail: zach.bindert@testamericainc.com Camer Tracking No(s): 310-36804-12214 1 Page: Page 1 of 1 Job #:	
Due Date Requested: TAT Requested (days): PO #: WO #: Project # 31007226 SSOW#:		Analysis Requested 8270D 2,4-Dinitrofluorene, Pyridine Pentachlor Ammonia 3501 COD 5220D 9056A ORGM_28D Chloride, Fluoride Sulfate 6020A Dissolved Metals Total Metals 6020A 7470A 9066 Total Recoverable Phenolics 8260C Benzene and Methyl Ethyl Ketone L3765.85 Residue Non filterable (TSS) 9020B Total Organic Halides (TOX)	
Sample Identification Sample Date: 8-5-24 Sample Time: 11:37 Sample Type (C=Comp, G=grab): G Matrix (Water, Sewage, Or wastewater, Or tissue, Or soil): Water Preservation Code: 60		Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> 9020B Total Organic Halides (TOX) <input checked="" type="checkbox"/> L3765.85 Residue Non filterable (TSS) <input checked="" type="checkbox"/> 9066 Total Recoverable Phenolics <input checked="" type="checkbox"/> 8260C Benzene and Methyl Ethyl Ketone <input checked="" type="checkbox"/> 9056A ORGM_28D Chloride, Fluoride Sulfate <input checked="" type="checkbox"/> 6020A Dissolved Metals <input checked="" type="checkbox"/> Total Metals 6020A 7470A <input checked="" type="checkbox"/> 9066 Total Recoverable Phenolics <input checked="" type="checkbox"/> 8260C Benzene and Methyl Ethyl Ketone <input checked="" type="checkbox"/> L3765.85 Residue Non filterable (TSS) <input checked="" type="checkbox"/> 9020B Total Organic Halides (TOX) <input checked="" type="checkbox"/> Total Number of containers: 12	
Trip Blank Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Special Instructions/Note Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Relinquished by: [Signature] Relinquished by: [Signature] Relinquished by: [Signature]		Method of Shipment: Received by: [Signature] Received by: [Signature] Received by: [Signature]	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No:		Cooler Temperature(s) °C and Other Remarks:	



Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-287553-1

SDG Number:

Login Number: 287553

List Number: 1

Creator: Homolar, Dana J

List Source: Eurofins Cedar Falls

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



Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-287553-1

SDG Number:

Login Number: 287553

List Number: 2

Creator: Lincoln, Alyssa

List Source: Eurofins Savannah

List Creation: 08/08/24 01:47 PM

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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Edward Bertch
EB Solutions, Inc
5060 4th St. SW
Cedar Rapids, Iowa 52404

Generated 9/3/2024 10:54:10 AM

JOB DESCRIPTION

Crawford Project

JOB NUMBER

310-288072-1

Eurofins Cedar Falls

Job Notes

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

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

Authorization



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9/3/2024 10:54:10 AM

Authorized for release by
Zach Bindert, Senior Project Manager
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Case Narrative

Client: EB Solutions, Inc
Project: Crawford Project

Job ID: 310-288072-1

Job ID: 310-288072-1

Eurofins Cedar Falls

Job Narrative 310-288072-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The sample was received on 8/14/2024 9:10 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.2°C.

GC/MS VOA

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

HPLC/IC

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

Metals

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

General Chemistry

Method 9020B: Breakthrough exceeded 10% for the following sample:MW-3 (310-288072-1).

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

Eurofins Cedar Falls

Sample Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288072-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-288072-1	MW-3	Water	08/12/24 11:36	08/14/24 09:10

1

2

3

4

5

6

7

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9

10

11

12

13

14

15

Detection Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288072-1

Client Sample ID: MW-3

Lab Sample ID: 310-288072-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	114		5.00		mg/L	5		9056A	Total/NA
Fluoride	0.279		0.200		mg/L	1		9056A	Total/NA
Sulfate	44.4		1.00		mg/L	1		9056A	Total/NA
Barium	0.320		0.00200		mg/L	1		6020B	Total/NA
Molybdenum	0.00213		0.00200		mg/L	1		6020B	Dissolved
Halogens, Total Organic	138		40.0		ug/L	1		9020B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288072-1

Client Sample ID: MW-3

Lab Sample ID: 310-288072-1

Date Collected: 08/12/24 11:36

Matrix: Water

Date Received: 08/14/24 09:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			08/19/24 14:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		80 - 120					08/19/24 14:34	1
Dibromofluoromethane (Surr)	115		73 - 130					08/19/24 14:34	1
Toluene-d8 (Surr)	97		80 - 120					08/19/24 14:34	1

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	114		5.00		mg/L			08/21/24 15:30	5
Fluoride	0.279		0.200		mg/L			08/14/24 09:35	1
Sulfate	44.4		1.00		mg/L			08/14/24 09:35	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		08/15/24 08:45	08/16/24 16:39	1
Barium	0.320		0.00200		mg/L		08/15/24 08:45	08/16/24 16:39	1
Cadmium	<0.000200		0.000200		mg/L		08/15/24 08:45	08/16/24 16:39	1
Manganese	<0.0100		0.0100		mg/L		08/15/24 08:45	08/16/24 16:39	1
Zinc	<0.0200		0.0200		mg/L		08/15/24 08:45	08/16/24 16:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		08/20/24 09:30	08/21/24 15:36	1
Arsenic	<0.00200		0.00200		mg/L		08/20/24 09:30	08/21/24 15:36	1
Boron	<0.100		0.100		mg/L		08/20/24 09:30	08/22/24 12:03	1
Cobalt	<0.000500		0.000500		mg/L		08/20/24 09:30	08/21/24 15:36	1
Iron	<0.100		0.100		mg/L		08/20/24 09:30	08/22/24 12:03	1
Manganese	<0.0100		0.0100		mg/L		08/20/24 09:30	08/21/24 15:36	1
Molybdenum	0.00213		0.00200		mg/L		08/20/24 09:30	08/21/24 15:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	<0.500		0.500		mg/L		08/20/24 07:47	08/20/24 22:11	1
Halogens, Total Organic (SW846 9020B)	138		40.0		ug/L		09/02/24 07:44	09/02/24 10:56	1
Phenols, Total (SW846 9066)	<0.0200		0.0200		mg/L		08/21/24 09:10	08/21/24 23:43	1
Total Suspended Solids (USGS I-3765-85)	<1.88		1.88		mg/L			08/15/24 15:57	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0		mg/L			08/22/24 10:47	5

Definitions/Glossary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288072-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

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

Surrogate Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288072-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BFB (80-120)	DBFM (73-130)	TOL (80-120)
310-288072-1	MW-3	102	115	97
LCS 310-430752/6	Lab Control Sample	100	95	100
MB 310-430752/5	Method Blank	102	116	96

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288072-1

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

Lab Sample ID: MB 310-430752/5
Matrix: Water
Analysis Batch: 430752

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			08/19/24 11:32	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		80 - 120					08/19/24 11:32	1
Dibromofluoromethane (Surr)	116		73 - 130					08/19/24 11:32	1
Toluene-d8 (Surr)	96		80 - 120					08/19/24 11:32	1

Lab Sample ID: LCS 310-430752/6
Matrix: Water
Analysis Batch: 430752

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2-Butanone (MEK)	40.0	39.65		ug/L		99	50 - 150
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	100		80 - 120				
Dibromofluoromethane (Surr)	95		73 - 130				
Toluene-d8 (Surr)	100		80 - 120				

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-430845/3
Matrix: Water
Analysis Batch: 430845

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			08/14/24 09:10	1
Fluoride	<0.200		0.200		mg/L			08/14/24 09:10	1
Sulfate	<1.00		1.00		mg/L			08/14/24 09:10	1

Lab Sample ID: LCS 310-430845/4
Matrix: Water
Analysis Batch: 430845

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.410		mg/L		94	90 - 110
Fluoride	2.00	1.959		mg/L		98	90 - 110
Sulfate	10.0	10.01		mg/L		100	90 - 110

Lab Sample ID: MB 310-431125/3
Matrix: Water
Analysis Batch: 431125

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			08/21/24 11:06	1
Fluoride	<0.200		0.200		mg/L			08/21/24 11:06	1
Sulfate	<1.00		1.00		mg/L			08/21/24 11:06	1

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288072-1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 310-431125/4
Matrix: Water
Analysis Batch: 431125

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.833		mg/L		98	90 - 110
Fluoride	2.00	2.027		mg/L		101	90 - 110
Sulfate	10.0	10.26		mg/L		103	90 - 110

Lab Sample ID: 310-288072-1 MS
Matrix: Water
Analysis Batch: 431125

Client Sample ID: MW-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	114		25.0	130.9	4	mg/L		66	80 - 120
Fluoride	<1.00		5.00	5.350		mg/L		107	80 - 120
Sulfate	43.9		25.0	66.95		mg/L		92	80 - 120

Lab Sample ID: 310-288072-1 MSD
Matrix: Water
Analysis Batch: 431125

Client Sample ID: MW-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	114		25.0	129.7	4	mg/L		61	80 - 120	1	15
Fluoride	<1.00		5.00	5.353		mg/L		107	80 - 120	0	15
Sulfate	43.9		25.0	66.53		mg/L		91	80 - 120	1	15

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-430402/1-A
Matrix: Water
Analysis Batch: 430721

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 430402

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		08/15/24 08:45	08/16/24 16:13	1
Barium	<0.00200		0.00200		mg/L		08/15/24 08:45	08/16/24 16:13	1
Cadmium	<0.000200		0.000200		mg/L		08/15/24 08:45	08/16/24 16:13	1
Zinc	<0.0200		0.0200		mg/L		08/15/24 08:45	08/16/24 16:13	1
Manganese	<0.0100		0.0100		mg/L		08/15/24 08:45	08/16/24 16:13	1

Lab Sample ID: LCS 310-430402/2-A
Matrix: Water
Analysis Batch: 430721

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 430402

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	0.200	0.2359		mg/L		118	80 - 120
Barium	0.100	0.1089		mg/L		109	80 - 120
Cadmium	0.100	0.1092		mg/L		109	80 - 120
Zinc	0.200	0.1964		mg/L		98	80 - 120
Manganese	0.100	0.09679		mg/L		97	80 - 120

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288072-1

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

Lab Sample ID: MB 310-430327/1-C
Matrix: Water
Analysis Batch: 431092

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 430665

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Antimony	<0.00200		0.00200		mg/L		08/20/24 09:30	08/21/24 14:53	1
Arsenic	<0.00200		0.00200		mg/L		08/20/24 09:30	08/21/24 14:53	1
Cobalt	<0.000500		0.000500		mg/L		08/20/24 09:30	08/21/24 14:53	1
Manganese	<0.0100		0.0100		mg/L		08/20/24 09:30	08/21/24 14:53	1
Molybdenum	<0.00200		0.00200		mg/L		08/20/24 09:30	08/21/24 14:53	1

Lab Sample ID: MB 310-430327/1-C
Matrix: Water
Analysis Batch: 431173

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 430665

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Boron	<0.100		0.100		mg/L		08/20/24 09:30	08/22/24 11:59	1
Iron	<0.100		0.100		mg/L		08/20/24 09:30	08/22/24 11:59	1

Lab Sample ID: LCS 310-430327/2-C
Matrix: Water
Analysis Batch: 431092

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 430665

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.200	0.2108		mg/L		105	80 - 120
Cobalt	0.100	0.1008		mg/L		101	80 - 120
Manganese	0.100	0.1021		mg/L		102	80 - 120
Molybdenum	0.200	0.2018		mg/L		101	80 - 120

Lab Sample ID: LCS 310-430327/2-C
Matrix: Water
Analysis Batch: 431173

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 430665

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	0.200	0.2287		mg/L		114	80 - 120

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-430825/1-A
Matrix: Water
Analysis Batch: 430950

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 430825

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Ammonia as N	<0.500		0.500		mg/L		08/20/24 07:47	08/20/24 21:26	1

Lab Sample ID: LCS 310-430825/2-A
Matrix: Water
Analysis Batch: 430950

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 430825

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288072-1

Method: 9020B - Organic Halides, Total (TOX)

Lab Sample ID: MB 680-854207/1-A
Matrix: Water
Analysis Batch: 854213

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 854207

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	<40.0		40.0		ug/L		09/02/24 07:44	09/02/24 09:38	1

Lab Sample ID: LCS 680-854207/2-A
Matrix: Water
Analysis Batch: 854213

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 854207

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	400	416.4		ug/L		104	60 - 140

Lab Sample ID: 310-288072-1 MS
Matrix: Water
Analysis Batch: 854213

Client Sample ID: MW-3
Prep Type: Total/NA
Prep Batch: 854207

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	138		400	537.1		ug/L		100	60 - 140

Lab Sample ID: 310-288072-1 MSD
Matrix: Water
Analysis Batch: 854213

Client Sample ID: MW-3
Prep Type: Total/NA
Prep Batch: 854207

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Halogens, Total Organic	138		400	565.2		ug/L		107	60 - 140	5	40

Method: 9066 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-430983/1-A
Matrix: Water
Analysis Batch: 431073

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 430983

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0200		0.0200		mg/L		08/21/24 09:10	08/21/24 23:40	1

Lab Sample ID: LCS 310-430983/2-A
Matrix: Water
Analysis Batch: 431073

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 430983

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total	0.100	0.09653		mg/L		97	90 - 110

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

Lab Sample ID: MB 310-430530/1
Matrix: Water
Analysis Batch: 430530

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00		mg/L			08/15/24 15:57	1

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288072-1

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

Lab Sample ID: LCS 310-430530/2
Matrix: Water
Analysis Batch: 430530

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	94.00		mg/L		94	81 - 116

Method: SM 5220D - COD

Lab Sample ID: MB 310-431150/5
Matrix: Water
Analysis Batch: 431150

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	<5.00		5.00		mg/L			08/22/24 10:47	1

Lab Sample ID: LCS 310-431150/3
Matrix: Water
Analysis Batch: 431150

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	125	125.2		mg/L		100	85 - 110

Lab Sample ID: 310-288072-1 MS
Matrix: Water
Analysis Batch: 431150

Client Sample ID: MW-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	<25.0		250	310.2		mg/L		124	83 - 145

Lab Sample ID: 310-288072-1 MSD
Matrix: Water
Analysis Batch: 431150

Client Sample ID: MW-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chemical Oxygen Demand	<25.0		250	312.0		mg/L		125	83 - 145	1	16

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288072-1

GC/MS VOA

Analysis Batch: 430752

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288072-1	MW-3	Total/NA	Water	8260D	
MB 310-430752/5	Method Blank	Total/NA	Water	8260D	
LCS 310-430752/6	Lab Control Sample	Total/NA	Water	8260D	

HPLC/IC

Analysis Batch: 430845

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288072-1	MW-3	Total/NA	Water	9056A	
MB 310-430845/3	Method Blank	Total/NA	Water	9056A	
LCS 310-430845/4	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 431125

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288072-1	MW-3	Total/NA	Water	9056A	
MB 310-431125/3	Method Blank	Total/NA	Water	9056A	
LCS 310-431125/4	Lab Control Sample	Total/NA	Water	9056A	
310-288072-1 MS	MW-3	Total/NA	Water	9056A	
310-288072-1 MSD	MW-3	Total/NA	Water	9056A	

Metals

Filtration Batch: 430327

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288072-1	MW-3	Dissolved	Water	Filtration	
MB 310-430327/1-C	Method Blank	Dissolved	Water	Filtration	
LCS 310-430327/2-C	Lab Control Sample	Dissolved	Water	Filtration	

Prep Batch: 430402

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288072-1	MW-3	Total/NA	Water	3005A	
MB 310-430402/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-430402/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 430665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288072-1	MW-3	Dissolved	Water	3005A	430327
MB 310-430327/1-C	Method Blank	Dissolved	Water	3005A	430327
LCS 310-430327/2-C	Lab Control Sample	Dissolved	Water	3005A	430327

Analysis Batch: 430721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288072-1	MW-3	Total/NA	Water	6020B	430402
MB 310-430402/1-A	Method Blank	Total/NA	Water	6020B	430402
LCS 310-430402/2-A	Lab Control Sample	Total/NA	Water	6020B	430402

Analysis Batch: 431092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288072-1	MW-3	Dissolved	Water	6020B	430665
MB 310-430327/1-C	Method Blank	Dissolved	Water	6020B	430665
LCS 310-430327/2-C	Lab Control Sample	Dissolved	Water	6020B	430665

Eurofins Cedar Falls

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288072-1

Metals

Analysis Batch: 431173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288072-1	MW-3	Dissolved	Water	6020B	430665
MB 310-430327/1-C	Method Blank	Dissolved	Water	6020B	430665
LCS 310-430327/2-C	Lab Control Sample	Dissolved	Water	6020B	430665

General Chemistry

Analysis Batch: 430530

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288072-1	MW-3	Total/NA	Water	I-3765-85	
MB 310-430530/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-430530/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Prep Batch: 430825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288072-1	MW-3	Total/NA	Water	Distill/Ammonia	
MB 310-430825/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-430825/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 430950

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288072-1	MW-3	Total/NA	Water	350.1	430825
MB 310-430825/1-A	Method Blank	Total/NA	Water	350.1	430825
LCS 310-430825/2-A	Lab Control Sample	Total/NA	Water	350.1	430825

Prep Batch: 430983

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288072-1	MW-3	Total/NA	Water	Distill/Phenol	
MB 310-430983/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-430983/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	

Analysis Batch: 431073

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288072-1	MW-3	Total/NA	Water	9066	430983
MB 310-430983/1-A	Method Blank	Total/NA	Water	9066	430983
LCS 310-430983/2-A	Lab Control Sample	Total/NA	Water	9066	430983

Analysis Batch: 431150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288072-1	MW-3	Total/NA	Water	SM 5220D	
MB 310-431150/5	Method Blank	Total/NA	Water	SM 5220D	
LCS 310-431150/3	Lab Control Sample	Total/NA	Water	SM 5220D	
310-288072-1 MS	MW-3	Total/NA	Water	SM 5220D	
310-288072-1 MSD	MW-3	Total/NA	Water	SM 5220D	

Prep Batch: 854207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288072-1	MW-3	Total/NA	Water	Carbon Trap	
MB 680-854207/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 680-854207/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	
310-288072-1 MS	MW-3	Total/NA	Water	Carbon Trap	
310-288072-1 MSD	MW-3	Total/NA	Water	Carbon Trap	

Eurofins Cedar Falls

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288072-1

General Chemistry

Analysis Batch: 854213

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288072-1	MW-3	Total/NA	Water	9020B	854207
MB 680-854207/1-A	Method Blank	Total/NA	Water	9020B	854207
LCS 680-854207/2-A	Lab Control Sample	Total/NA	Water	9020B	854207
310-288072-1 MS	MW-3	Total/NA	Water	9020B	854207
310-288072-1 MSD	MW-3	Total/NA	Water	9020B	854207

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Lab Chronicle

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288072-1

Client Sample ID: MW-3

Lab Sample ID: 310-288072-1

Date Collected: 08/12/24 11:36

Matrix: Water

Date Received: 08/14/24 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	430752	FE5V	EET CF	08/19/24 14:34
Total/NA	Analysis	9056A		1	430845	QTZ5	EET CF	08/14/24 09:35
Total/NA	Analysis	9056A		5	431125	QTZ5	EET CF	08/21/24 15:30
Dissolved	Filtration	Filtration			430327	DHM5	EET CF	08/15/24 16:32
Dissolved	Prep	3005A			430665	QTZ5	EET CF	08/20/24 09:30
Dissolved	Analysis	6020B		1	431092	NFT2	EET CF	08/21/24 15:36
Dissolved	Filtration	Filtration			430327	DHM5	EET CF	08/15/24 16:32
Dissolved	Prep	3005A			430665	QTZ5	EET CF	08/20/24 09:30
Dissolved	Analysis	6020B		1	431173	NFT2	EET CF	08/22/24 12:03
Total/NA	Prep	3005A			430402	DHM5	EET CF	08/15/24 08:45
Total/NA	Analysis	6020B		1	430721	NFT2	EET CF	08/16/24 16:39
Total/NA	Prep	Distill/Ammonia			430825	MQ8M	EET CF	08/20/24 07:47
Total/NA	Analysis	350.1		1	430950	ZJX4	EET CF	08/20/24 22:11
Total/NA	Prep	Carbon Trap			854207	CLJ	EET SAV	09/02/24 07:44
Total/NA	Analysis	9020B		1	854213	CLJ	EET SAV	09/02/24 10:56
Total/NA	Prep	Distill/Phenol			430983	A3GU	EET CF	08/21/24 09:10
Total/NA	Analysis	9066		1	431073	ZJX4	EET CF	08/21/24 23:43
Total/NA	Analysis	I-3765-85		1	430530	ENB7	EET CF	08/15/24 15:57
Total/NA	Analysis	SM 5220D		5	431150	ENB7	EET CF	08/22/24 10:47

Laboratory References:

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

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Accreditation/Certification Summary

Client: EB Solutions, Inc
 Project/Site: Crawford Project

Job ID: 310-288072-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-25

Laboratory: Eurofins Savannah

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

Authority	Program	Identification Number	Expiration Date
	AFCEE	SAVLAB	
Alabama	State	41450	06-30-25
ANAB	Dept. of Defense ELAP	L2463	09-22-24
Arkansas (DW)	State	GA00006	06-30-24 *
Arkansas DEQ	State	88-00692	02-01-25
Florida	NELAP	E87052	06-30-25
Georgia	State	E87052	06-30-25
Georgia (DW)	State	803	06-30-24 *
Guam	State	24-05R	04-17-25
Hawaii	State	<cert No.>	06-30-25
Illinois	NELAP	200022	11-30-24
Iowa	State	353	07-01-25
Kentucky (UST)	State	NA	06-30-24 *
Louisiana (All)	NELAP	30690	06-30-25
Louisiana (DW)	State	LA009	12-31-24
Maine	State	GA00006	09-25-24
Maryland	State	250	12-31-24
Massachusetts	State	M-GA006	06-30-24 *
Michigan	State	9925	06-30-24 *
Mississippi	State	<cert No.>	06-30-24 *
Nebraska	State	NE-OS-7-04	06-30-24 *
New Mexico	State	GA00006	06-30-24 *
North Carolina (DW)	State	13701	07-31-25
North Carolina (WW/SW)	State	269	12-31-24
Puerto Rico	State	GA00006	01-01-25
South Carolina	State	98001	06-30-24 *
Tennessee	State	TN02961	06-30-25
Texas	NELAP	T1047004185	11-30-24
Texas	TCEQ Water Supply	T104704185	06-30-24 *
USDA	US Federal Programs	P330-18-00313	04-04-27
Virginia	NELAP	460161	06-14-25

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

Method Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288072-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
350.1	Nitrogen, Ammonia	EPA	EET CF
9020B	Organic Halides, Total (TOX)	SW846	EET SAV
9066	Phenolics, Total Recoverable	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
SM 5220D	COD	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
Carbon Trap	Carbon Trap Preparation	EPA-17	EET SAV
Distill/Ammonia	Distillation, Ammonia	None	EET CF
Distill/Phenol	Distillation, Phenolics	None	EET CF
Filtration	Sample Filtration	None	EET CF

Protocol References:

EPA = US Environmental Protection Agency

EPA-17 = "Method 1650, Revision A, Adsorbable Organic Halides By Adsorption And Colorimetric Titration," EPA, February 1992

None = None

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

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

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

Laboratory References:

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

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858



Environment Testing
America



Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>EB solutions</u>			
City/State: <u> </u> CITY	STATE	Project:	
Receipt Information			
Date/Time Received: <u>8/14/24</u> DATE	<u>9:10</u> TIME	Received By: <u>XB</u>	
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # ____ of ____	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u> </u>	Correction Factor (°C): <u>0</u>		
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>0.2</u>	Corrected Temp (°C): <u>0.2</u>		
• Sample Container Temperature			
Container(s) used:	CONTAINER 1	CONTAINER 2	
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			



Chain of Custody Record



Client Information Company: EB Solutions Inc Address: 5060 4th St SW City: Cedar Rapids State/Zip: IA, 52404 Phone: Email: edbertch@ebsolutionsinc-web.com Project Name: Crawford Project Site:		Lab Pkt: Bindert, Zach T E-Mail: zach.bindert@testamericainc.com Phone: 319-249-3293 Due Date Requested: TAT Requested (days): PO #: WO #: Project #: 31007226 SSOW#:		Sampler: Ed Bertch Corner Tracking No(s): COC No: 310-36804-12214 1 Page: Page 1 of 1 Job #: Analysis Requested: 8270D 2,4-Dinitrotoluene, Pyridine Pentachloro Ammonia 3501 COD 5220D 9056A_ORGM_28D Chloride, Fluoride Sulfate 6020A Dissolved Metals Total Metals 6020A 7470A 9086 Total Recoverable Phenolics 8260C Benzene and Methyl Ethyl Ketone 3765_85 Residue Non Filterable (TSS) 9020B Total Organic Halides (TOX)		Preservation Codes: A HCL B NaOH C Zn Acetate D Nitric Acid E Nitric Acid F MeOH G Anchlor H Ascorbic Acid I Ice J DI Water K EDTA L EDA Other: M Hexane N None O AsNaO2 P Na2O4S Q Na2SO3 R Na2S2O3 S H2SO4 T TSP Decadecahydrate U Acetone V MCAA W pH 4-5 X other (specify)	
Sample Identification Sample Date: 8-12-24 Sample Time: 11:36 Sample Type (C=comp, G=grab): G (ab) Matrix (W=water, G=soil, O=organic, LIT=LEADON, A=Air): Water Field Filtered Sample (Yes or No): Perform MS/MSD (Yes or No): Total Number of Containers: 12		Special Instructions/Note: MW3 60ab		Special Instructions/Note: Total Number of Containers: 12			
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Deliverable Requested <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> IV Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Empty Kit Relinquished by Relinquished by: [Signature] Date/Time: 8-13-24 / 11:00 Company: EB Solutions Inc		Method of Shipment Received by: [Signature] Date/Time: 8/12/24 9:00 Company: [Signature]		Relinquished by: [Signature] Date/Time: 8/12/24 9:00 Company: [Signature]			
Relinquished by: [Signature] Date/Time: 8/12/24 9:00 Company: [Signature]		Relinquished by: [Signature] Date/Time: 8/12/24 9:00 Company: [Signature]		Relinquished by: [Signature] Date/Time: 8/12/24 9:00 Company: [Signature]			
Custody Seal No: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks:		Cooler Temperature(s) °C and Other Remarks:			



Eurofins Cedar Falls

3019 Venture Way
Cedar Falls, IA 50613
Phone: 319-277-2401 Fax: 319-277-2425

Chain of Custody Record



eurofins | Environment Testing

Client Information (Sub Contract Lab)		Sampler:		Lab PM: Bindert, Zach T		Carrier Tracking No(s):		COC No: 310-75366.1	
Client Contact: Shipping/Receiving		Phone:		E-Mail: Zach.Bindert@et.eurofinsus.com		State of Origin: Iowa		Page: Page 1 of 1	
Company: Eurofins Environment Testing Southeast L				Accreditations Required (See note): State Program - Iowa				Job #: 310-288072-1	
Address: 5102 LaRoche Avenue,		Due Date Requested: 9/4/2024		Analysis Requested				Preservation Codes: -	
City: Savannah		TAT Requested (days):							
State, Zip: GA, 31404		PO #:							
Phone: 912-354-7858(Tel) 912-352-0165(Fax)		WO #:							
Email:									
Project Name: Crawford Project		Project #: 31007226		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of containers	
Site:		SSOW#:							
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=water/oil, BT=BIOSUR, AA=Air)	Preservation Code:		Special Instructions/Note:	
MW-3 (310-288072-1)		8/12/24	11:36 Central	G	Water	X		1	
<p>Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing North Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing North Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing North Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing North Central, LLC.</p>									
Possible Hazard Identification					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				
Unconfirmed					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months				
Deliverable Requested: I, II, III, IV, Other (specify)			Primary Deliverable Rank: 2		Special Instructions/QC Requirements:				
Empty Kit Relinquished by:			Date:		Time:		Method of Shipment:		
Relinquished by:		Date/Time: 8/14/24 1635		Company:		Received by:		Date/Time: 08/15/24 0915	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Custody Seals Intact:		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 3.6 / 3.6					



Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-288072-1

Login Number: 288072

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Bunker, Xavier M

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



Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-288072-1

Login Number: 288072

List Number: 2

Creator: Lincoln, Alyssa

List Source: Eurofins Savannah

List Creation: 08/15/24 01:37 PM

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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





ANALYTICAL REPORT

PREPARED FOR

Attn: Edward Bertch
EB Solutions, Inc
5060 4th St. SW
Cedar Rapids, Iowa 52404

Generated 9/4/2024 1:18:49 PM

JOB DESCRIPTION

Crawford Project

JOB NUMBER

310-288643-1

Eurofins Cedar Falls

Job Notes

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

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

Authorization



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Authorized for release by
Zach Bindert, Senior Project Manager
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Case Narrative

Client: EB Solutions, Inc
Project: Crawford Project

Job ID: 310-288643-1

Job ID: 310-288643-1

Eurofins Cedar Falls

Job Narrative 310-288643-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The sample was received on 8/21/2024 9:00 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.6°C.

GC/MS VOA

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

HPLC/IC

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

Metals

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

General Chemistry

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

Eurofins Cedar Falls

Sample Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288643-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-288643-1	MW5	Water	08/19/24 10:37	08/21/24 09:00

1

2

3

4

5

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14

15

Detection Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288643-1

Client Sample ID: MW5

Lab Sample ID: 310-288643-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.771		0.200		mg/L	1		9056A	Total/NA
Sulfate	23.3		1.00		mg/L	1		9056A	Total/NA
Barium	0.0941		0.00200		mg/L	1		6020B	Total/NA
Manganese	0.0850		0.0100		mg/L	1		6020B	Total/NA
Boron	0.176		0.100		mg/L	1		6020B	Dissolved
Manganese	0.0754		0.0100		mg/L	1		6020B	Dissolved
Ammonia as N	0.508		0.500		mg/L	1		350.1	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288643-1

Client Sample ID: MW5

Lab Sample ID: 310-288643-1

Date Collected: 08/19/24 10:37

Matrix: Water

Date Received: 08/21/24 09:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			08/22/24 07:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		80 - 120					08/22/24 07:37	1
Dibromofluoromethane (Surr)	127		73 - 130					08/22/24 07:37	1
Toluene-d8 (Surr)	94		80 - 120					08/22/24 07:37	1

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			08/21/24 11:51	1
Fluoride	0.771		0.200		mg/L			08/21/24 11:51	1
Sulfate	23.3		1.00		mg/L			08/21/24 11:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		08/22/24 09:00	08/23/24 17:58	1
Barium	0.0941		0.00200		mg/L		08/22/24 09:00	08/23/24 17:58	1
Cadmium	<0.000200		0.000200		mg/L		08/22/24 09:00	08/23/24 17:58	1
Manganese	0.0850		0.0100		mg/L		08/22/24 09:00	08/23/24 17:58	1
Zinc	<0.0200		0.0200		mg/L		08/22/24 09:00	08/23/24 17:58	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		08/26/24 09:00	08/27/24 12:26	1
Arsenic	<0.00200		0.00200		mg/L		08/26/24 09:00	08/27/24 12:26	1
Boron	0.176		0.100		mg/L		08/26/24 09:00	08/27/24 12:26	1
Cobalt	<0.000500		0.000500		mg/L		08/26/24 09:00	08/27/24 12:26	1
Iron	<0.100		0.100		mg/L		08/26/24 09:00	08/27/24 12:26	1
Manganese	0.0754		0.0100		mg/L		08/26/24 09:00	08/27/24 12:26	1
Molybdenum	<0.00200		0.00200		mg/L		08/26/24 09:00	08/27/24 12:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N (EPA 350.1)	0.508		0.500		mg/L		08/22/24 08:02	08/22/24 17:07	1
Halogens, Total Organic (SW846 9020B)	<40.0		40.0		ug/L		09/03/24 10:29	09/03/24 14:16	1
Phenols, Total (SW846 9066)	<0.0200		0.0200		mg/L		08/21/24 09:10	08/21/24 23:45	1
Total Suspended Solids (USGS I-3765-85)	<1.88		1.88		mg/L			08/22/24 15:56	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0		mg/L			08/28/24 08:26	5

Definitions/Glossary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288643-1

Glossary

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

Surrogate Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288643-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	DBFM	TOL
		(80-120)	(73-130)	(80-120)
310-288643-1	MW5	101	127	94
LCS 310-431023/6	Lab Control Sample	100	98	97
MB 310-431023/5	Method Blank	101	119	95

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288643-1

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

Lab Sample ID: MB 310-431023/5
Matrix: Water
Analysis Batch: 431023

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			08/22/24 00:47	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		80 - 120					08/22/24 00:47	1
Dibromofluoromethane (Surr)	119		73 - 130					08/22/24 00:47	1
Toluene-d8 (Surr)	95		80 - 120					08/22/24 00:47	1

Lab Sample ID: LCS 310-431023/6
Matrix: Water
Analysis Batch: 431023

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2-Butanone (MEK)	40.0	40.79		ug/L		102	50 - 150
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	100		80 - 120				
Dibromofluoromethane (Surr)	98		73 - 130				
Toluene-d8 (Surr)	97		80 - 120				

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-431047/3
Matrix: Water
Analysis Batch: 431047

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			08/16/24 12:08	1
Fluoride	<0.200		0.200		mg/L			08/16/24 12:08	1
Sulfate	<1.00		1.00		mg/L			08/16/24 12:08	1

Lab Sample ID: LCS 310-431047/4
Matrix: Water
Analysis Batch: 431047

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	10.0	9.858		mg/L		99	90 - 110
Fluoride	2.00	2.004		mg/L		100	90 - 110
Sulfate	10.0	10.11		mg/L		101	90 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-431064/1-A
Matrix: Water
Analysis Batch: 431361

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 431064

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		08/22/24 09:00	08/23/24 16:53	1
Barium	<0.00200		0.00200		mg/L		08/22/24 09:00	08/23/24 16:53	1
Cadmium	<0.000200		0.000200		mg/L		08/22/24 09:00	08/23/24 16:53	1

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288643-1

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

Lab Sample ID: MB 310-431064/1-A
Matrix: Water
Analysis Batch: 431361

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 431064

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Zinc	<0.0200		0.0200		mg/L		08/22/24 09:00	08/23/24 16:53	1
Manganese	<0.0100		0.0100		mg/L		08/22/24 09:00	08/23/24 16:53	1

Lab Sample ID: LCS 310-431064/2-A
Matrix: Water
Analysis Batch: 431361

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 431064

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	
Aluminum	0.200	0.2059		mg/L		103	80 - 120	
Barium	0.100	0.1004		mg/L		100	80 - 120	
Cadmium	0.100	0.09871		mg/L		99	80 - 120	
Zinc	0.200	0.1935		mg/L		97	80 - 120	
Manganese	0.100	0.09420		mg/L		94	80 - 120	

Lab Sample ID: MB 310-431187/1-B
Matrix: Water
Analysis Batch: 431550

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 431330

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Antimony	<0.00200		0.00200		mg/L		08/26/24 09:00	08/27/24 12:22	1
Arsenic	<0.00200		0.00200		mg/L		08/26/24 09:00	08/27/24 12:22	1
Boron	<0.100		0.100		mg/L		08/26/24 09:00	08/27/24 12:22	1
Cobalt	<0.000500		0.000500		mg/L		08/26/24 09:00	08/27/24 12:22	1
Iron	<0.100		0.100		mg/L		08/26/24 09:00	08/27/24 12:22	1
Manganese	<0.0100		0.0100		mg/L		08/26/24 09:00	08/27/24 12:22	1
Molybdenum	<0.00200		0.00200		mg/L		08/26/24 09:00	08/27/24 12:22	1

Lab Sample ID: LCS 310-431187/2-B
Matrix: Water
Analysis Batch: 431550

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 431330

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	
Antimony	0.200	0.2254		mg/L		113	80 - 120	
Arsenic	0.200	0.2119		mg/L		106	80 - 120	
Boron	0.200	0.1849		mg/L		92	80 - 120	
Cobalt	0.100	0.1033		mg/L		103	80 - 120	
Iron	0.200	0.1945		mg/L		97	80 - 120	
Manganese	0.100	0.08876		mg/L		89	80 - 120	
Molybdenum	0.200	0.1874		mg/L		94	80 - 120	

Lab Sample ID: 310-288643-1 MS
Matrix: Water
Analysis Batch: 431550

Client Sample ID: MW5
Prep Type: Dissolved
Prep Batch: 431330

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec	
									Limits	
Antimony	<0.00200		0.200	0.2399		mg/L		120	75 - 125	
Arsenic	<0.00200		0.200	0.2124		mg/L		106	75 - 125	
Boron	0.176		0.200	0.3812		mg/L		102	75 - 125	
Cobalt	<0.000500		0.100	0.1003		mg/L		100	75 - 125	
Iron	<0.100		0.200	0.2096		mg/L		105	75 - 125	

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288643-1

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

Lab Sample ID: 310-288643-1 MS
Matrix: Water
Analysis Batch: 431550

Client Sample ID: MW5
Prep Type: Dissolved
Prep Batch: 431330

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	0.0754		0.100	0.1695		mg/L		94	75 - 125
Molybdenum	<0.00200		0.200	0.1965		mg/L		98	75 - 125

Lab Sample ID: 310-288643-1 MSD
Matrix: Water
Analysis Batch: 431550

Client Sample ID: MW5
Prep Type: Dissolved
Prep Batch: 431330

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	<0.00200		0.200	0.2409		mg/L		120	75 - 125	0	20
Arsenic	<0.00200		0.200	0.2203		mg/L		110	75 - 125	4	20
Boron	0.176		0.200	0.3916		mg/L		108	75 - 125	3	20
Cobalt	<0.000500		0.100	0.1037		mg/L		103	75 - 125	3	20
Iron	<0.100		0.200	0.2130		mg/L		106	75 - 125	2	20
Manganese	0.0754		0.100	0.1721		mg/L		97	75 - 125	2	20
Molybdenum	<0.00200		0.200	0.2033		mg/L		102	75 - 125	3	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-431086/1-A
Matrix: Water
Analysis Batch: 431210

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 431086

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	<0.500		0.500		mg/L		08/22/24 08:02	08/22/24 16:53	1

Lab Sample ID: LCS 310-431086/2-A
Matrix: Water
Analysis Batch: 431210

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 431086

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	4.00	3.759		mg/L		94	90 - 110

Method: 9020B - Organic Halides, Total (TOX)

Lab Sample ID: MB 680-854391/1-A
Matrix: Water
Analysis Batch: 854417

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 854391

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	<40.0		40.0		ug/L		09/03/24 10:29	09/03/24 13:06	1

Lab Sample ID: LCS 680-854391/2-A
Matrix: Water
Analysis Batch: 854417

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 854391

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	400	370.4		ug/L		93	60 - 140

QC Sample Results

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288643-1

Method: 9020B - Organic Halides, Total (TOX) (Continued)

Lab Sample ID: LCSD 680-854391/14-A
Matrix: Water
Analysis Batch: 854417

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 854391

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Halogens, Total Organic	400	352.2		ug/L		88	60 - 140	5	40

Lab Sample ID: 310-288643-1 MS
Matrix: Water
Analysis Batch: 854417

Client Sample ID: MW5
Prep Type: Total/NA
Prep Batch: 854391

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	<40.0		400	422.7		ug/L		106	60 - 140

Lab Sample ID: 310-288643-1 MSD
Matrix: Water
Analysis Batch: 854417

Client Sample ID: MW5
Prep Type: Total/NA
Prep Batch: 854391

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Halogens, Total Organic	<40.0		400	398.9		ug/L		100	60 - 140	6	40

Method: 9066 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-430983/1-A
Matrix: Water
Analysis Batch: 431073

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 430983

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0200		0.0200		mg/L		08/21/24 09:10	08/21/24 23:40	1

Lab Sample ID: LCS 310-430983/2-A
Matrix: Water
Analysis Batch: 431073

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 430983

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total	0.100	0.09653		mg/L		97	90 - 110

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

Lab Sample ID: MB 310-431200/1
Matrix: Water
Analysis Batch: 431200

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.00		5.00		mg/L			08/22/24 15:56	1

Lab Sample ID: LCS 310-431200/2
Matrix: Water
Analysis Batch: 431200

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	100	94.00		mg/L		94	81 - 116

Eurofins Cedar Falls

QC Sample Results

Client: EB Solutions, Inc
 Project/Site: Crawford Project

Job ID: 310-288643-1

Method: SM 5220D - COD

Lab Sample ID: MB 310-431600/5
Matrix: Water
Analysis Batch: 431600

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	<5.00		5.00		mg/L			08/28/24 08:26	1

Lab Sample ID: LCS 310-431600/3
Matrix: Water
Analysis Batch: 431600

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	125	123.9		mg/L		99	85 - 110

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QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288643-1

GC/MS VOA

Analysis Batch: 431023

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288643-1	MW5	Total/NA	Water	8260D	
MB 310-431023/5	Method Blank	Total/NA	Water	8260D	
LCS 310-431023/6	Lab Control Sample	Total/NA	Water	8260D	

HPLC/IC

Analysis Batch: 431047

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288643-1	MW5	Total/NA	Water	9056A	
MB 310-431047/3	Method Blank	Total/NA	Water	9056A	
LCS 310-431047/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 431064

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288643-1	MW5	Total/NA	Water	3005A	
MB 310-431064/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-431064/2-A	Lab Control Sample	Total/NA	Water	3005A	

Filtration Batch: 431187

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288643-1	MW5	Dissolved	Water	Filtration	
MB 310-431187/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-431187/2-B	Lab Control Sample	Dissolved	Water	Filtration	
310-288643-1 MS	MW5	Dissolved	Water	Filtration	
310-288643-1 MSD	MW5	Dissolved	Water	Filtration	

Prep Batch: 431330

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288643-1	MW5	Dissolved	Water	3005A	431187
MB 310-431187/1-B	Method Blank	Dissolved	Water	3005A	431187
LCS 310-431187/2-B	Lab Control Sample	Dissolved	Water	3005A	431187
310-288643-1 MS	MW5	Dissolved	Water	3005A	431187
310-288643-1 MSD	MW5	Dissolved	Water	3005A	431187

Analysis Batch: 431361

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288643-1	MW5	Total/NA	Water	6020B	431064
MB 310-431064/1-A	Method Blank	Total/NA	Water	6020B	431064
LCS 310-431064/2-A	Lab Control Sample	Total/NA	Water	6020B	431064

Analysis Batch: 431550

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288643-1	MW5	Dissolved	Water	6020B	431330
MB 310-431187/1-B	Method Blank	Dissolved	Water	6020B	431330
LCS 310-431187/2-B	Lab Control Sample	Dissolved	Water	6020B	431330
310-288643-1 MS	MW5	Dissolved	Water	6020B	431330
310-288643-1 MSD	MW5	Dissolved	Water	6020B	431330

Eurofins Cedar Falls

QC Association Summary

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288643-1

General Chemistry

Prep Batch: 430983

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288643-1	MW5	Total/NA	Water	Distill/Phenol	
MB 310-430983/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-430983/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	

Analysis Batch: 431073

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288643-1	MW5	Total/NA	Water	9066	430983
MB 310-430983/1-A	Method Blank	Total/NA	Water	9066	430983
LCS 310-430983/2-A	Lab Control Sample	Total/NA	Water	9066	430983

Prep Batch: 431086

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288643-1	MW5	Total/NA	Water	Distill/Ammonia	
MB 310-431086/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-431086/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 431200

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288643-1	MW5	Total/NA	Water	I-3765-85	
MB 310-431200/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-431200/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 431210

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288643-1	MW5	Total/NA	Water	350.1	431086
MB 310-431086/1-A	Method Blank	Total/NA	Water	350.1	431086
LCS 310-431086/2-A	Lab Control Sample	Total/NA	Water	350.1	431086

Analysis Batch: 431600

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288643-1	MW5	Total/NA	Water	SM 5220D	
MB 310-431600/5	Method Blank	Total/NA	Water	SM 5220D	
LCS 310-431600/3	Lab Control Sample	Total/NA	Water	SM 5220D	

Prep Batch: 854391

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288643-1	MW5	Total/NA	Water	Carbon Trap	
MB 680-854391/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 680-854391/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	
LCS 680-854391/14-A	Lab Control Sample Dup	Total/NA	Water	Carbon Trap	
310-288643-1 MS	MW5	Total/NA	Water	Carbon Trap	
310-288643-1 MSD	MW5	Total/NA	Water	Carbon Trap	

Analysis Batch: 854417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-288643-1	MW5	Total/NA	Water	9020B	854391
MB 680-854391/1-A	Method Blank	Total/NA	Water	9020B	854391
LCS 680-854391/2-A	Lab Control Sample	Total/NA	Water	9020B	854391
LCS 680-854391/14-A	Lab Control Sample Dup	Total/NA	Water	9020B	854391
310-288643-1 MS	MW5	Total/NA	Water	9020B	854391
310-288643-1 MSD	MW5	Total/NA	Water	9020B	854391

Eurofins Cedar Falls

Lab Chronicle

Client: EB Solutions, Inc
Project/Site: Crawford Project

Job ID: 310-288643-1

Client Sample ID: MW5

Lab Sample ID: 310-288643-1

Date Collected: 08/19/24 10:37

Matrix: Water

Date Received: 08/21/24 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	431023	FE5V	EET CF	08/22/24 07:37
Total/NA	Analysis	9056A		1	431047	QTZ5	EET CF	08/21/24 11:51
Dissolved	Filtration	Filtration			431187	QTZ5	EET CF	08/22/24 15:45
Dissolved	Prep	3005A			431330	QTZ5	EET CF	08/26/24 09:00
Dissolved	Analysis	6020B		1	431550	NFT2	EET CF	08/27/24 12:26
Total/NA	Prep	3005A			431064	QTZ5	EET CF	08/22/24 09:00
Total/NA	Analysis	6020B		1	431361	NFT2	EET CF	08/23/24 17:58
Total/NA	Prep	Distill/Ammonia			431086	MQ8M	EET CF	08/22/24 08:02
Total/NA	Analysis	350.1		1	431210	ZJX4	EET CF	08/22/24 17:07
Total/NA	Prep	Carbon Trap			854391	CLJ	EET SAV	09/03/24 10:29
Total/NA	Analysis	9020B		1	854417	CLJ	EET SAV	09/03/24 14:16
Total/NA	Prep	Distill/Phenol			430983	A3GU	EET CF	08/21/24 09:10
Total/NA	Analysis	9066		1	431073	ZJX4	EET CF	08/21/24 23:45
Total/NA	Analysis	I-3765-85		1	431200	WZC8	EET CF	08/22/24 15:56
Total/NA	Analysis	SM 5220D		5	431600	ENB7	EET CF	08/28/24 08:26

Laboratory References:

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

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Accreditation/Certification Summary

Client: EB Solutions, Inc
 Project/Site: Crawford Project

Job ID: 310-288643-1

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-25

Laboratory: Eurofins Savannah

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

Authority	Program	Identification Number	Expiration Date
	AFCEE	SAVLAB	
Alabama	State	41450	06-30-25
ANAB	Dept. of Defense ELAP	L2463	09-22-24
Arkansas (DW)	State	GA00006	06-30-25
Arkansas DEQ	State	88-00692	02-01-25
Florida	NELAP	E87052	06-30-25
Georgia	State	E87052	06-30-25
Georgia (DW)	State	803	06-30-24 *
Guam	State	24-05R	04-17-25
Hawaii	State	<cert No.>	06-30-25
Illinois	NELAP	200022	11-30-24
Iowa	State	353	07-01-25
Kentucky (UST)	State	NA	06-30-24 *
Louisiana (All)	NELAP	30690	06-30-25
Louisiana (DW)	State	LA009	12-31-24
Maine	State	GA00006	09-25-24
Maryland	State	250	12-31-24
Michigan	State	9925	06-30-24 *
Mississippi	State	<cert No.>	06-30-25
Nebraska	State	NE-OS-7-04	06-30-24 *
New Mexico	State	GA00006	06-30-25
North Carolina (DW)	State	13701	07-31-25
North Carolina (WW/SW)	State	269	12-31-24
Puerto Rico	State	GA00006	01-01-25
South Carolina	State	98001	06-30-24 *
Tennessee	State	TN02961	06-30-25
Texas	NELAP	T1047004185	11-30-24
Texas	TCEQ Water Supply	T104704185	06-30-24 *
USDA	US Federal Programs	P330-18-00313	04-04-27
Virginia	NELAP	460161	06-14-25

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

Method Summary

Client: EB Solutions, Inc
 Project/Site: Crawford Project

Job ID: 310-288643-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
9056A	Anions, Ion Chromatography	SW846	EET CF
6020B	Metals (ICP/MS)	SW846	EET CF
350.1	Nitrogen, Ammonia	EPA	EET CF
9020B	Organic Halides, Total (TOX)	SW846	EET SAV
9066	Phenolics, Total Recoverable	SW846	EET CF
I-3765-85	Residue, Non-filterable (TSS)	USGS	EET CF
SM 5220D	COD	SM	EET CF
3005A	Preparation, Total Metals	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
Carbon Trap	Carbon Trap Preparation	EPA-17	EET SAV
Distill/Ammonia	Distillation, Ammonia	None	EET CF
Distill/Phenol	Distillation, Phenolics	None	EET CF
Filtration	Sample Filtration	None	EET CF

Protocol References:

- EPA = US Environmental Protection Agency
- EPA-17 = "Method 1650, Revision A, Adsorbable Organic Halides By Adsorption And Colormetric Titration," EPA, February 1992
- None = None
- SM = "Standard Methods For The Examination Of Water And Wastewater"
- SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
- USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

Laboratory References:

- EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401
- EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858





Environment Testing
America



310-288643 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: EB Solutions			
City/State:	CITY Cedar Rapids	STATE IA	Project:
Receipt Information			
Date/Time Received:	DATE 8/21/24	TIME 0900	Received By: PCH
Delivery Type: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____	
Multiple Coolers?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # _____ of _____	
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓	
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: P		Correction Factor (°C): 0	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C):		Corrected Temp (°C):	
• Sample Container Temperature			
Container(s) used:	CONTAINER 1 PL 250 Sulf	CONTAINER 2	
Uncorrected Temp (°C):	5.6		
Corrected Temp (°C):	5.6		
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE If yes, contact PM before proceeding If no, proceed with login			
Additional Comments			

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Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-288643-1

SDG Number:

Login Number: 288643

List Number: 1

Creator: Homolar, Dana J

List Source: Eurofins Cedar Falls

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



Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-288643-1

SDG Number:

Login Number: 288643

List Number: 2

Creator: Lincoln, Alyssa

List Source: Eurofins Savannah

List Creation: 08/22/24 01:18 PM

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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HG1979

EB Solutions, Inc.

Ed Bertch
5060 4th St SW
Cedar Rapids, IA 52404

Project Name: Water Analysis

Project / PO Number: N/A
Received: 07/25/2024
Reported: 07/30/2024

Analytical Testing Parameters

Client Sample ID:	MW4	Collected By:	Bertch, Ed
Sample Matrix:	Aqueous	Collection Date:	07/23/2024 10:15
Lab Sample ID:	1HG1979-01		

Determination of Carbonyl Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 8315								
Formaldehyde	<10.0	10.0	ug/L	1		07/26/24 0923	07/29/24 1109	EPP

Definitions

RL: Reporting Limit

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <<https://www.microbac.com/standard-terms-conditions>>.

Reviewed and Approved By:

Heather Murphy
Customer Relationship Specialist
heather.murphy@microbac.com
07/30/24 09:31



Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HG2365

EB Solutions, Inc.

Project Name: Water Analysis

Ed Bertch
5060 4th St SW
Cedar Rapids, IA 52404

Project / PO Number: N/A
Received: 07/31/2024
Reported: 08/02/2024

Case Narrative

CASE NARRATIVE

The samples received on 07/31/24 12:10 for Work Order 1HG2365 were contained in client supplied containers.

Analytical Testing Parameters

Client Sample ID:	MW1	Collected By:	Bertch, Ed
Sample Matrix:	Aqueous	Collection Date:	07/29/2024 9:40
Lab Sample ID:	1HG2365-01		

Determination of Carbonyl Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 8315								
Formaldehyde	<10.0	10.0	ug/L	1		08/01/24 0959	08/02/24 1116	PDS

Definitions

RL: Reporting Limit

Report Comments

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Reviewed and Approved By:

Heather Murphy
Customer Relationship Specialist
heather.murphy@microbac.com
08/02/24 16:33



Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HH0520

EB Solutions, Inc.

Project Name: Water Analysis

Ed Bertch
5060 4th St SW
Cedar Rapids, IA 52404

Project / PO Number: N/A
Received: 08/07/2024
Reported: 08/09/2024

Case Narrative

CASE NARRATIVE

The samples received on 08/07/24 11:15 for Work Order 1HH0520 were contained in client supplied containers.

Analytical Testing Parameters

Client Sample ID:	MW2	Collected By:	Bertch, Ed
Sample Matrix:	Aqueous	Collection Date:	08/05/2024 11:32
Lab Sample ID:	1HH0520-01		

Determination of Carbonyl Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 8315								
Formaldehyde	<10.0	10.0	ug/L	1		08/08/24 1115	08/08/24 1458	PDS

Definitions

RL: Reporting Limit

Report Comments

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Reviewed and Approved By:

Sue Thompson
Client Services Manager
08/09/24 17:46



Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HH1090

EB Solutions, Inc.

Project Name: Crawford

Ed Bertch
5060 4th St SW
Cedar Rapids, IA 52404

Project / PO Number: N/A
Received: 08/14/2024
Reported: 08/19/2024

Analytical Testing Parameters

Client Sample ID:	MW3	Collected By:	Berch, Ed
Sample Matrix:	Aqueous	Collection Date:	08/12/2024 11:36
Lab Sample ID:	1HH1090-01		

Determination of Carbonyl Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 8315								
Formaldehyde	<10.0	10.0	ug/L	1		08/15/24 1422	08/17/24 1413	PDS

Definitions

RL: Reporting Limit

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <<https://www.microbac.com/standard-terms-conditions>>.

Reviewed and Approved By:

Heather Tisdale
Customer Relationship Specialist
08/19/24 16:41



Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HH1551

EB Solutions, Inc.

Project Name: Water Analysis

Ed Bertch
5060 4th St SW
Cedar Rapids, IA 52404

Project / PO Number: N/A
Received: 08/21/2024
Reported: 08/27/2024

Analytical Testing Parameters

Client Sample ID:	MW5	Collected By:	Bertch, Ed
Sample Matrix:	Aqueous	Collection Date:	08/19/2024 10:37
Lab Sample ID:	1HH1551-01		

Determination of Carbonyl Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 8315								
Formaldehyde	<10.0	10.0	ug/L	1	H2	08/22/24 1434	08/26/24 1345	PDS

Definitions

- H2: Initial analysis was within holding time. Reanalysis was done past holding time.
- RL: Reporting Limit

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <<https://www.microbac.com/standard-terms-conditions>>.

Reviewed and Approved By:

Heather Murphy
Customer Relationship Specialist
heather.murphy@microbac.com
08/27/24 08:24

Keystone

LABORATORIES, INC.

600 E. 17th St. S
 Newton, IA. 50208
 Phone: 641-792-8451

EB Solutions, Inc.
 PM: Heather Murphy

205 E Van Buren St
 Centerville, IA. 52544
 Phone: 641-437-7023



CH

PRINT OR TYPE INFO BELOW:

SAMPLER: Ed Betch	REPORT TO: NAME: Ed Betch	BILL TO: NAME: Same as Report
SITE NAME: Crawford	CO. NAME: EB Solutions, Inc.	CO. NAME:
ADDRESS: 5707 F Avenue NW	ADDRESS: 5060 4th Street SW	ADDRESS:
CITY/ST/ZIP: Cedar Rapids, Iowa	CITY/ST/ZIP: Cedar Rapids, Iowa 52404	CITY/ST/ZIP:
PHONE:	PHONE: 319-249-3293	PHONE:
	Email: edbetch@ebsolutionsinc-web.com	Email:

CLIENT SAMPLE #	DATE	TIME	# OF CONTAINERS	MATRIX	GRAB/COMPOSITE	Formaldehyde	ANALYSES REQUIRED				LAB USE ONLY		
							Wk Order #:	Short Hold:	Rush:	Temp.	Sample Condition	Sample #	
MW5	8/19/24	10:37	2	GW	Grab	X							

Relinquished by: (Signature)	Date: 8-20-24	Received by: (Signature)	Date:	Remarks:
<i>[Signature]</i>	Time: 9:00 am		Time:	
Relinquished by: (Signature)	Date:	Received for Lab by: (Signature)	Date: 8/21/24	
	Time:	<i>[Signature]</i>	Time: 12:00	