2023 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 30, 2024

 EB Solutions, Inc.

January 30, 2024

Project EB93012021

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

Re: 2023 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 2023 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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2023 ANNUAL MONITORING REPORT

LEE CRAWFORD QUARRY
IDNR ID #57-BUD-23-97
5707 F AVENUE NW
CEDAR RAPIDS, IOWA

Project EB93012021
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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 fifth 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 year (2023) Crawford Quarry completed sampling in the first part of the second 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 2023 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 Landmark Aviation 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.

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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 ACTIVITES

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.

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2.2   Groundwater Sampling

The groundwater in the monitoring wells at the Site was sampled in the first and third quarters of 2023. 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.

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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 4º 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 4º Celsius / 1 x 250 ml HPDE plastic; cool to 4º Celsius	HNO3 / None	180 days
Total Inorganics (Chloride, Fluoride, and Sulfate)	EPA-9056A	1 x 250 ml HPDE plastic; cool to 4º Celsius	None	28 days
Formaldehyde	EPA-8315A	1 x 250 amber glass; cool to 4º Celsius	None	30 days
Chemical Oxygen Demand	EPA-5220D	1 x 250 ml HPDE plastic; cool to 4º Celsius	H2SO4	28 days
Ammonia Nitrogen	EPA-350.1	1 x 250 ml HPDE plastic; cool to 4º Celsius	H2SO4	28 days
Total Organic Halogen	EPA-9020B	1 x 500 ml amber glass; cool to 4º Celsius	H2SO4	None
Phenols	EPA-9066	1 x 500 ml amber glass; cool to 4º Celsius	H2SO4	28 days
Total Suspended Solids	I_3765_85	1 x liter HPDE plastic; cool to 4º 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

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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:

$\pm$ 0.1 for pH,
$\pm$ 5% for conductivity, and
$\pm$ 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,

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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

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1 - Secondary Maximum Contaminant Level

2 - Iowa Statewide Standard

3 - Maximum Contaminant Level

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Table I: Groundwater Protection Standards (Continued)

Constituent	Groundwater Protection Standard (mg/L)	Source
Manganese	0.3	SWS
MEK[4]	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 MW5 were not detected above method detection limits in 2019, 2020, 2021, 2022, and 2023.

Identified concentrations of aluminum in monitoring well MW1, MW2, MW3, and MW4 were below SMCL for groundwater (40 CFR Part 141).

Concentrations of ammonia nitrogen in monitoring wells MW1, MW2, MW3, and MW4 were not detected above method detection limits in 2019, 2020, 2021, 2022, and 2023.

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

Concentrations of antimony in monitoring wells MW1, MW3, MW4, and MW5 were not detected above method detection limits in 2019, 2020, 2021, and 2022.

Identified concentrations of antimony in monitoring well MW2 were below the 40 CFR Part 141 MCL.

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4 - Methyl Ethyl Ketone

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The concentrations of arsenic in monitoring wells MW1, MW2, MW3, and MW5 were not detected above method detection limits in 2019, 2020, 2021, 2022, and 2023.

Identified concentrations of arsenic in monitoring well MW4 were below the 40 CFR Part 141 MCL.

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 MW3, MW4, and MW5 were not detected above method detection limits in 2019, 2020, 2021, and 2022.

Identified concentrations of cadmium in monitoring wells MW1 and MW2 were below the 40 CFR Part 141 MCL.

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, MW4, and MW3 were below IDNR statewide standards for groundwater (567 IAC 137) since the quarter of 2021.

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).

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Concentrations of iron in monitoring wells MW1, MW2, MW3, and MW4 were not detected above method detection limits in 2020, 2021, and 2022.

Identified concentrations of iron in monitoring wells MW5 were below the 40 CFR Part 141 SMCL.

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 2020, 2021, 2022, and 2023.

Identified concentrations of molybdenum in monitoring wells MW1, MW2, MW3, MW4, and MW5 were below IDNR statewide standards for groundwater (567 IAC 137) in 2020, 2021, 2022, and 2023.

The concentration of phenols (total) in monitoring wells MW2, MW3, MW4, and MW5 were below method detection limits in 2020, 2021, 2022, and 2023.

Identified concentration of phenols (total) in monitoring well MW1 were below IDNR statewide standards for groundwater (567 IAC 137) in third quarter of 2020. The remaining concentration of phenols (total) in monitoring well-MW1 were below method detection limits in 2020, 2021, 2022, and 2023.

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 2019, 2020, 2021, 2022, and 2023.

Concentrations of total organic halogens in monitoring wells MW1, MW2, MW3, MW4, and MW5 were below method detection limits in 2020, 2021, and first half of 2022, and 2023.

Concentrations of total organic halogens in monitoring wells MW1, MW2, MW3, MW4, and MW5 were identified above method detection limits in second half of 2022 and MW3 the second half of 2023.

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

4.0 STATISTICAL ANALYSIS

Groundwater samples were collected and analysis in 2020, 2021, 2022, and 2023. We use the 2020 and 2021 analytical results to establish background concentrations in accordance with Special Condition #10df. We use the 2023 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.

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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	70	90	100	100	**0.3**
Ammonia	100	100	100	100	70	**3.0**
Antimony	100	90	100	100	100	**0.006**
Arsenic	100	100	100	100	100	**0.012**
Barium	0	0	0	0	0	**0.012**
Boron	10	90	100	90	10	**1.2**
Cadmium	90	100	100	100	100	**0.0006**
Chloride	10	60	20	100	100	**30**
Cobalt	90	30	80	30	70	**0.003**
Fluoride	90	40	90	90	40	**3.0**
Formaldehyde	80	100	80	100	100	**60**
Iron	100	100	100	100	90	**0.6**
Manganese	0	0	50	0	0	**0.06**
MEK	100	100	100	100	100	**60**
Molybdenum	60	0	20	30	80	**0.012**
Phenols	90	100	100	100	100	**0.12**
Sulfate	0	0	0	0	0	**60**
Halogens	90	90	80	90	90	**0.18**
Zinc	70	60	90	70	80	**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 > or equal to 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	3/1/21-0165mg/L	None	None	None
Ammonia	None	None	None	None	12/23/20-9.79mg/L
Antimony	None	None	None	None	None
Arsenic	None	None	None	None	None
Barium	None	None	None	9/27/21-0188mg/L	None
Boron	None	None	None	None	None
Cadmium	None	None	None	None	None
Chloride	None	3/11/20-71mg/L 12/18/20-34.4mg/L	None	None	None
Cobalt	None	6/1/20-0.0275mg/L	None	None	9/23/20-0.00212mg/L 12/23/20-0.00103mg/L
Fluoride	None	None	None	None	None
Formaldehyde	None	None	None	None	None
Iron	None	None	None	None	None
Manganese	None	None	3/3/20-0133mg/L 6/13/20-0.379mg/L	3/6/20-0.529mg/L	None
MEK	None	None	None	None	None
Molybdenum	None	None	None	5/26/20-0.00527mg/L	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	12/18/20-2.49mg/L 3/1/21-0.571mg/L	None	9/4/20-0.0787mg/L 12/15/20-0.346mg/L	12/23/20-0.286mg/L

Identified concentrations of aluminum in monitoring well MW2 in the first quarter of 2021 was determined to be an outlier.

Identified concentrations of ammonia in monitoring well MW5 in the fourth quarter of 2020 was determined to be outliers.

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

Identified concentrations of chloride in monitoring well MW2 in the first quarter of 2020 and fourth quarter of 2020 were determined to be outliers.

Identified concentration of cobalt in monitoring well MW2 in the second quarter of 2020 was determined to be an outlier.

Identified concentrations of cobalt in monitoring well MW5 in the third quarter of 2020 and fourth quarter of 2020 were determined to be outliers.

Identified concentrations of manganese in monitoring well MW3 in the first quarter of 2020 and second quarter of 2020 were determined to be outliers.

Identified concentrations of manganese in monitoring well MW4 in the first quarter of 2020 was determined to be outliers.

Identified concentration of molybdenum in monitoring well MW4 in the second quarter of 2020 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 MW4 in the third quarter of 2020 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.

Identified concentrations of zinc in monitoring wells MW2, MW4, and MW5 in the fourth quarter of 2020 were determined to be outliers.

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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	Non-parametric		
Ammonia					Non-parametric
Antimony		Non-parametric			
Arsenic					
Barium	Parametric	Parametric	Parametric	Parametric	Parametric
Boron	Parametric	Non-parametric		Non-parametric	Parametric
Cadmium	Non-parametric				
Chloride	Parametric	Non-parametric	Parametric		
Cobalt	Non-parametric	Non-parametric	Non-parametric	Non-parametric	Non-parametric
Fluoride	Non-parametric	Parametric	Non-parametric	Non-parametric	Parametric
Formaldehyde	Non-parametric		Non-parametric		
Iron					Non-parametric
Manganese	Parametric	Parametric	Non-parametric	Non-parametric	Parametric
MEK					
Molybdenum	Non-parametric	Parametric	Parametric	Non-parametric	Non-parametric
Phenols	Non-parametric				
Sulfate	Parametric	Parametric	Parametric	Parametric	Parametric
Halogens	Non-parametric	Non-parametric	Non-parametric	Non-parametric	Non-parametric
Zinc	Non-parametric	Non-parametric	Non-parametric	Non-parametric	Non-parametric

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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	No Trend		
Ammonia					No Trend
Antimony		No Trend			
Arsenic					
Barium	Decreasing	No Trend	No Trend	No Trend	No Trend
Boron	No Trend	No Trend		No Trend	No Trend
Cadmium	No Trend				
Chloride	No Trend	No Trend	Increasing		
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					No Trend
Manganese	No Trend	No Trend	No Trend	Decreasing	No Trend
MEK					
Molybdenum	No Trend	No Trend	No Trend	No trend	No Trend
Phenols	No Trend				
Sulfate	Increasing	No Trend	No Trend	Increasing	No Trend
Halogens	Decreasing	No Trend	No Trend	No Trend	No Trend
Zinc	No Trend	No Trend	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 a decreasing trend of manganese in monitoring well MW3.

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There is an increasing trend for sulfate in monitoring wells MW1 and MW4.

There is a decreasing trend of halogens in monitoring well MW1.

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 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 Unified Guidance formula one-sided intra-well comparison at a 99 percent confidence level.

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	No Significant		
Ammonia					No Significant
Antimony		No Significant			
Arsenic					
Barium	No Significant	No Significant	No Significant	No Significant	No Significant
Boron	No Significant	No Significant		No Significant	No Significant
Cadmium	No Significant				
Chloride	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					No Significant
Manganese	No Significant	No Significant	No Significant	No Significant	No Significant
MEK					
Molybdenum	No Significant	No Significant	No Significant	No Significant	No Significant
Phenols	No Significant				
Sulfate	No Significant	No Significant	No Significant	No Significant	No Significant
Halogens	No Significant	No Significant	No Significant	No Significant	No Significant
Zinc	No Significant	No Significant	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.

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.

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➢ Based on the results, there are no identifiable statistically significant trends for the constituents in the monitoring wells at the Site.
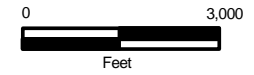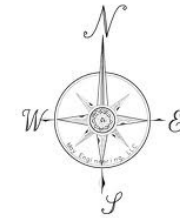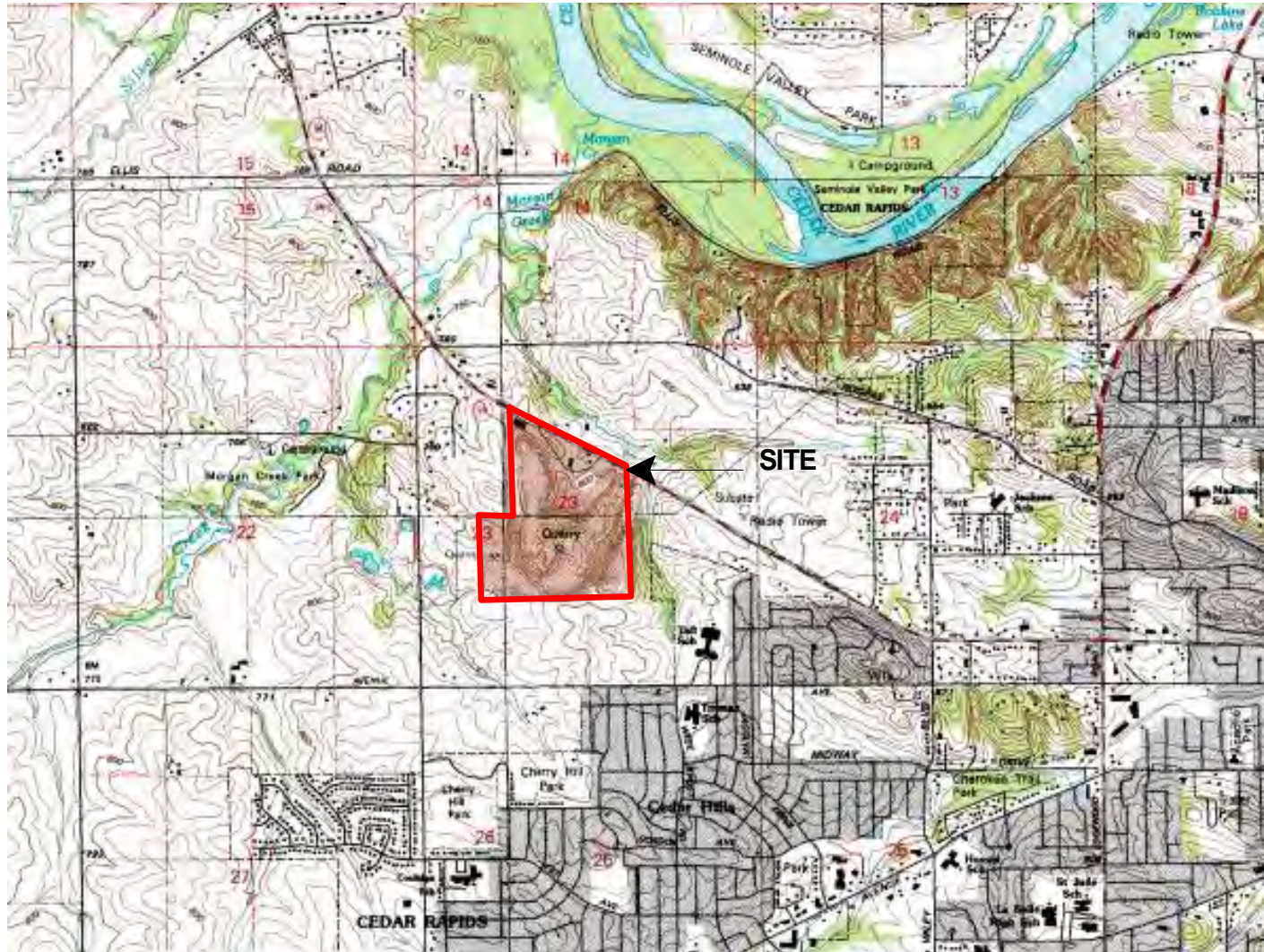
6.0   RECOMMENDATIONS

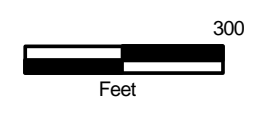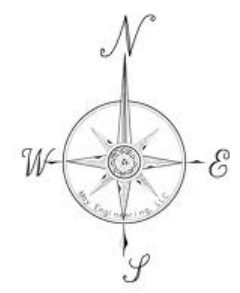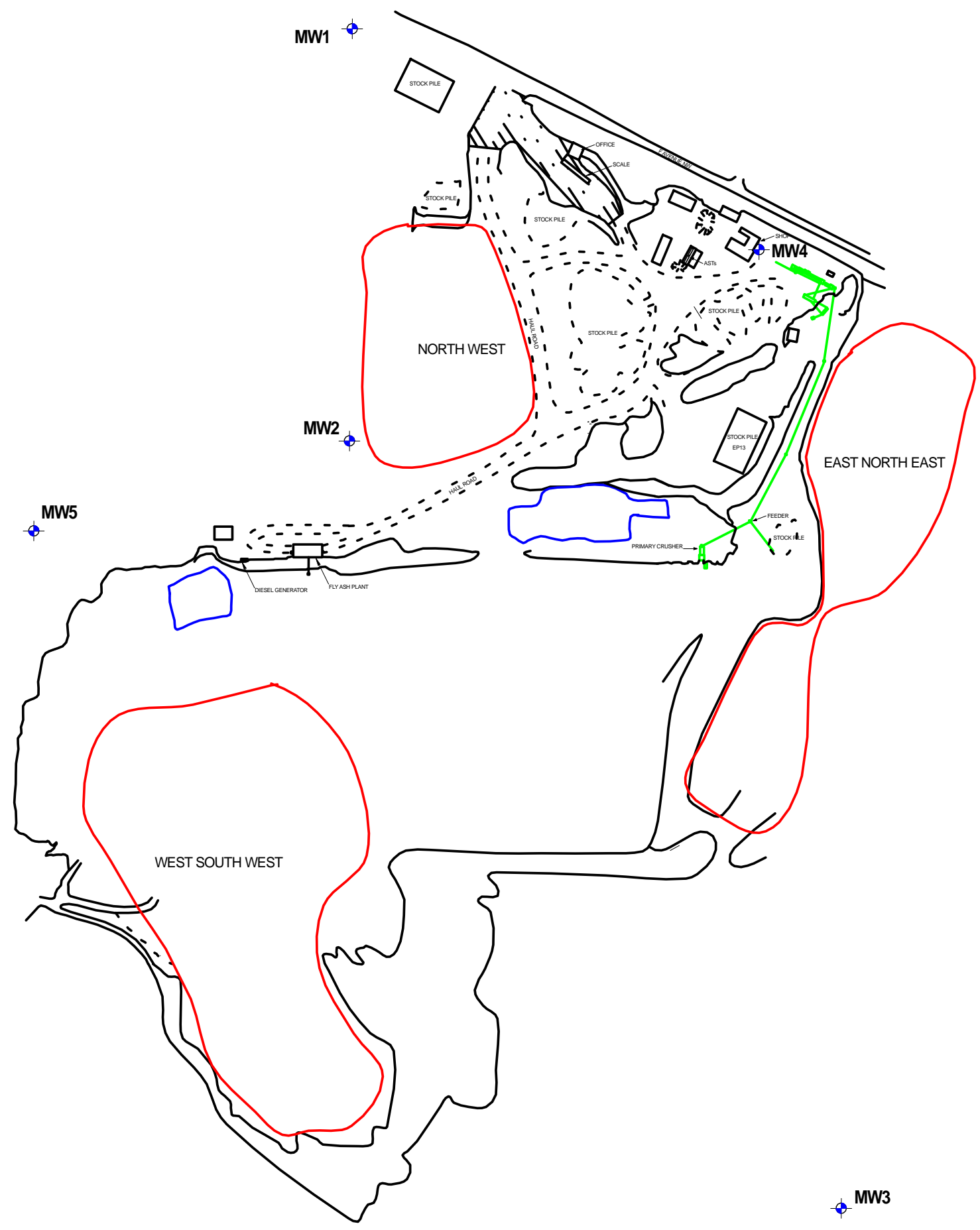Based on the analytical data, we have the following recommendations.

➢ Since analytical concentrations are below MCLs, statewide standards, and there are no statistically significant trends of regulated contaminants, we recommend continuing bi-annual sampling for future sampling events.

EB Solutions, Inc.

Figures

EB Solutions, Inc.

SITE

MW1

MW4

MW2

MW5

NORTH WEST

EAST NORTH EAST

WEST SOUTH WEST

MW3

STOCK PILE

OFFICE
SCALE

STOCK PILE

STOCK PILE

STOCK PILE

STOCK PILE

STOCK PILE
EP13

FEEDER
STOCK PILE
PRIMARY CRUSHER

DIESEL GENERATOR
FLY ASH PLANT

HAUL ROAD

N
W E
S

300
Feet

Legend

UNPAVED ROADWAY

PAVED ROADWAY

MONITORING WELL

ADDITIONAL PROPOSED
MONITORING WELL

BUD DISPOSAL AREAS

Title: SITE SKETCH

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 = 300 FEET

Date:
7/7/2018

Drawn By:
EDB

Project No.:
EB21418013
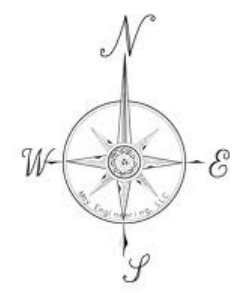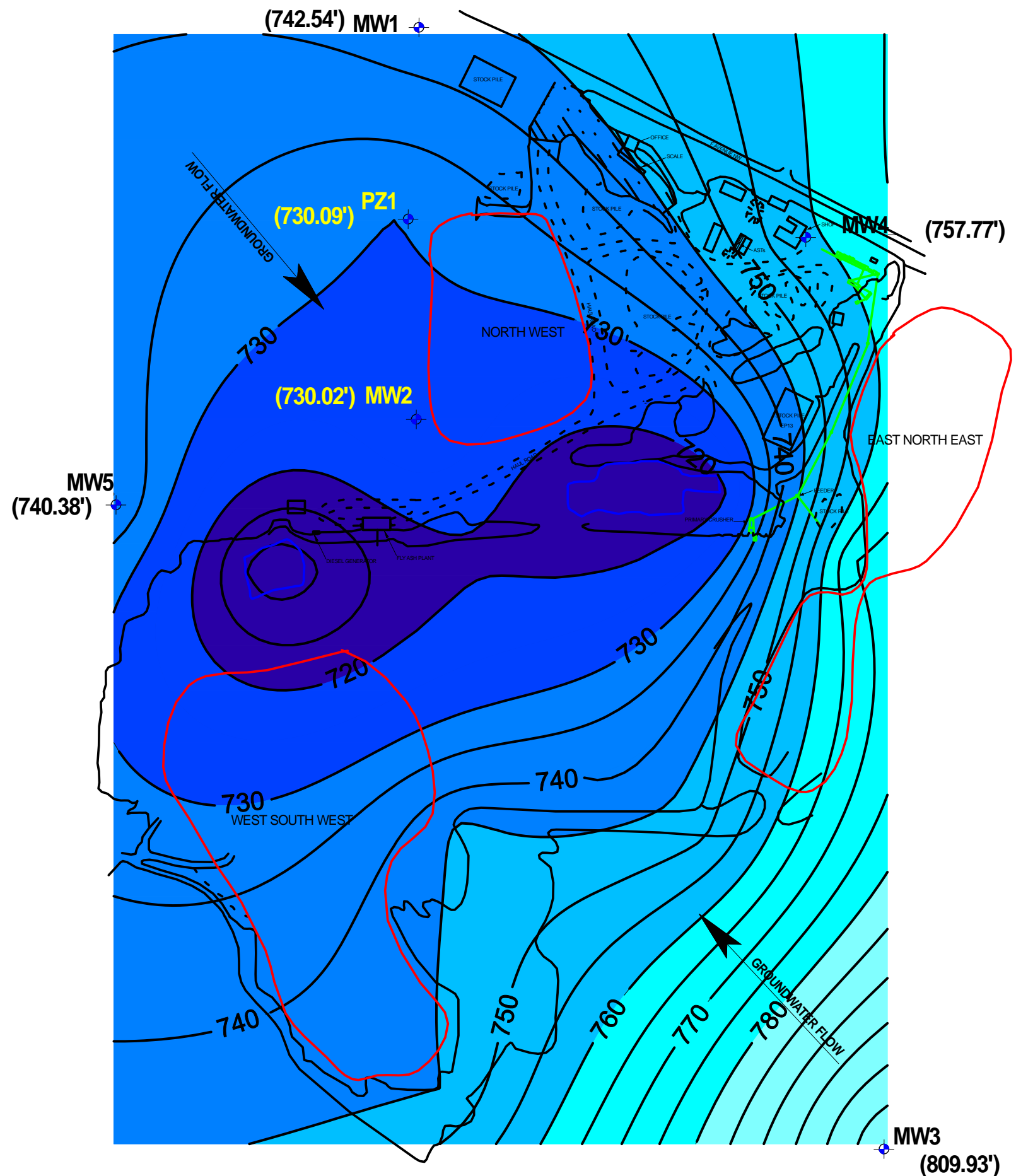
(742.54') MW1

(730.09') PZ1

MW4 (757.77')

NORTH WEST

730

(730.02') MW2

EAST NORTH EAST

MW5
(740.38')

720

730
WEST SOUTH WEST

720

740

730

750

740

750

760

770

780

GROUNDWATER FLOW

MW3
(809.93')

300

Feet

Legend

UNPAVED ROADWAY

PAVED ROADWAY

MONITORING WELL

BUD DISPOSAL AREAS

(754.65') GROUNDWATER ELEVATION

(734.75') MW1

(734.51') PZ1

GROUNDWATER FLOW

NORTH WEST

(724.37') MW2

MW4 (752.71')

EAST NORTH EAST

MW5
(737.64')

730

720

730
WEST SOUTH WEST

740

740

750

750

760

770

GROUNDWATER FLOW

MW3
(806.60')

300
Feet

Legend

```
- - - -   UNPAVED ROADWAY

☐         PAVED ROADWAY

⊕         MONITORING WELL

◯         BUD DISPOSAL AREAS

(754.65') GROUNDWATER ELEVATION
```

N
W   E
S

Title: Groundwater Flow 9-15-2023

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: 1/30/2024

Drawn By: EDB

Project No.: EB93012021

Tables

Table I-V: **Monitoring Results for Each Well**

Crawford-MW1

Location ID:	MW1										
Number of Sampling Dates:	10										
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
Aluminum, total		mg/l	<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
Antimony		mg/l	<0.001	<0.001	<0.001	<0.001	<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
Barium		mg/l	0.0374	0.0365	0.0294	0.0294	0.0268	0.0252	0.0236	0.0231	0.0233	0.0207
Boron		mg/l	<0.2	0.166	0.152	0.144	0.134	0.129	0.168	0.135	0.117	0.17
Cadmium		mg/l	<0.0001	<0.0001	0.000111	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002
Chemical Oxygen Demand		mg/l	26.6	<25	37.7	<25	<25	32.2	<25	<25	403	<25
Chloride		mg/l	5.75	7.37	7.3	8.59	10.1	7.45	6.25	6.86	<5	6.38
Cobalt		mg/l	<0.0005	<0.0005	<0.0005	<0.0005	0.00117	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Dissolved Oxygen		mg/l	6.27	3.9	4.56	4.42	20.29	14.01	14.28	11.65	1.9	0.39
Fluoride		mg/l	<0.5	<0.5	<0.5	<0.5	0.709	<0.5	<0.5	<0.5	<1	<1
Formaldehyde		ug/l	28.7	<10	<10	<10	<10	<10	<10	12	<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
Manganese		mg/l	0.0699	0.0713	0.0685	0.073	0.0605	0.0766	0.0829	0.085	0.0821	0.0753
Methyl Ethyl Ketone (MEK) (2-Butanone)		ug/l	<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
Oxidation Reduction Potential		mV	130.5	120	76.6	98.8	224.1	42.2	40.3	85.6	231.5	284.3
pH (field)		S.U.	8.59	8.97	9.06	9.9	8.94	9.18	6.58	6.75	7.1	6.64
Phenols, total		mg/l	<0.0196	<0.02	0.0376	<0.02	<0.02	<0.0184	<0.02	<0.02	<0.0204	<0.0216
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
Sulfate		mg/l	811	880	796	885	828	903	976	928	924	927
Temperature		deg C	2.6	6.52	3.45	0.42	4.63	4.61	8.65	13.99	12.56	14.54
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

Location ID:	MW1										
Number of Sampling Dates:	10										
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
Total Suspended Solids		mg/l	46	5.75	<1.88	<1.88	3	<1.88	<5	<1.88	9.38	<1.88
Water		ft	59.02	52.34	55.9	61.71	63.33	65.63	62.55	78.15	61.16	68.95
Zinc		mg/l	<0.02	<0.02	0.0679	0.0611	0.0633	<0.02	<0.02	<0.02	<0.02	<0.02

Crawford-MW2

Location ID:	MW2
Number of Sampling Dates:	10

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
Aluminum, total		mg/l	<0.05	0.0612	0.0698	<0.05	0.165	<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
Antimony		mg/l	<0.001	0.0013	<0.001	<0.001	<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
Barium		mg/l	0.0617	0.0872	0.0556	0.0958	0.0808	0.0882	0.072	0.0582	0.0727	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
Cadmium		mg/l	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002
Chemical Oxygen Demand		mg/l	37.6	40.9	34.6	<25	<25	32.2	<25	<25	33.3	<25
Chloride		mg/l	71	<5	<5	34.4	5.66	<5	<5	<5	<5	5.99
Cobalt		mg/l	0.00141	0.0275	<0.0005	0.000725	<0.0005	0.00404	0.00254	0.000769	0.00109	<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
Fluoride		mg/l	0.884	0.71	0.504	0.64	0.636	<0.5	<0.5	0.713	<1	<1
Formaldehyde		ug/l	<10	<10	<10	<10	<10	<10	<10	<10	<10	<20
Iron		mg/l	<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
Methyl Ethyl Ketone (MEK) (2-Butanone)		ug/l	<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
Oxidation Reduction Potential		mV	143.9	127.6	99	30.6	243.4	83.2	222.3	74.9	80.2	269.7
pH (field)		S.U.	8.77	8.93	8.72	9.01	9.13	8.47	6.43	7.65	7.89	7.09
Phenols, total		mg/l	<0.0204	<0.0196	<0.0192	<0.02	<0.0196	<0.0188	<0.0184	<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
Sulfate		mg/l	18.2	20	13.2	21.9	13.7	19.2	20.1	14.4	16.5	14.3
Temperature		deg C	4.42	8.95	9.38	3.88	5.54	9.23	10.54	15.82	11.16	18.31

Location ID: MW2
Number of Sampling Dates: 10

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
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
Total Suspended Solids		mg/l	3	<5	<5	<1.88	31.2	61.2	<1.88	3.13	5.63	<1.88
Water		ft	108.91	108.45	109.05	108.68	110.31	110.15	110.11	110.25	109.44	115.09
Zinc		mg/l	0.258	<0.02	0.227	2.49	0.571	<0.02	<0.02	<0.02	<0.02	<0.02

Crawford-MW3

Location ID:	MW3										
Number of Sampling Dates:	10										

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
Aluminum, total		mg/l	<0.05	<0.05	0.0844	<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
Antimony		mg/l	<0.001	<0.001	<0.001	<0.001	<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
Barium		mg/l	0.384	0.499	0.215	0.228	0.264	0.229	0.295	0.282	0.32	0.325
Boron		mg/l	<0.2	<0.1	<0.2	<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
Chemical Oxygen Demand		mg/l	<25	31.4	31.2	45.3	<25	25.8	<25	<25	29.1	<25
Chloride		mg/l	<5	<5	24.9	21.6	23.5	48.3	60.4	61.4	136	107
Cobalt		mg/l	<0.0005	0.00159	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.000731	<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
Fluoride		mg/l	<0.5	<0.5	<0.5	<0.5	1	<0.5	<0.5	<0.5	<1	<1
Formaldehyde		ug/l	<10	<10	<10	<10	<10	55.4	13.8	<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
Manganese		mg/l	0.133	0.579	0.0262	0.0114	<0.01	<0.01	<0.01	<0.01	0.0303	<0.01
Methyl Ethyl Ketone (MEK) (2-Butanone)		ug/l	<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
Oxidation Reduction Potential		mV	123.2	91.7	86.8	94.7	86.7	114.9	194.2	-248.5	101.5	114
pH (field)		S.U.	8.42	8.98	9.11	8.97	8.64	8.9	6.71	6.36	6.88	7.48
Phenols, total		mg/l	<0.0188	<0.02	<0.0184	<0.02	<0.02	<0.02	<0.0196	<0.02	<0.0184	<0.0204
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
Sulfate		mg/l	7.08	<5	29.6	27	49.9	29.2	28.5	30.6	32.6	34.7
Temperature		deg C	7.04	13.31	2.33	2.31	3.61	3.44	9.01	11.69	13.54	14.19

| Location ID: | MW3 | | | | | | | | | | | |
| Number of Sampling Dates: | 10 | | | | | | | | | | | |
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
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
Total Suspended Solids		mg/l	<1.88	<5	34	4.63	<1.88	<1.88	<1.88	<1.88	8.13	<1.88
Water		ft	123.44	125.81	124.6	126.81	125.92	101.93	62.68	64.62	63.02	65.33
Zinc		mg/l	<0.02	<0.02	<0.02	0.0759	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Crawford-MW4

Location ID:	MW4											
Number of Sampling Dates:	10											
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**
Aluminum, total		mg/l	<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
Antimony		mg/l	<0.001	<0.001	<0.001	<0.001	<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
Barium		mg/l	0.0942	0.112	0.125	0.133	0.12	0.188	0.125	0.129	0.125	0.135
Boron		mg/l	<0.2	<0.1	<0.1	<0.1	0.106	<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
Chemical Oxygen Demand		mg/l	<25	32.3	40.5	38.3	26.7	56.3	<25	<25	42	<25
Chloride		mg/l	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Cobalt		mg/l	<0.0005	0.00145	0.00572	0.00728	0.00102	0.000795	<0.0005	0.00209	<0.0005	0.00121
Dissolved Oxygen		mg/l	7.34	5.92	3.97	13.25	7.83	10.19	9.49	5.27	3.76	0.91
Fluoride		mg/l	<0.5	<0.5	<0.5	<0.5	1.04	<0.5	<0.5	<0.5	<1	<1
Formaldehyde		ug/l	<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
Manganese		mg/l	0.529	0.227	0.0969	0.127	0.11	0.111	0.0923	0.14	0.0739	0.0608
Methyl Ethyl Ketone (MEK) (2-Butanone)		ug/l	<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
Oxidation Reduction Potential		mV	136.6	122.5	112.9	49.1	135.8	80.9	90.3	-286.6	141.9	210.4
pH (field)		S.U.	8.25	9.07	8.88	9.23	8.96	8.35	6.84	7.46	7.82	6.74
Phenols, total		mg/l	<0.0192	<0.0192	<0.0196	<0.02	<0.02	<0.0188	<0.02	<0.0208	<0.02	<0.0204
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
Sulfate		mg/l	119	136	136	183	143	143	158	161	174	160

Location ID: MW4
Number of Sampling Dates: 10

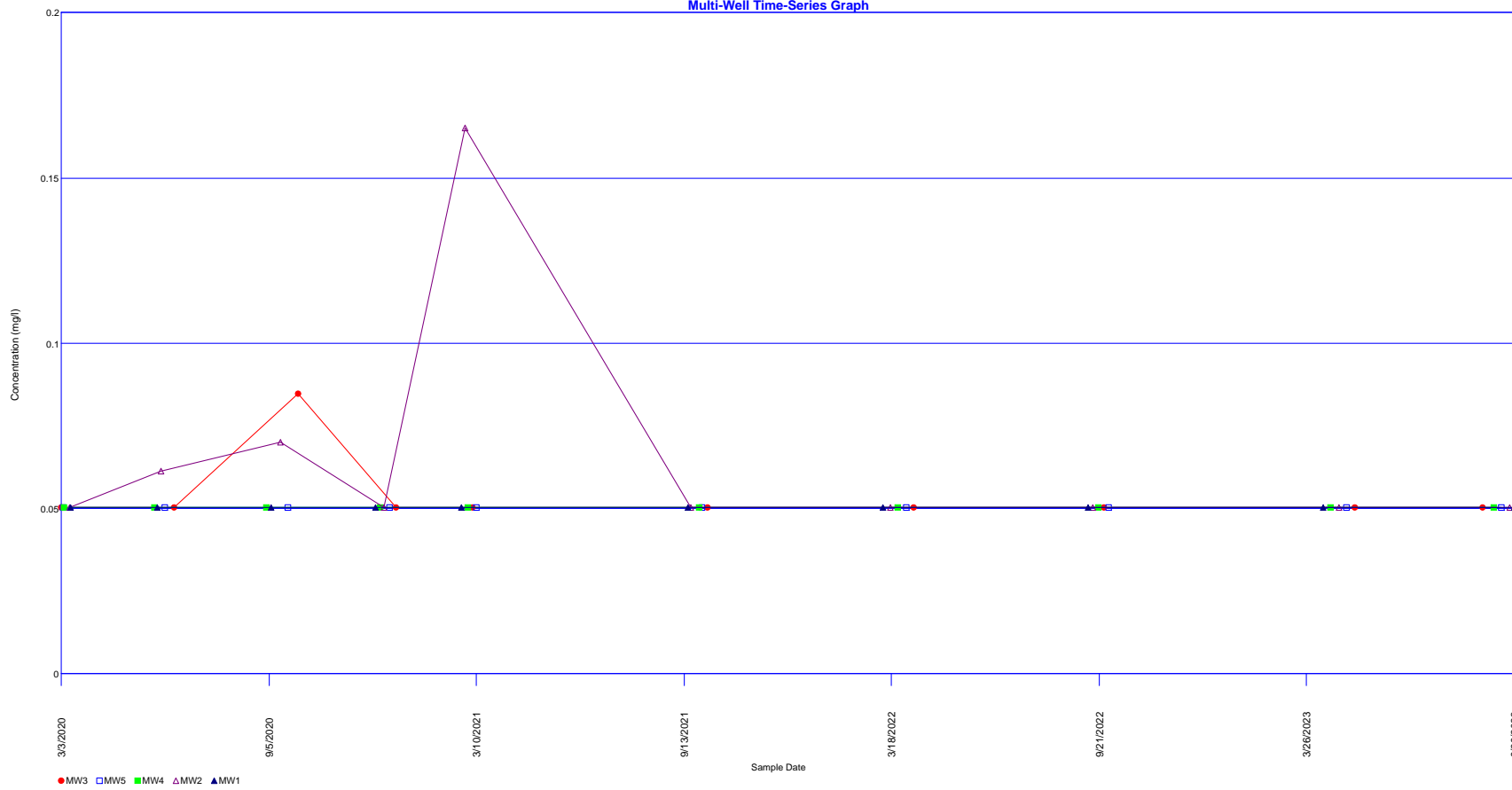| Parameter Name	Replicate Code	Units	3/6/2020	5/26/2020	9/4/2020	12/15/2020	3/4/2021	9/27/2021	3/25/2022	9/21/2022	4/17/2023	9/11/2023
Temperature		deg C	2.24	12.38	7.39	3.37	2.57	3.31	10.29	9.25	10.52	12.98
Total Organic Halogens, Halides		mg/l	<0.15	<0.06	<0.06	<0.06	<0.04	<0.04	<0.04	0.0688	<0.04	<0.04
Total Suspended Solids		mg/l	3.38	<1.88	<1.88	<5	<1.88	<1.88	<5	6.63	<1.88	<1.88
Water		ft	31.48	31.86	32.09	32.02	36.47	37.25	36.03	34.9	32.53	37.59
Zinc		mg/l	<0.02	<0.02	0.0787	0.346	0.0218	<0.02	<0.02	<0.02	<0.02	<0.02

Crawford-MW5

Location ID:	MW5
Number of Sampling Dates:	10

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
Aluminum, total		mg/l	<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
Antimony		mg/l	<0.001	<0.001	<0.001	<0.001	<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
Barium		mg/l	0.103	0.0902	0.152	0.144	0.0972	0.0877	0.126	0.0965	0.0775	0.0955
Boron		mg/l	<0.2	0.179	0.2	0.181	0.177	0.182	0.23	0.191	0.188	0.213
Cadmium		mg/l	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<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
Chloride		mg/l	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Cobalt		mg/l	<0.0005	0.000735	0.00212	0.00103	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<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
Fluoride		mg/l	0.677	0.675	0.63	0.647	1.45	<0.5	0.721	<0.5	<1	<1
Formaldehyde		ug/l	<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
Manganese		mg/l	0.0759	0.0706	0.164	0.113	0.0613	0.0584	0.12	0.0595	0.0538	0.0806
Methyl Ethyl Ketone (MEK) (2-Butanone)		ug/l	<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
Oxidation Reduction Potential		mV	138.5	121	98.7	102.3	112.3	78	57.1	-254	88.4	253.4
pH (field)		S.U.	8.58	8.7	9.3	8.91	9.06	8.99	6.67	6.44	8.17	7.44
Phenols, total		mg/l	<0.02	<0.02	<0.0204	<0.02	<0.02	<0.0184	<0.02	<0.02	<0.02	<0.0204
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
Sulfate		mg/l	16	19.1	14.9	17.2	19.7	20.2	18.1	18.5	24.7	20.8
Temperature		deg C	1.68	10.72	4.12	5.47	5.35	5.08	10.83	11.73	11.42	13.76

Location ID: MW5
Number of Sampling Dates: 10

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
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
Total Suspended Solids		mg/l	<1.88	1.88	8.5	29	1.88	<1.88	<5	<1.88	<1.88	2.25
Water		ft	90.02	90.58	91.35	90.65	92.79	96.63	91.57	94.18	96.35	96.61
Zinc		mg/l	<0.02	<0.02	0.177	0.286	<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

Page 1

Antimony
Multi-Well Time-Series Graph

Concentration (mg/l)

0.002

0.0015

0.001

0.0005

0

3/3/2020   9/5/2020   3/10/2021   9/13/2021   3/18/2022   9/21/2022   3/26/2023   9/29/2023

Sample Date

● MW3   □ MW5   ■ MW4   △ MW2   ▲ MW1
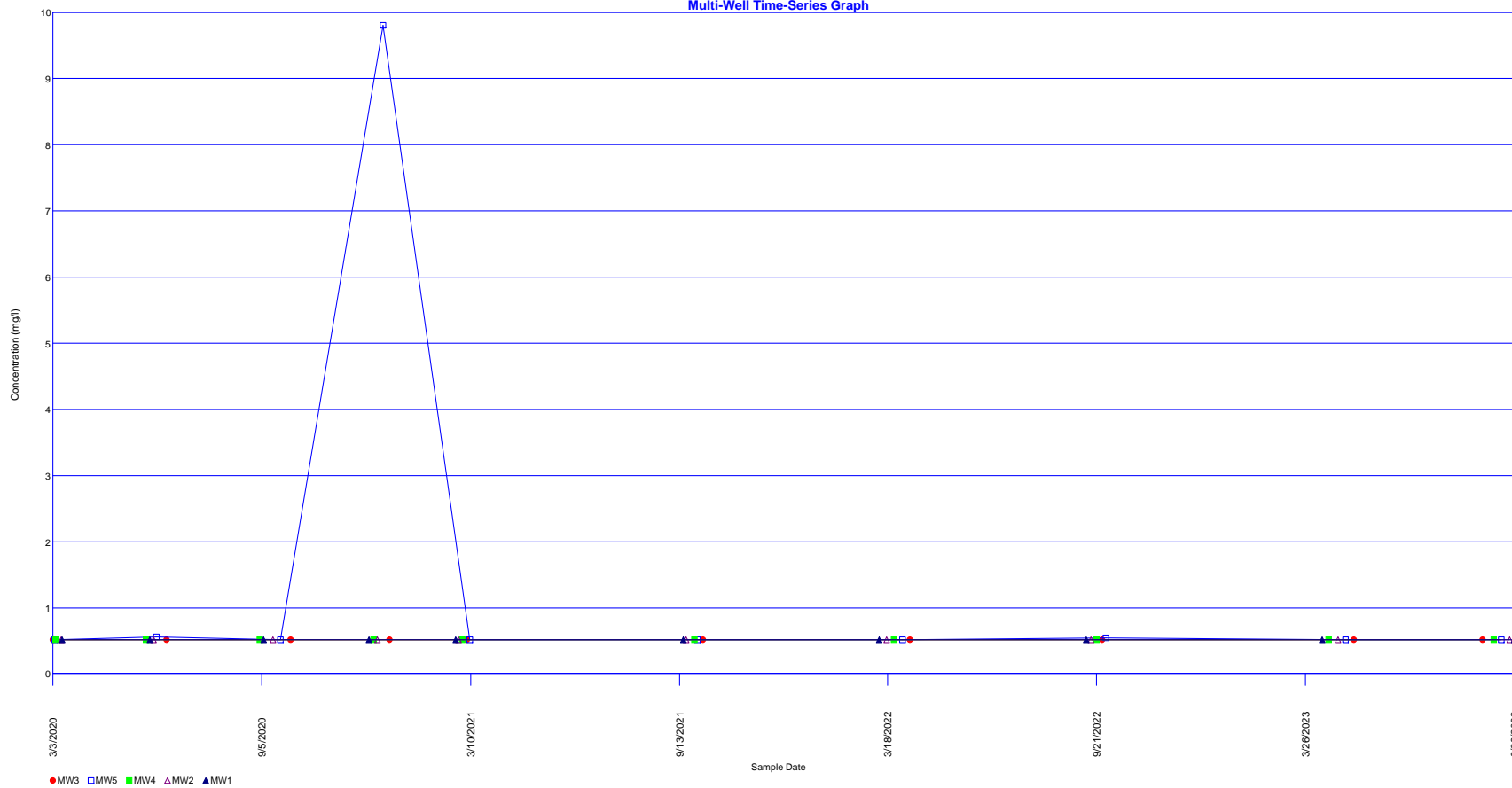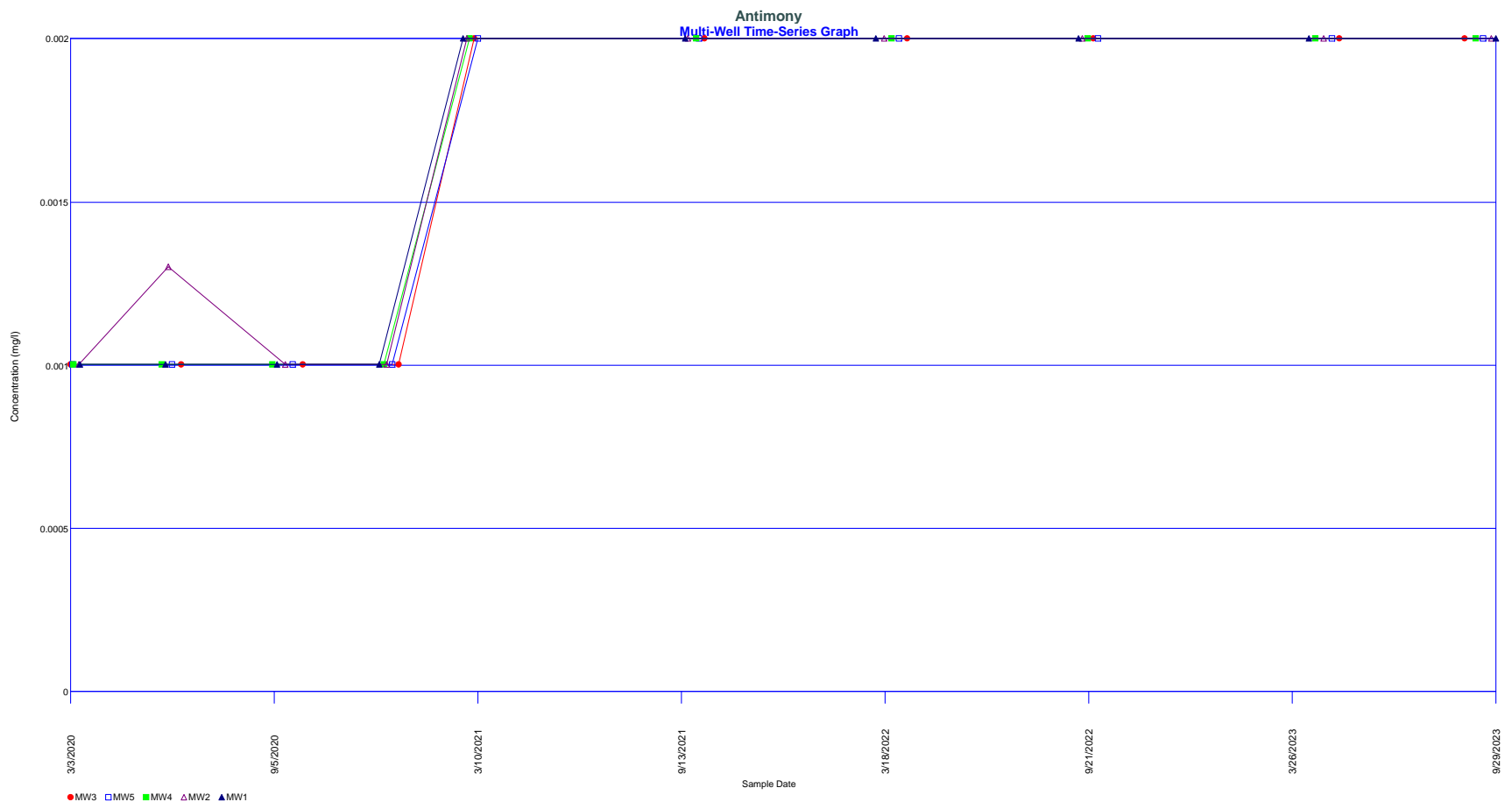
Arsenic
Multi-Well Time-Series Graph

Concentration (mg/l)

0.002

0.0015

0.001

0.0005

0

3/3/2020　　9/5/2020　　3/10/2021　　9/13/2021　　3/18/2022　　9/21/2022　　3/26/2023　　9/29/2023

Sample Date

● MW3　□ MW5　■ MW4　△ MW2　▲ MW1
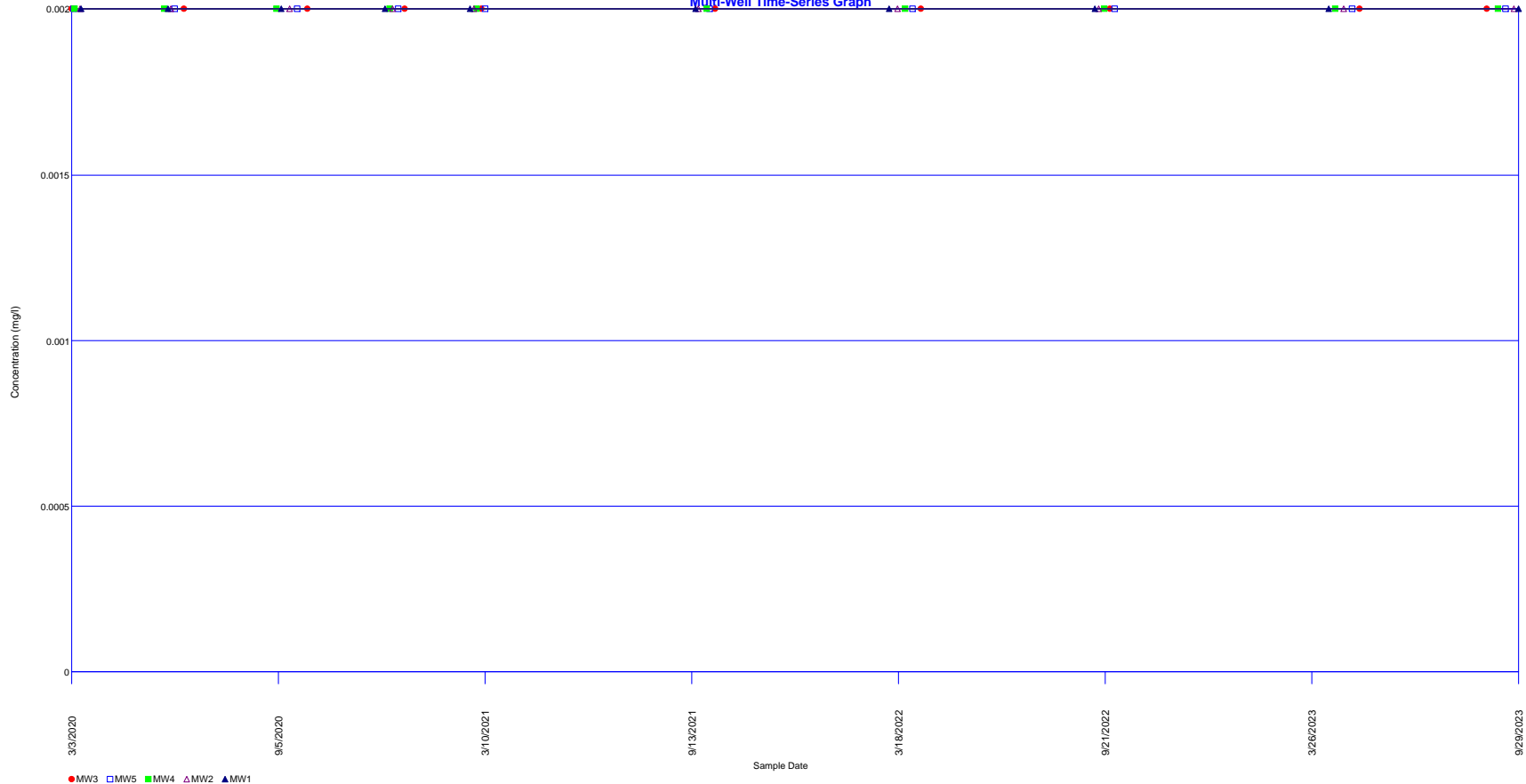
Barium
Multi-Well Time-Series Graph

Page 1
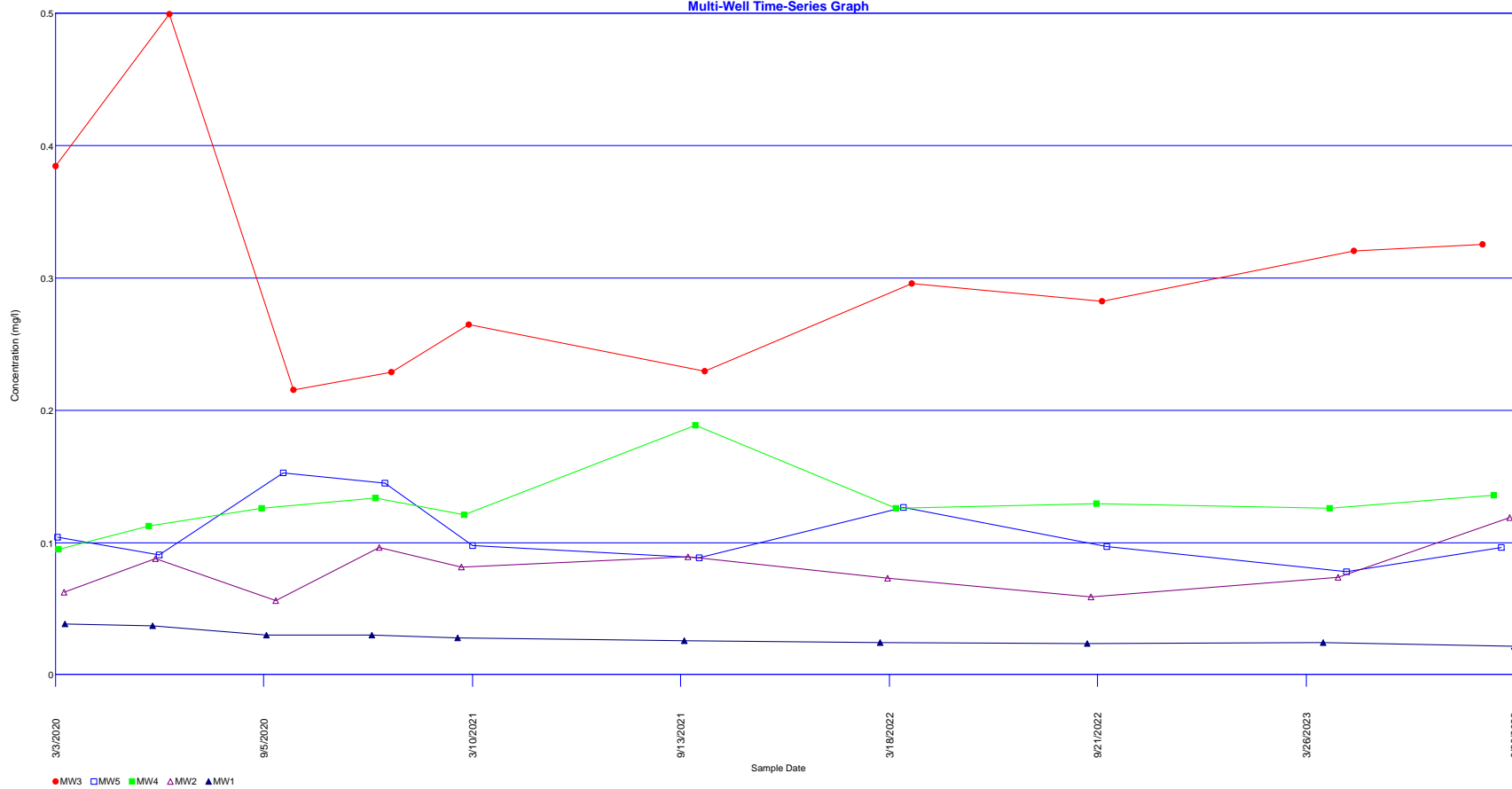
Boron
Multi-Well Time-Series Graph

Cadmium
Multi-Well Time-Series Graph

Concentration (mg/l)

Sample Date

● MW3 ☐ MW5 ■ MW4 △ MW2 ▲ MW1
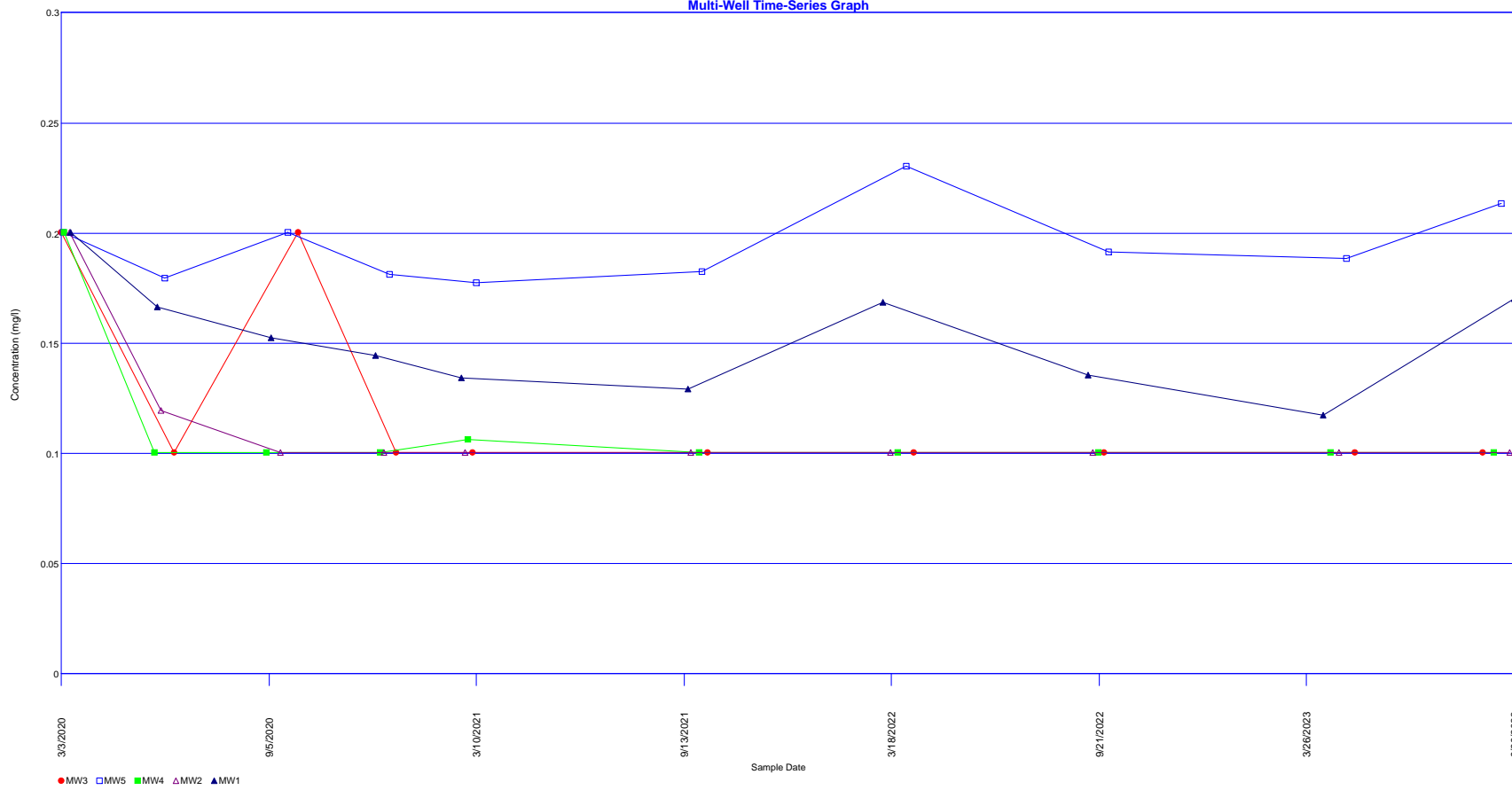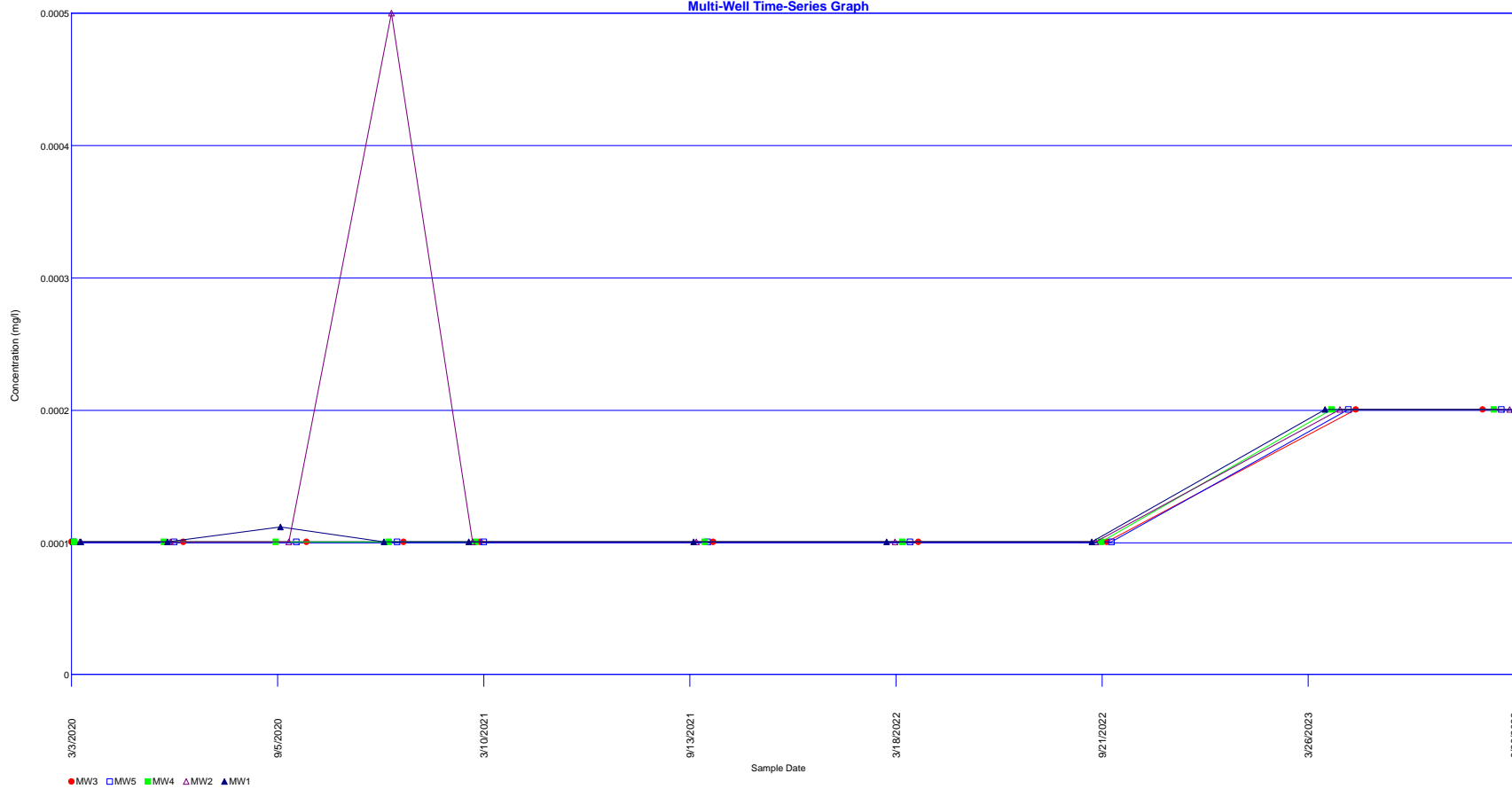
Chloride
Multi-Well Time-Series Graph

Cobalt
Multi-Well Time-Series Graph

Concentration (mg/l)

Comparison Level = 0.0021

Sample Date

● MW3 □ MW5 ■ MW4 △ MW2 ▲ MW1

Page 1
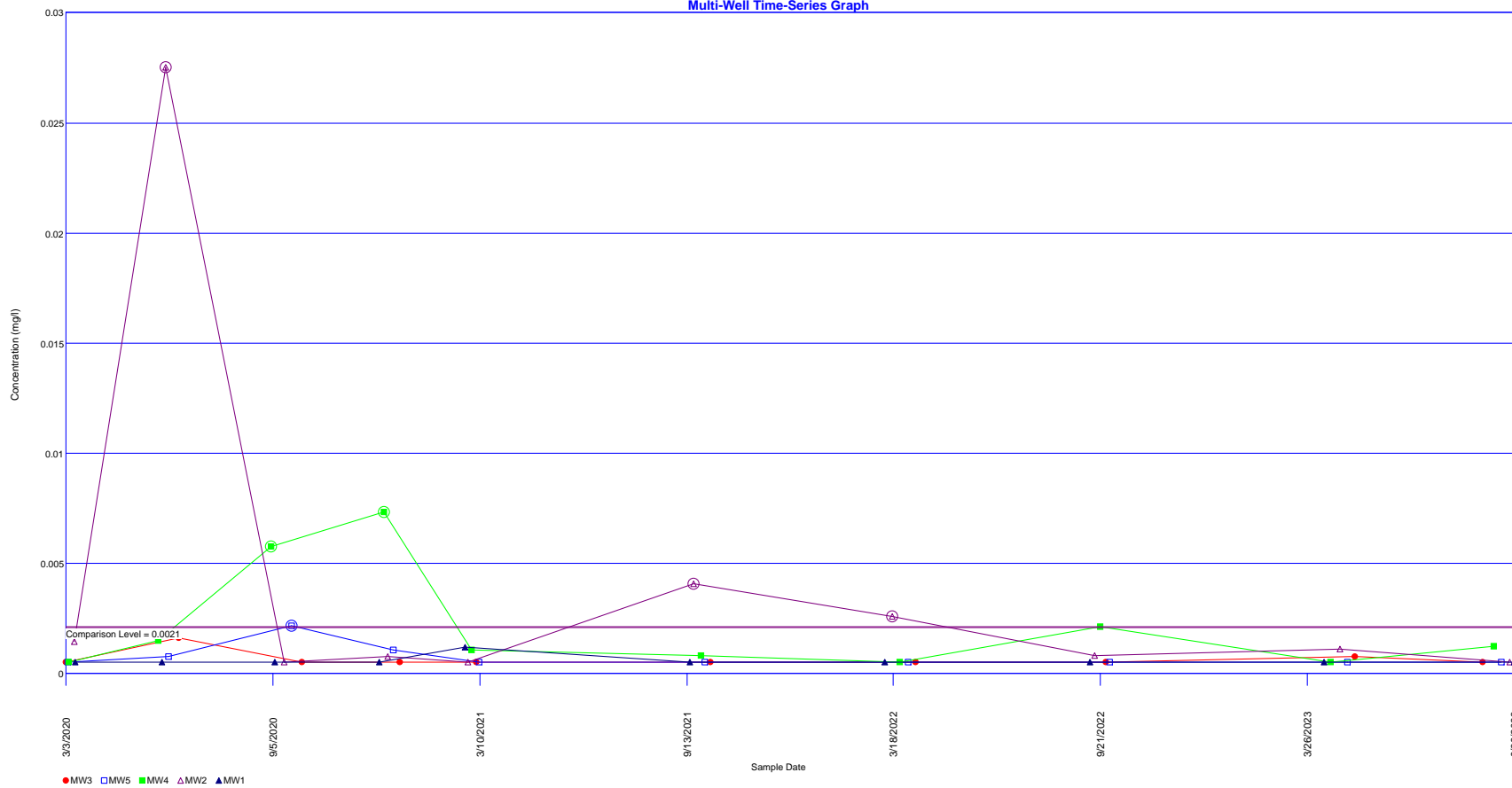
Iron
Multi-Well Time-Series Graph

Page 1
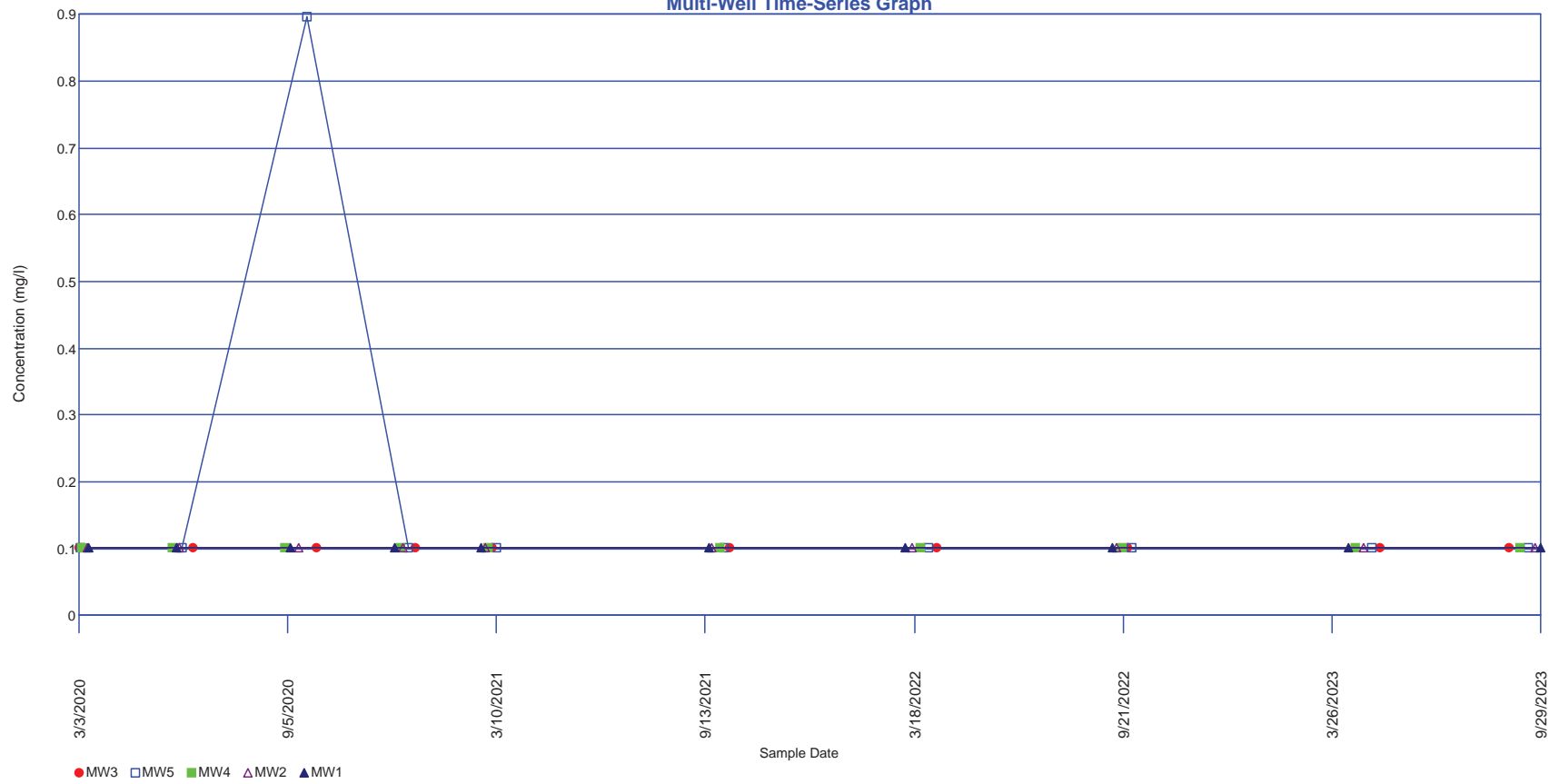
Fluoride
Multi-Well Time-Series Graph

Page 1
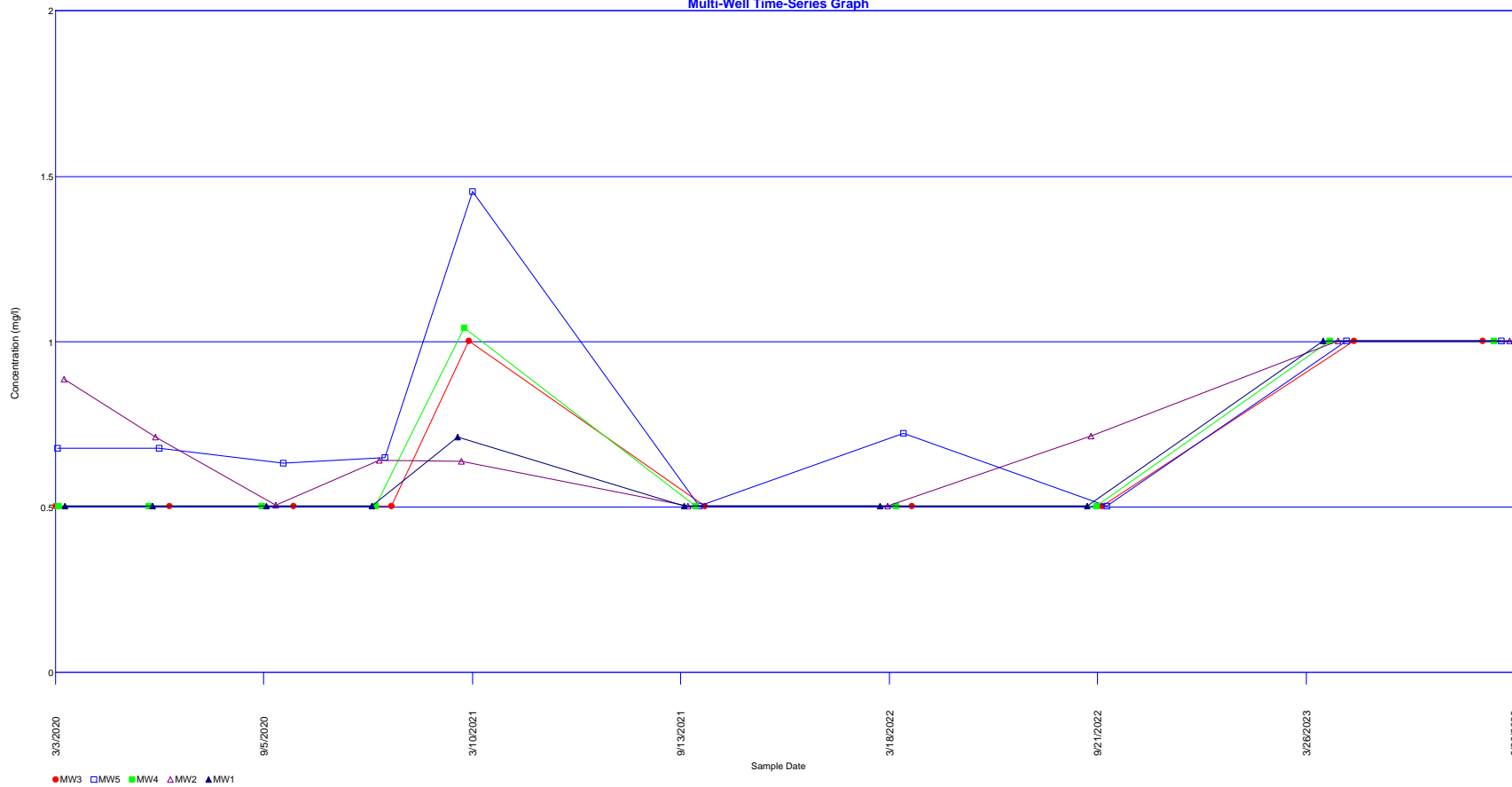
Formaldehyde
Multi-Well Time-Series Graph
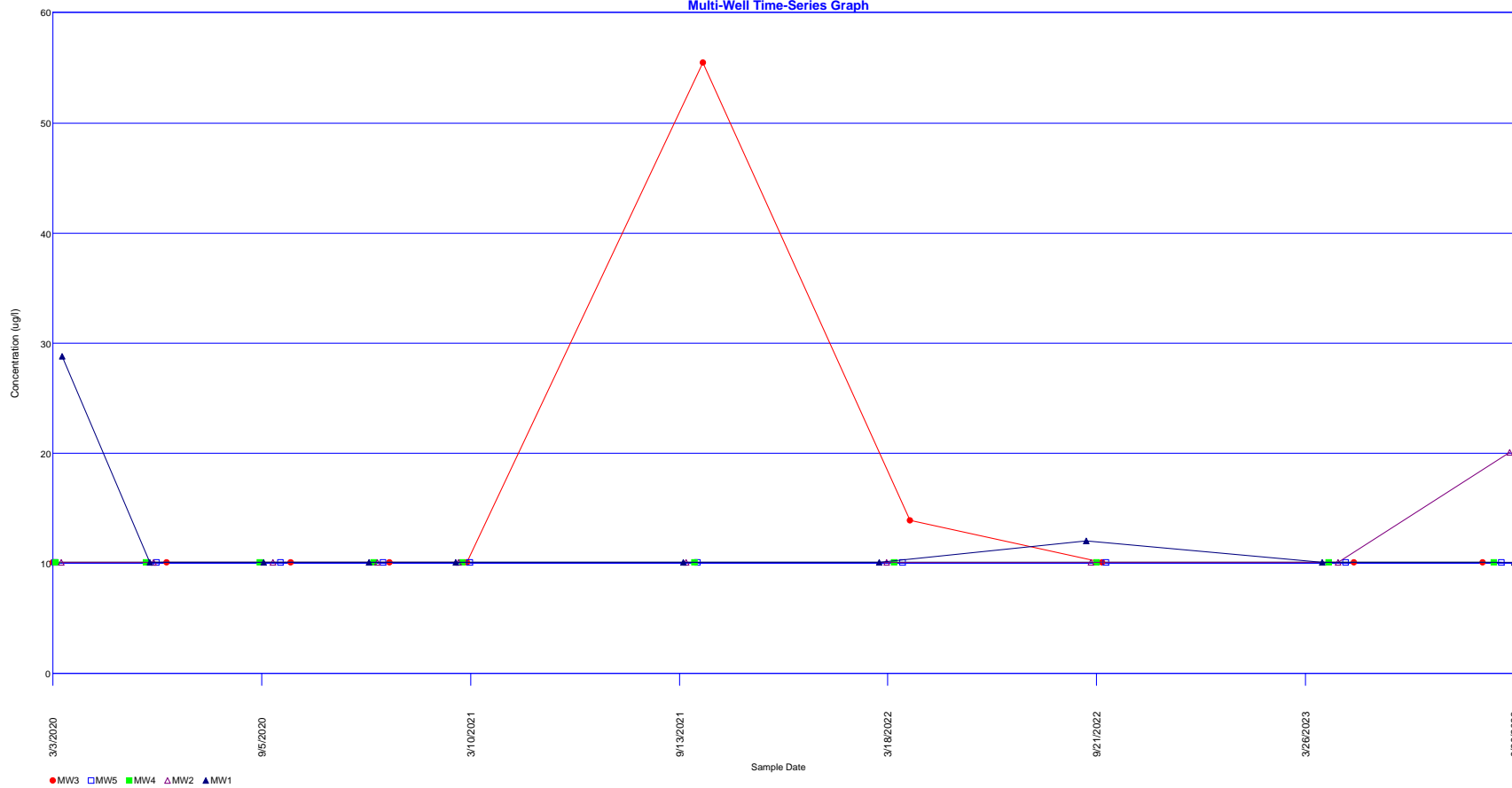
Total Organic Halogens, Halides
Multi-Well Time-Series Graph

Concentration (mg/l)

Sample Date

● MW3   □ MW5   ■ MW4   △ MW2   ▲ MW1

Page 1
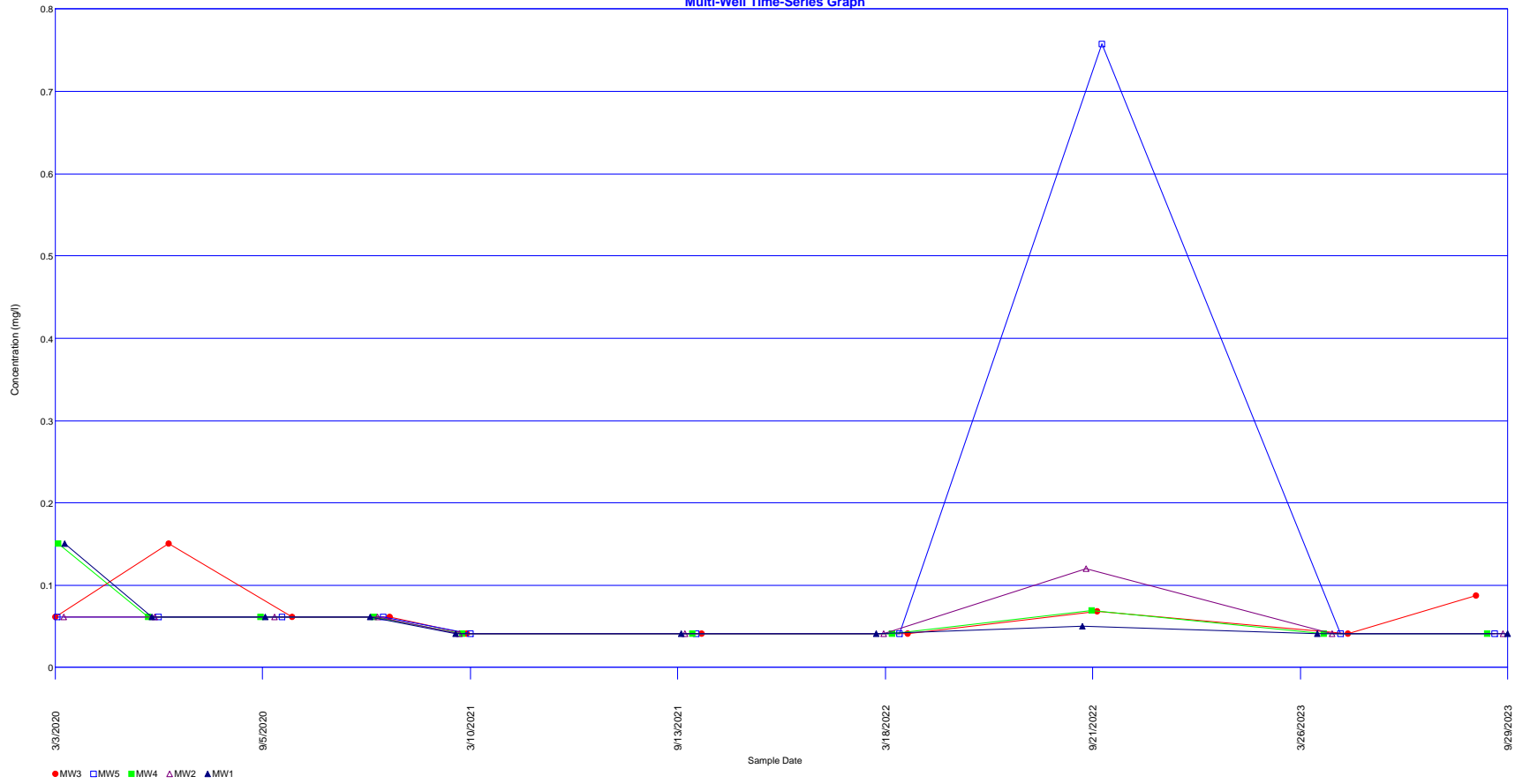
Methyl Ethyl Ketone (MEK) (2-Butanone)
Multi-Well Time-Series Graph

Concentration (ug/l)

Sample Date

● MW3 □ MW5 ■ MW4 △ MW2 ▲ MW1

Page 1
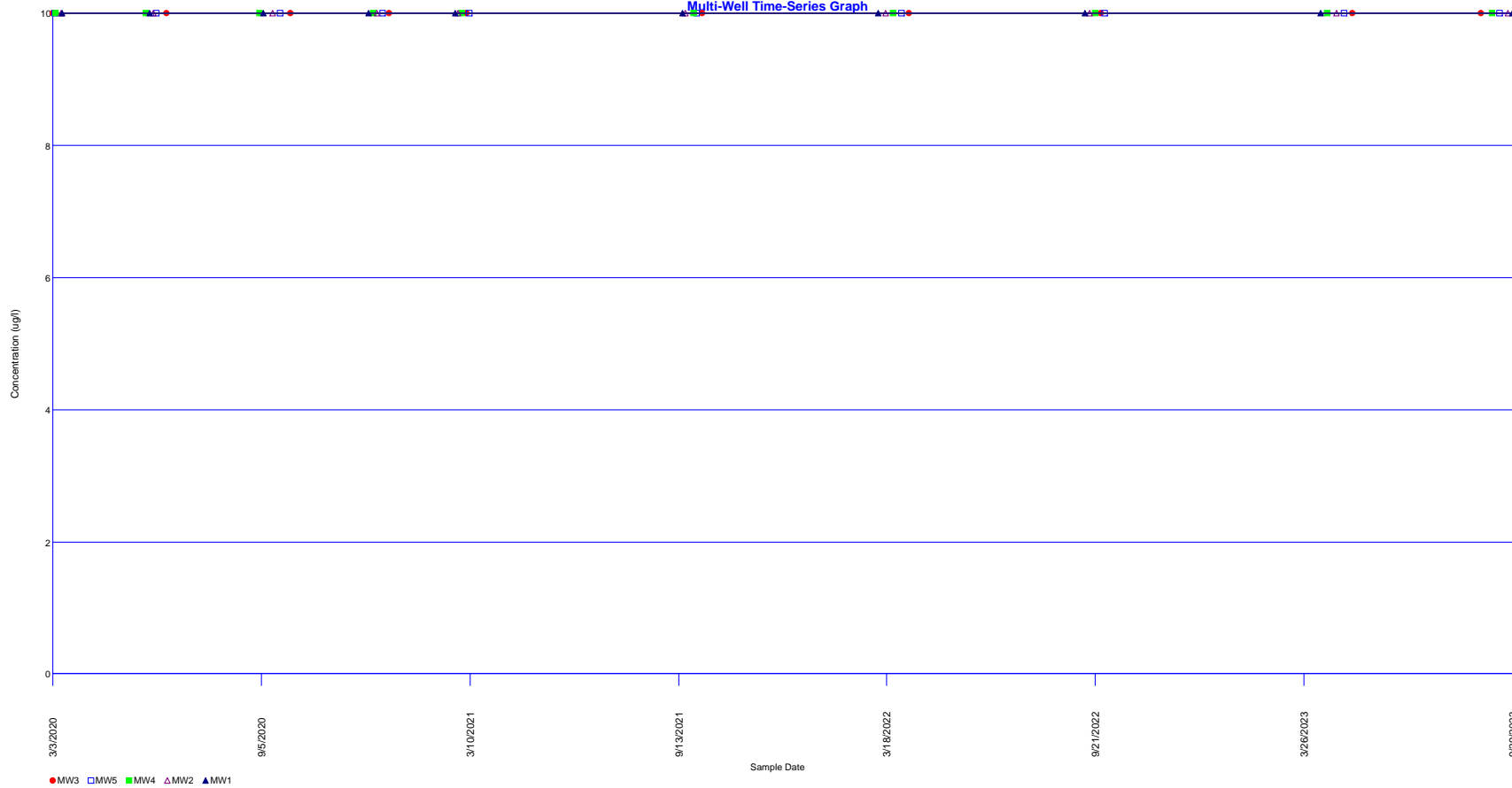
Manganese
Multi-Well Time-Series Graph

Comparison Level = 0.3

Concentration (mg/l)

Sample Date

● MW3 □ MW5 ■ MW4 △ MW2 ▲ MW1

Page 1
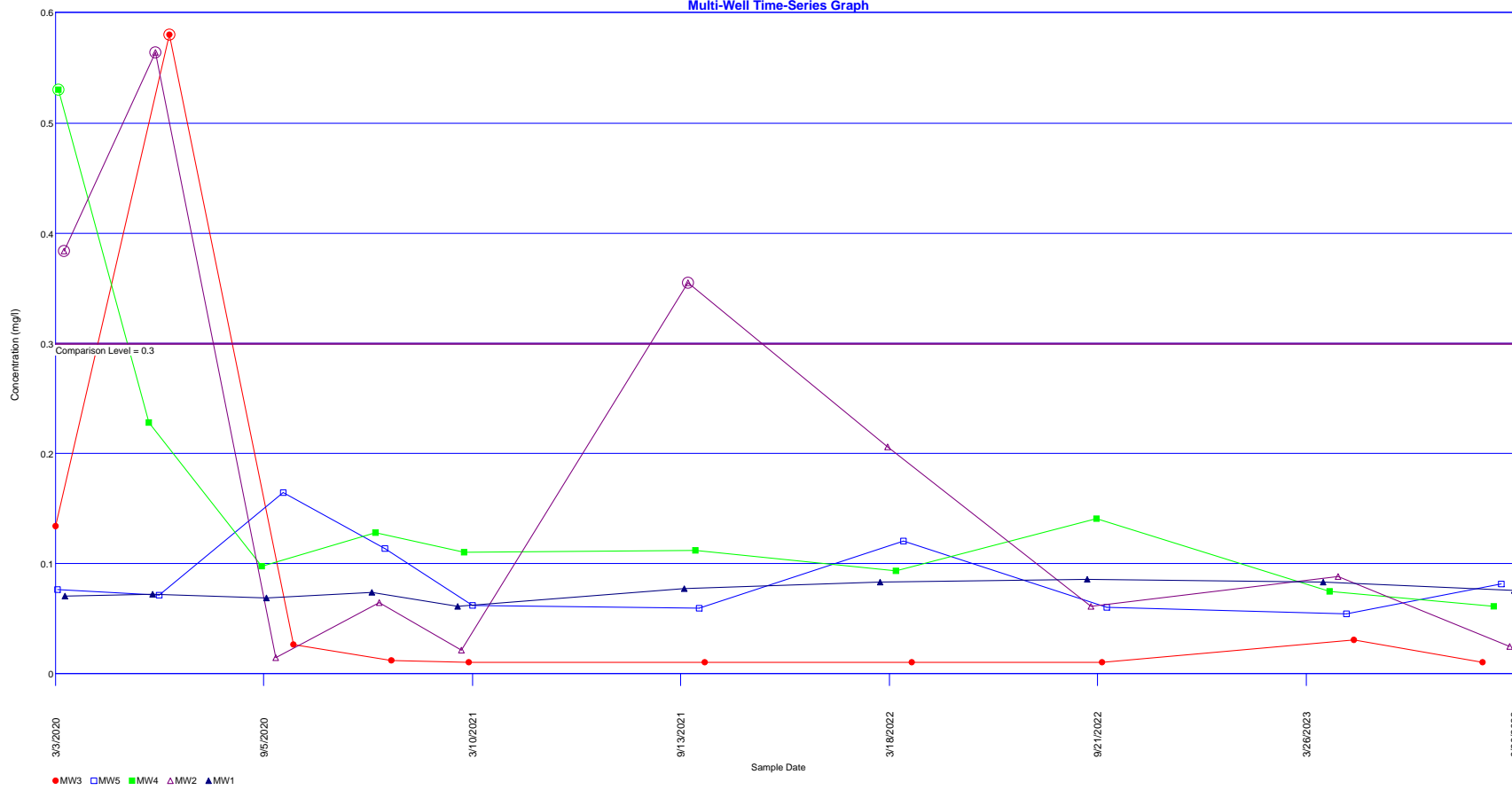
Molybdenum
Multi-Well Time-Series Graph

Page 1
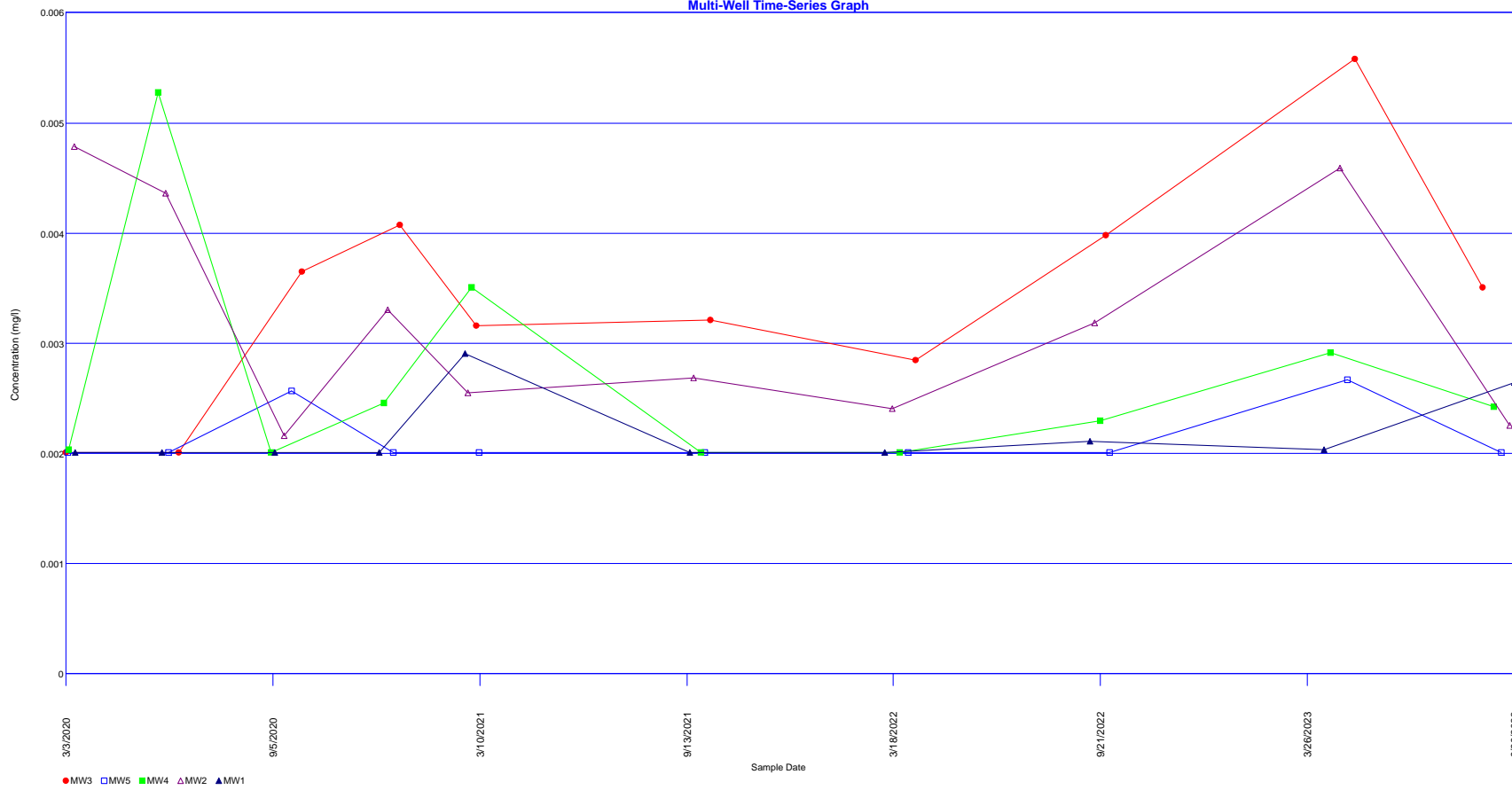
Phenols, total
Multi-Well Time-Series Graph

Concentration (mg/l)

0.04

0.035

0.03

0.025

0.02

0.015

0.01

0.005

0

3/3/2020   9/5/2020   3/10/2021   9/13/2021   3/18/2022   9/21/2022   3/26/2023   9/29/2023

Sample Date

● MW3 ☐ MW5 ■ MW4 △ MW2 ▲ MW1

Sulfate
Multi-Well Time-Series Graph

Comparison Level = 250

Concentration (mg/l)

Sample Date

● MW3 □ MW5 ■ MW4 △ MW2 ▲ MW1

Page 1

Zinc
Multi-Well Time-Series Graph

Comparison Level = 2

Concentration (mg/l)

Sample Date

● MW3 □ MW5 ■ MW4 △ MW2 ▲ MW1

Page 1
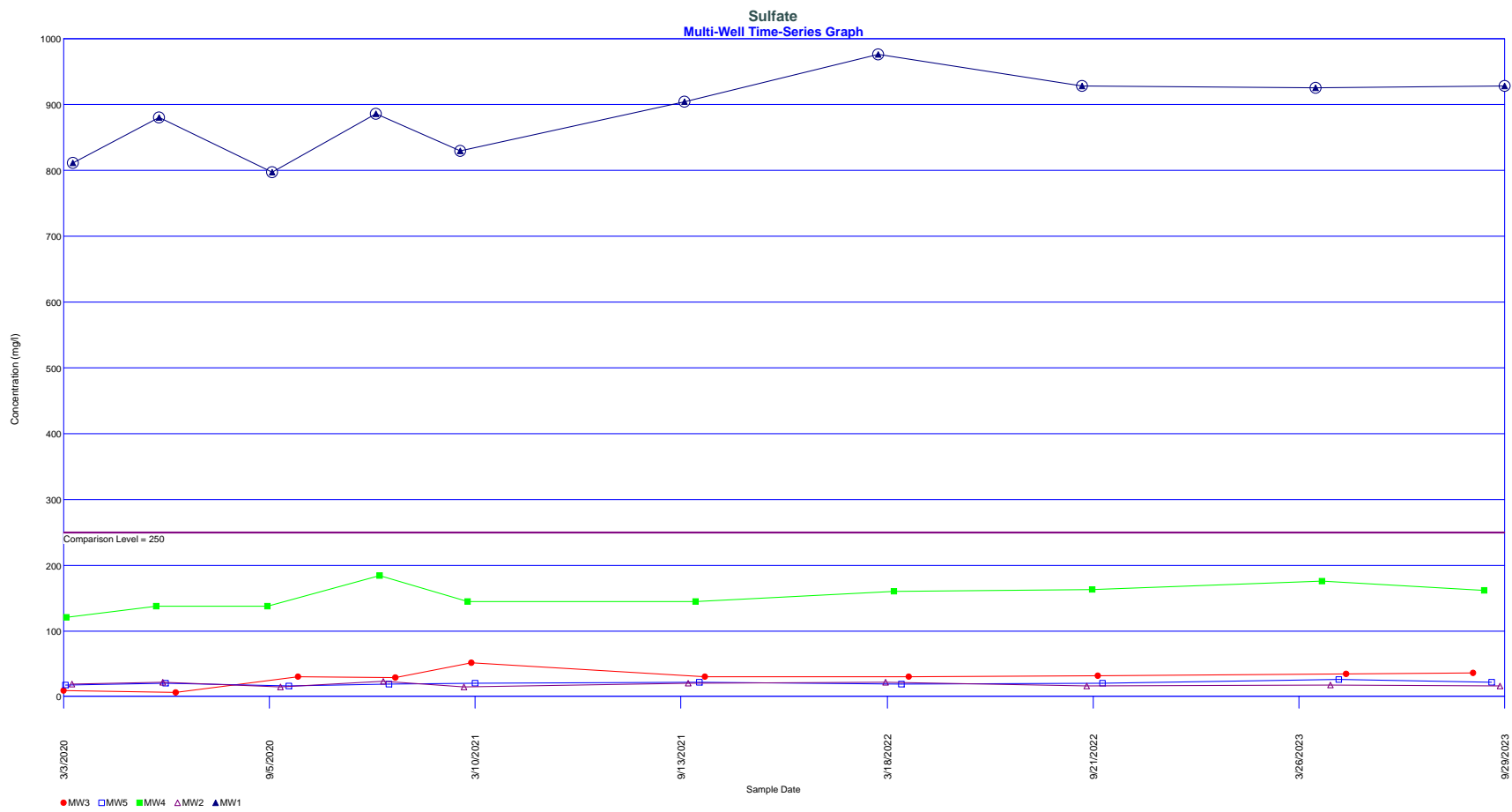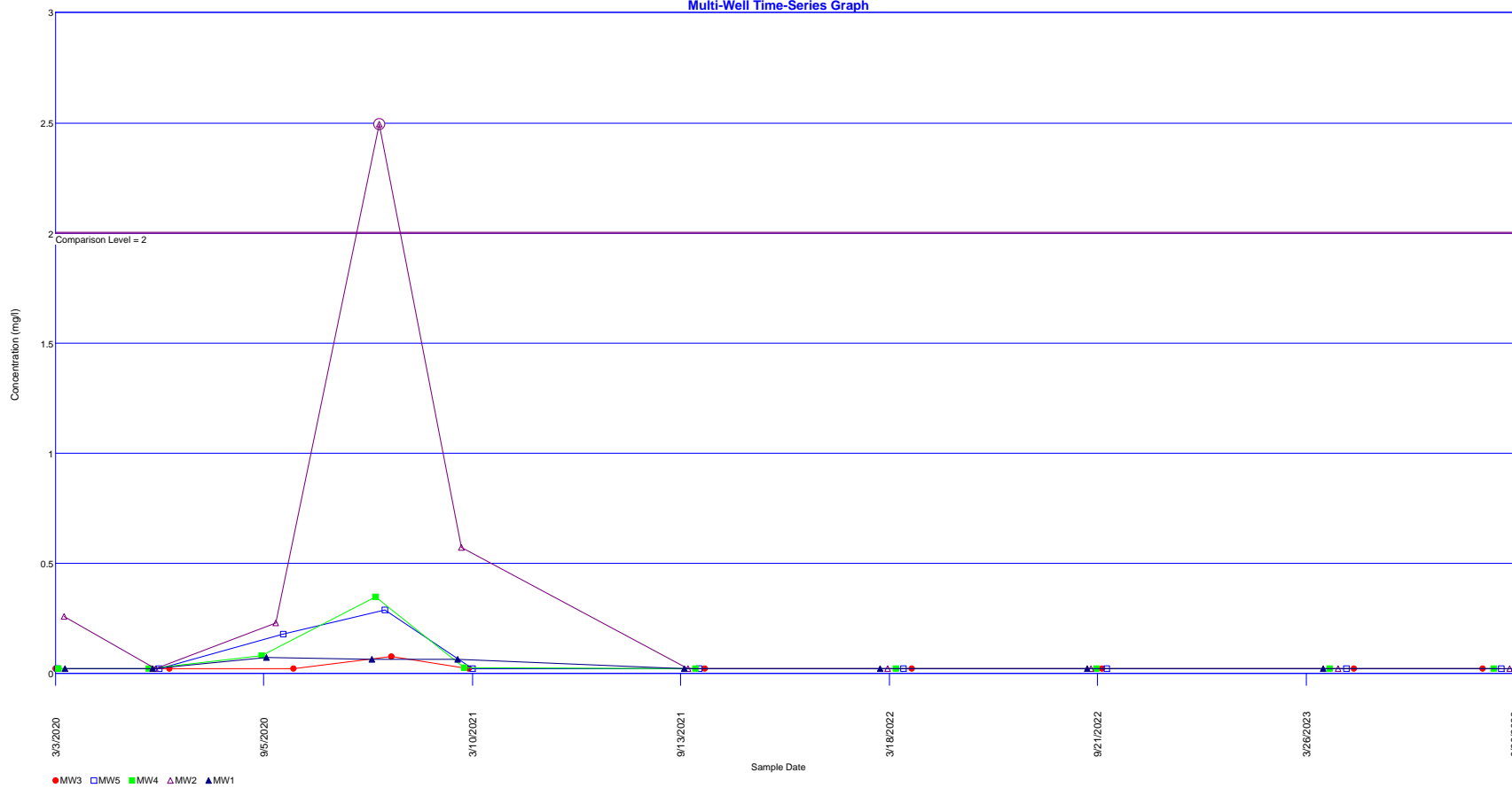
APPENDIX B

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 = 5 for 10 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	0.5739	0.0659985
2	0.05	0.0698	0.0198	0.3291	0.00651618
3	0.05	0.0612	0.0112	0.2141	0.00239792
4	0.05	0.05	0	0.1224	0
5	0.05	0.05	0	0.0399	0
6	0.05	0.05	0		
7	0.05	0.05	0		
8	0.0612	0.05	-0.0112		
9	0.0698	0.05	-0.0198		
10	0.165	0.05	-0.115		

Sum of b values = 0.0749126
Sample Standard Deviation = 0.0359179
W Statistic = 0.483331

5% Critical value of 0.842 exceeds 0.483331
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.483331
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality
Parameter: Aluminum, total
Location: MW3
Normality Test of Parameter Concentrations
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit
K = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.05	0.0844	0.0344	0.5739	0.0197422
2	0.05	0.05	0	0.3291	0
3	0.05	0.05	0	0.2141	0
4	0.05	0.05	0	0.1224	0
5	0.05	0.05	0	0.0399	0
6	0.05	0.05	0		
7	0.05	0.05	0		
8	0.05	0.05	0		
9	0.05	0.05	0		
10	0.0844	0.05	-0.0344		

Sum of b values = 0.0197422
Sample Standard Deviation = 0.0108782
W Statistic = 0.365957

5% Critical value of 0.842 exceeds 0.365957
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.365957
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.5	9.79	9.29	0.5739	5.33153
2	0.5	0.546	0.046	0.3291	0.0151386
3	0.5	0.529	0.029	0.2141	0.0062089
4	0.5	0.5	0	0.1224	0
5	0.5	0.5	0	0.0399	0
6	0.5	0.5	0		
7	0.5	0.5	0		
8	0.529	0.5	-0.029		
9	0.546	0.5	-0.046		
10	9.79	0.5	-9.29		

Sum of b values = 5.35288
Sample Standard Deviation = 2.93516
W Statistic = 0.369545

5% Critical value of 0.842 exceeds 0.369545
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.369545
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Antimony
Location: MW2
Normality Test of Parameter Concentrations
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit
K = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.001	0.002	0.001	0.5739	0.0005739
2	0.001	0.002	0.001	0.3291	0.0003291
3	0.001	0.002	0.001	0.2141	0.0002141
4	0.0013	0.002	0.0007	0.1224	8.568e-005
5	0.002	0.002	0	0.0399	0
6	0.002	0.002	0		
7	0.002	0.0013	-0.0007		
8	0.002	0.001	-0.001		
9	0.002	0.001	-0.001		
10	0.002	0.001	-0.001		

Sum of b values = 0.00120278
Sample Standard Deviation = 0.000485455
W Statistic = 0.682074

5% Critical value of 0.842 exceeds 0.682074
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.682074
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0207	0.0374	0.0167	0.5739	0.00958413
2	0.0231	0.0365	0.0134	0.3291	0.00440994
3	0.0233	0.0294	0.0061	0.2141	0.00130601
4	0.0236	0.0294	0.0058	0.1224	0.00070992
5	0.0252	0.0268	0.0016	0.0399	6.384e-005
6	0.0268	0.0252	-0.0016		
7	0.0294	0.0236	-0.0058		
8	0.0294	0.0233	-0.0061		
9	0.0365	0.0231	-0.0134		
10	0.0374	0.0207	-0.0167		

Sum of b values = 0.0160738
Sample Standard Deviation = 0.00568081
W Statistic = 0.889563

5% Critical value of 0.842 is less than 0.889563
Data is normally distributed at 95% level of significance

1% Critical value of 0.781 is less than 0.889563
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0556	0.118	0.0624	0.5739	0.0358114
2	0.0582	0.0958	0.0376	0.3291	0.0123742
3	0.0617	0.0882	0.0265	0.2141	0.00567365
4	0.072	0.0872	0.0152	0.1224	0.00186048
5	0.0727	0.0808	0.0081	0.0399	0.00032319
6	0.0808	0.0727	-0.0081		
7	0.0872	0.072	-0.0152		
8	0.0882	0.0617	-0.0265		
9	0.0958	0.0582	-0.0376		
10	0.118	0.0556	-0.0624		

Sum of b values = 0.0560428
Sample Standard Deviation = 0.0192254
W Statistic = 0.944165

5% Critical value of 0.842 is less than 0.944165
Data is normally distributed at 95% level of significance

1% Critical value of 0.781 is less than 0.944165
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.215	0.499	0.284	0.5739	0.162988
2	0.228	0.384	0.156	0.3291	0.0513396
3	0.229	0.325	0.096	0.2141	0.0205536
4	0.264	0.32	0.056	0.1224	0.0068544
5	0.282	0.295	0.013	0.0399	0.0005187
6	0.295	0.282	-0.013		
7	0.32	0.264	-0.056		
8	0.325	0.229	-0.096		
9	0.384	0.228	-0.156		
10	0.499	0.215	-0.284		

Sum of b values = 0.242254
Sample Standard Deviation = 0.086029
W Statistic = 0.881068

5% Critical value of 0.842 is less than 0.881068
Data is normally distributed at 95% level of significance

1% Critical value of 0.781 is less than 0.881068
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0942	0.188	0.0938	0.5739	0.0538318
2	0.112	0.135	0.023	0.3291	0.0075693
3	0.12	0.133	0.013	0.2141	0.0027833
4	0.125	0.129	0.004	0.1224	0.0004896
5	0.125	0.125	0	0.0399	0
6	0.125	0.125	0		
7	0.129	0.125	-0.004		
8	0.133	0.12	-0.013		
9	0.135	0.112	-0.023		
10	0.188	0.0942	-0.0938		

Sum of b values = 0.064674
Sample Standard Deviation = 0.0239458
W Statistic = 0.810513

5% Critical value of 0.842 exceeds 0.810513
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 is less than 0.810513
Data is normally distributed 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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0775	0.152	0.0745	0.5739	0.0427555
2	0.0877	0.144	0.0563	0.3291	0.0185283
3	0.0902	0.126	0.0358	0.2141	0.00766478
4	0.0955	0.103	0.0075	0.1224	0.000918
5	0.0965	0.0972	0.0007	0.0399	2.793e-005
6	0.0972	0.0965	-0.0007		
7	0.103	0.0955	-0.0075		
8	0.126	0.0902	-0.0358		
9	0.144	0.0877	-0.0563		
10	0.152	0.0775	-0.0745		

Sum of b values = 0.0698946
Sample Standard Deviation = 0.0250211
W Statistic = 0.867025

5% Critical value of 0.842 is less than 0.867025
Data is normally distributed at 95% level of significance

1% Critical value of 0.781 is less than 0.867025
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.117	0.2	0.083	0.5739	0.0476337
2	0.129	0.17	0.041	0.3291	0.0134931
3	0.134	0.168	0.034	0.2141	0.0072794
4	0.135	0.166	0.031	0.1224	0.0037944
5	0.144	0.152	0.008	0.0399	0.0003192
6	0.152	0.144	-0.008		
7	0.166	0.135	-0.031		
8	0.168	0.134	-0.034		
9	0.17	0.129	-0.041		
10	0.2	0.117	-0.083		

Sum of b values = 0.0725198
Sample Standard Deviation = 0.0247398
W Statistic = 0.954728

5% Critical value of 0.842 is less than 0.954728
Data is normally distributed at 95% level of significance

1% Critical value of 0.781 is less than 0.954728
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality
Parameter: Boron
Location: MW2
Normality Test of Parameter Concentrations
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit
K = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.1	0.2	0.1	0.5739	0.05739
2	0.1	0.119	0.019	0.3291	0.0062529
3	0.1	0.1	0	0.2141	0
4	0.1	0.1	0	0.1224	0
5	0.1	0.1	0	0.0399	0
6	0.1	0.1	0		
7	0.1	0.1	0		
8	0.1	0.1	0		
9	0.119	0.1	-0.019		
10	0.2	0.1	-0.1		

Sum of b values = 0.0636429
Sample Standard Deviation = 0.0315258
W Statistic = 0.452819

5% Critical value of 0.842 exceeds 0.452819
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.452819
Evidence of non-normality 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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.1	0.2	0.1	0.5739	0.05739
2	0.1	0.106	0.006	0.3291	0.0019746
3	0.1	0.1	0	0.2141	0
4	0.1	0.1	0	0.1224	0
5	0.1	0.1	0	0.0399	0
6	0.1	0.1	0		
7	0.1	0.1	0		
8	0.1	0.1	0		
9	0.106	0.1	-0.006		
10	0.2	0.1	-0.1		

Sum of b values = 0.0593646
Sample Standard Deviation = 0.0314685
W Statistic = 0.395422

5% Critical value of 0.842 exceeds 0.395422
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.395422
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.177	0.23	0.053	0.5739	0.0304167
2	0.179	0.213	0.034	0.3291	0.0111894
3	0.181	0.2	0.019	0.2141	0.0040679
4	0.182	0.2	0.018	0.1224	0.0022032
5	0.188	0.191	0.003	0.0399	0.0001197
6	0.191	0.188	-0.003		
7	0.2	0.182	-0.018		
8	0.2	0.181	-0.019		
9	0.213	0.179	-0.034		
10	0.23	0.177	-0.053		

Sum of b values = 0.0479969
Sample Standard Deviation = 0.0169997
W Statistic = 0.885733

5% Critical value of 0.842 is less than 0.885733
Data is normally distributed at 95% level of significance

1% Critical value of 0.781 is less than 0.885733
Data is normally distributed at 99% level of significance

Shapiro-Wilks Test of Normality
Parameter: Cadmium
Location: MW1
Normality Test of Parameter Concentrations
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit
K = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0001	0.0002	0.0001	0.5739	5.739e-005
2	0.0001	0.0002	0.0001	0.3291	3.291e-005
3	0.0001	0.000111	1.1e-005	0.2141	2.3551e-006
4	0.0001	0.0001	0	0.1224	0
5	0.0001	0.0001	0	0.0399	0
6	0.0001	0.0001	0		
7	0.0001	0.0001	0		
8	0.000111	0.0001	-1.1e-005		
9	0.0002	0.0001	-0.0001		
10	0.0002	0.0001	-0.0001		

Sum of b values = 9.26551e-005
Sample Standard Deviation = 4.17252e-005
W Statistic = 0.547899

5% Critical value of 0.842 exceeds 0.547899
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.547899
Evidence of non-normality 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 = 5 for 10 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	0.5739	2.92689
2	5.75	8.59	2.84	0.3291	0.934644
3	6.25	7.45	1.2	0.2141	0.25692
4	6.38	7.37	0.99	0.1224	0.121176
5	6.86	7.3	0.44	0.0399	0.017556
6	7.3	6.86	-0.44		
7	7.37	6.38	-0.99		
8	7.45	6.25	-1.2		
9	8.59	5.75	-2.84		
10	10.1	5	-5.1		

Sum of b values = 4.25719
Sample Standard Deviation = 1.45244
W Statistic = 0.954566

5% Critical value of 0.842 is less than 0.954566
Data is normally distributed at 95% level of significance

1% Critical value of 0.781 is less than 0.954566
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	5	71	66	0.5739	37.8774
2	5	34.4	29.4	0.3291	9.67554
3	5	5.99	0.99	0.2141	0.211959
4	5	5.66	0.66	0.1224	0.080784
5	5	5	0	0.0399	0
6	5	5	0		
7	5.66	5	-0.66		
8	5.99	5	-0.99		
9	34.4	5	-29.4		
10	71	5	-66		

Sum of b values = 47.8457
Sample Standard Deviation = 21.807
W Statistic = 0.534874

5% Critical value of 0.842 exceeds 0.534874
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.534874
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	5	136	131	0.5739	75.1809
2	5	107	102	0.3291	33.5682
3	21.6	61.4	39.8	0.2141	8.52118
4	23.5	60.4	36.9	0.1224	4.51656
5	24.9	48.3	23.4	0.0399	0.93366
6	48.3	24.9	-23.4		
7	60.4	23.5	-36.9		
8	61.4	21.6	-39.8		
9	107	5	-102		
10	136	5	-131		

Sum of b values = 122.721
Sample Standard Deviation = 43.5508
W Statistic = 0.882265

5% Critical value of 0.842 is less than 0.882265
Data is normally distributed at 95% level of significance

1% Critical value of 0.781 is less than 0.882265
Data is normally distributed 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 = 5 for 10 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	0.5739	0.000384513
2	0.0005	0.0005	0	0.3291	0
3	0.0005	0.0005	0	0.2141	0
4	0.0005	0.0005	0	0.1224	0
5	0.0005	0.0005	0	0.0399	0
6	0.0005	0.0005	0		
7	0.0005	0.0005	0		
8	0.0005	0.0005	0		
9	0.0005	0.0005	0		
10	0.00117	0.0005	-0.00067		

Sum of b values = 0.000384513
Sample Standard Deviation = 0.000211873
W Statistic = 0.365957

5% Critical value of 0.842 exceeds 0.365957
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.365957
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0005	0.0275	0.027	0.5739	0.0154953
2	0.0005	0.00404	0.00354	0.3291	0.00116501
3	0.0005	0.00254	0.00204	0.2141	0.000436764
4	0.000725	0.00141	0.000685	0.1224	8.3844e-005
5	0.000769	0.00109	0.000321	0.0399	1.28079e-005
6	0.00109	0.000769	-0.000321		
7	0.00141	0.000725	-0.000685		
8	0.00254	0.0005	-0.00204		
9	0.00404	0.0005	-0.00354		
10	0.0275	0.0005	-0.027		

Sum of b values = 0.0171937
Sample Standard Deviation = 0.00834969
W Statistic = 0.471147

5% Critical value of 0.842 exceeds 0.471147
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.471147
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0005	0.00159	0.00109	0.5739	0.000625551
2	0.0005	0.000731	0.000231	0.3291	7.60221e-005
3	0.0005	0.0005	0	0.2141	0
4	0.0005	0.0005	0	0.1224	0
5	0.0005	0.0005	0	0.0399	0
6	0.0005	0.0005	0		
7	0.0005	0.0005	0		
8	0.0005	0.0005	0		
9	0.000731	0.0005	-0.000231		
10	0.00159	0.0005	-0.00109		

Sum of b values = 0.000701573
Sample Standard Deviation = 0.000344312
W Statistic = 0.461316

5% Critical value of 0.842 exceeds 0.461316
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.461316
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0005	0.00728	0.00678	0.5739	0.00389104
2	0.0005	0.00572	0.00522	0.3291	0.0017179
3	0.0005	0.00209	0.00159	0.2141	0.000340419
4	0.000795	0.00145	0.000655	0.1224	8.0172e-005
5	0.00102	0.00121	0.00019	0.0399	7.581e-006
6	0.00121	0.00102	-0.00019		
7	0.00145	0.000795	-0.000655		
8	0.00209	0.0005	-0.00159		
9	0.00572	0.0005	-0.00522		
10	0.00728	0.0005	-0.00678		

Sum of b values = 0.00603712
Sample Standard Deviation = 0.00239677
W Statistic = 0.70496

5% Critical value of 0.842 exceeds 0.70496
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.70496
Evidence of non-normality 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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0005	0.00212	0.00162	0.5739	0.000929718
2	0.0005	0.00103	0.00053	0.3291	0.000174423
3	0.0005	0.000735	0.000235	0.2141	5.03135e-005
4	0.0005	0.0005	0	0.1224	0
5	0.0005	0.0005	0	0.0399	0
6	0.0005	0.0005	0		
7	0.0005	0.0005	0		
8	0.000735	0.0005	-0.000235		
9	0.00103	0.0005	-0.00053		
10	0.00212	0.0005	-0.00162		

Sum of b values = 0.00115445
Sample Standard Deviation = 0.000515504
W Statistic = 0.557245

5% Critical value of 0.842 exceeds 0.557245
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.557245
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality
Parameter: Iron
Location: MW5
Normality Test of Parameter Concentrations
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit
K = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.1	0.894	0.794	0.5739	0.455677
2	0.1	0.1	0	0.3291	0
3	0.1	0.1	0	0.2141	0
4	0.1	0.1	0	0.1224	0
5	0.1	0.1	0	0.0399	0
6	0.1	0.1	0		
7	0.1	0.1	0		
8	0.1	0.1	0		
9	0.1	0.1	0		
10	0.894	0.1	-0.794		

Sum of b values = 0.455677
Sample Standard Deviation = 0.251085
W Statistic = 0.365957

5% Critical value of 0.842 exceeds 0.365957
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.365957
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 = 5 for 10 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	0.5739	0.28695
2	0.5	1	0.5	0.3291	0.16455
3	0.5	0.709	0.209	0.2141	0.0447469
4	0.5	0.5	0	0.1224	0
5	0.5	0.5	0	0.0399	0
6	0.5	0.5	0		
7	0.5	0.5	0		
8	0.709	0.5	-0.209		
9	1	0.5	-0.5		
10	1	0.5	-0.5		

Sum of b values = 0.496247
Sample Standard Deviation = 0.210162
W Statistic = 0.619504

5% Critical value of 0.842 exceeds 0.619504
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.619504
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 = 5 for 10 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	0.5739	0.28695
2	0.5	1	0.5	0.3291	0.16455
3	0.504	0.884	0.38	0.2141	0.081358
4	0.636	0.713	0.077	0.1224	0.0094248
5	0.64	0.71	0.07	0.0399	0.002793
6	0.71	0.64	-0.07		
7	0.713	0.636	-0.077		
8	0.884	0.504	-0.38		
9	1	0.5	-0.5		
10	1	0.5	-0.5		

Sum of b values = 0.545076
Sample Standard Deviation = 0.194216
W Statistic = 0.875184

5% Critical value of 0.842 is less than 0.875184
Data is normally distributed at 95% level of significance

1% Critical value of 0.781 is less than 0.875184
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 = 5 for 10 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	0.5739	0.28695
2	0.5	1	0.5	0.3291	0.16455
3	0.5	1	0.5	0.2141	0.10705
4	0.5	0.5	0	0.1224	0
5	0.5	0.5	0	0.0399	0
6	0.5	0.5	0		
7	0.5	0.5	0		
8	1	0.5	-0.5		
9	1	0.5	-0.5		
10	1	0.5	-0.5		

Sum of b values = 0.55855
Sample Standard Deviation = 0.241523
W Statistic = 0.594244

5% Critical value of 0.842 exceeds 0.594244
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.594244
Evidence of non-normality 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 = 5 for 10 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	0.5739	0.309906
2	0.5	1	0.5	0.3291	0.16455
3	0.5	1	0.5	0.2141	0.10705
4	0.5	0.5	0	0.1224	0
5	0.5	0.5	0	0.0399	0
6	0.5	0.5	0		
7	0.5	0.5	0		
8	1	0.5	-0.5		
9	1	0.5	-0.5		
10	1.04	0.5	-0.54		

Sum of b values = 0.581506
Sample Standard Deviation = 0.248202
W Statistic = 0.609893

5% Critical value of 0.842 exceeds 0.609893
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.609893
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 = 5 for 10 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	0.5739	0.545205
2	0.5	1	0.5	0.3291	0.16455
3	0.63	1	0.37	0.2141	0.079217
4	0.647	0.721	0.074	0.1224	0.0090576
5	0.675	0.677	0.002	0.0399	7.98e-005
6	0.677	0.675	-0.002		
7	0.721	0.647	-0.074		
8	1	0.63	-0.37		
9	1	0.5	-0.5		
10	1.45	0.5	-0.95		

Sum of b values = 0.798109
Sample Standard Deviation = 0.292081
W Statistic = 0.829611

5% Critical value of 0.842 exceeds 0.829611
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 is less than 0.829611
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	10	28.7	18.7	0.5739	10.7319
2	10	12	2	0.3291	0.6582
3	10	10	0	0.2141	0
4	10	10	0	0.1224	0
5	10	10	0	0.0399	0
6	10	10	0		
7	10	10	0		
8	10	10	0		
9	12	10	-2		
10	28.7	10	-18.7		

Sum of b values = 11.3901
Sample Standard Deviation = 5.87689
W Statistic = 0.417368

5% Critical value of 0.842 exceeds 0.417368
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.417368
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 = 5 for 10 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	0.5739	26.0551
2	10	13.8	3.8	0.3291	1.25058
3	10	10	0	0.2141	0
4	10	10	0	0.1224	0
5	10	10	0	0.0399	0
6	10	10	0		
7	10	10	0		
8	10	10	0		
9	13.8	10	-3.8		
10	55.4	10	-45.4		

Sum of b values = 27.3056
Sample Standard Deviation = 14.2733
W Statistic = 0.406645

5% Critical value of 0.842 exceeds 0.406645
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.406645
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.04	0.15	0.11	0.5739	0.063129
2	0.04	0.06	0.02	0.3291	0.006582
3	0.04	0.06	0.02	0.2141	0.004282
4	0.04	0.06	0.02	0.1224	0.002448
5	0.04	0.0492	0.0092	0.0399	0.00036708
6	0.0492	0.04	-0.0092		
7	0.06	0.04	-0.02		
8	0.06	0.04	-0.02		
9	0.06	0.04	-0.02		
10	0.15	0.04	-0.11		

Sum of b values = 0.0768081
Sample Standard Deviation = 0.0336211
W Statistic = 0.579894

5% Critical value of 0.842 exceeds 0.579894
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.579894
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 = 5 for 10 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	0.5739	0.0453381
2	0.04	0.06	0.02	0.3291	0.006582
3	0.04	0.06	0.02	0.2141	0.004282
4	0.04	0.06	0.02	0.1224	0.002448
5	0.04	0.06	0.02	0.0399	0.000798
6	0.06	0.04	-0.02		
7	0.06	0.04	-0.02		
8	0.06	0.04	-0.02		
9	0.06	0.04	-0.02		
10	0.119	0.04	-0.079		

Sum of b values = 0.0594481
Sample Standard Deviation = 0.0242965
W Statistic = 0.665188

5% Critical value of 0.842 exceeds 0.665188
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.665188
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.04	0.15	0.11	0.5739	0.063129
2	0.04	0.0861	0.0461	0.3291	0.0151715
3	0.04	0.0667	0.0267	0.2141	0.00571647
4	0.04	0.06	0.02	0.1224	0.002448
5	0.06	0.06	0	0.0399	0
6	0.06	0.06	0		
7	0.06	0.04	-0.02		
8	0.0667	0.04	-0.0267		
9	0.0861	0.04	-0.0461		
10	0.15	0.04	-0.11		

Sum of b values = 0.086465
Sample Standard Deviation = 0.0337358
W Statistic = 0.729889

5% Critical value of 0.842 exceeds 0.729889
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.729889
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.04	0.15	0.11	0.5739	0.063129
2	0.04	0.0688	0.0288	0.3291	0.00947808
3	0.04	0.06	0.02	0.2141	0.004282
4	0.04	0.06	0.02	0.1224	0.002448
5	0.04	0.06	0.02	0.0399	0.000798
6	0.06	0.04	-0.02		
7	0.06	0.04	-0.02		
8	0.06	0.04	-0.02		
9	0.0688	0.04	-0.0288		
10	0.15	0.04	-0.11		

Sum of b values = 0.0801351
Sample Standard Deviation = 0.0336275
W Statistic = 0.630976

5% Critical value of 0.842 exceeds 0.630976
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.630976
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 = 5 for 10 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	0.5739	0.411486
2	0.04	0.06	0.02	0.3291	0.006582
3	0.04	0.06	0.02	0.2141	0.004282
4	0.04	0.06	0.02	0.1224	0.002448
5	0.04	0.06	0.02	0.0399	0.000798
6	0.06	0.04	-0.02		
7	0.06	0.04	-0.02		
8	0.06	0.04	-0.02		
9	0.06	0.04	-0.02		
10	0.757	0.04	-0.717		

Sum of b values = 0.425596
Sample Standard Deviation = 0.224145
W Statistic = 0.400586

5% Critical value of 0.842 exceeds 0.400586
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.400586
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 = 5 for 10 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	0.5739	0.0140606
2	0.0685	0.0829	0.0144	0.3291	0.00473904
3	0.0699	0.0821	0.0122	0.2141	0.00261202
4	0.0713	0.0766	0.0053	0.1224	0.00064872
5	0.073	0.0753	0.0023	0.0399	9.177e-005
6	0.0753	0.073	-0.0023		
7	0.0766	0.0713	-0.0053		
8	0.0821	0.0699	-0.0122		
9	0.0829	0.0685	-0.0144		
10	0.085	0.0605	-0.0245		

Sum of b values = 0.0221521
Sample Standard Deviation = 0.00752233
W Statistic = 0.963568

5% Critical value of 0.842 is less than 0.963568
Data is normally distributed at 95% level of significance

1% Critical value of 0.781 is less than 0.963568
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0139	0.563	0.5491	0.5739	0.315128
2	0.021	0.383	0.362	0.3291	0.119134
3	0.0237	0.354	0.3303	0.2141	0.0707172
4	0.0601	0.205	0.1449	0.1224	0.0177358
5	0.0636	0.088	0.0244	0.0399	0.00097356
6	0.088	0.0636	-0.0244		
7	0.205	0.0601	-0.1449		
8	0.354	0.0237	-0.3303		
9	0.383	0.021	-0.362		
10	0.563	0.0139	-0.5491		

Sum of b values = 0.523689
Sample Standard Deviation = 0.192188
W Statistic = 0.824995

5% Critical value of 0.842 exceeds 0.824995
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 is less than 0.824995
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.01	0.579	0.569	0.5739	0.326549
2	0.01	0.133	0.123	0.3291	0.0404793
3	0.01	0.0303	0.0203	0.2141	0.00434623
4	0.01	0.0262	0.0162	0.1224	0.00198288
5	0.01	0.0114	0.0014	0.0399	5.586e-005
6	0.0114	0.01	-0.0014		
7	0.0262	0.01	-0.0162		
8	0.0303	0.01	-0.0203		
9	0.133	0.01	-0.123		
10	0.579	0.01	-0.569		

Sum of b values = 0.373413
Sample Standard Deviation = 0.178354
W Statistic = 0.487048

5% Critical value of 0.842 exceeds 0.487048
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.487048
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0608	0.529	0.4682	0.5739	0.2687
2	0.0739	0.227	0.1531	0.3291	0.0503852
3	0.0923	0.14	0.0477	0.2141	0.0102126
4	0.0969	0.127	0.0301	0.1224	0.00368424
5	0.11	0.111	0.001	0.0399	3.99e-005
6	0.111	0.11	-0.001		
7	0.127	0.0969	-0.0301		
8	0.14	0.0923	-0.0477		
9	0.227	0.0739	-0.1531		
10	0.529	0.0608	-0.4682		

Sum of b values = 0.333022
Sample Standard Deviation = 0.138546
W Statistic = 0.641968

5% Critical value of 0.842 exceeds 0.641968
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.641968
Evidence of non-normality 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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0538	0.164	0.1102	0.5739	0.0632438
2	0.0584	0.12	0.0616	0.3291	0.0202726
3	0.0595	0.113	0.0535	0.2141	0.0114544
4	0.0613	0.0806	0.0193	0.1224	0.00236232
5	0.0706	0.0759	0.0053	0.0399	0.00021147
6	0.0759	0.0706	-0.0053		
7	0.0806	0.0613	-0.0193		
8	0.113	0.0595	-0.0535		
9	0.12	0.0584	-0.0616		
10	0.164	0.0538	-0.1102		

Sum of b values = 0.0975445
Sample Standard Deviation = 0.0356642
W Statistic = 0.831185

5% Critical value of 0.842 exceeds 0.831185
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 is less than 0.831185
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 = 5 for 10 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	0.5739	0.00051651
2	0.002	0.00264	0.00064	0.3291	0.000210624
3	0.002	0.0021	0.0001	0.2141	2.141e-005
4	0.002	0.00203	3e-005	0.1224	3.672e-006
5	0.002	0.002	0	0.0399	0
6	0.002	0.002	0		
7	0.00203	0.002	-3e-005		
8	0.0021	0.002	-0.0001		
9	0.00264	0.002	-0.00064		
10	0.0029	0.002	-0.0009		

Sum of b values = 0.000752216
Sample Standard Deviation = 0.000325168
W Statistic = 0.594602

5% Critical value of 0.842 exceeds 0.594602
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.594602
Evidence of non-normality 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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.00215	0.00478	0.00263	0.5739	0.00150936
2	0.00225	0.00458	0.00233	0.3291	0.000766803
3	0.0024	0.00435	0.00195	0.2141	0.000417495
4	0.00254	0.0033	0.00076	0.1224	9.3024e-005
5	0.00268	0.00318	0.0005	0.0399	1.995e-005
6	0.00318	0.00268	-0.0005		
7	0.0033	0.00254	-0.00076		
8	0.00435	0.0024	-0.00195		
9	0.00458	0.00225	-0.00233		
10	0.00478	0.00215	-0.00263		

Sum of b values = 0.00280663
Sample Standard Deviation = 0.00100445
W Statistic = 0.867502

5% Critical value of 0.842 is less than 0.867502
Data is normally distributed at 95% level of significance

1% Critical value of 0.781 is less than 0.867502
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.002	0.00557	0.00357	0.5739	0.00204882
2	0.002	0.00407	0.00207	0.3291	0.000681237
3	0.00284	0.00397	0.00113	0.2141	0.000241933
4	0.00315	0.00364	0.00049	0.1224	5.9976e-005
5	0.0032	0.0035	0.0003	0.0399	1.197e-005
6	0.0035	0.0032	-0.0003		
7	0.00364	0.00315	-0.00049		
8	0.00397	0.00284	-0.00113		
9	0.00407	0.002	-0.00207		
10	0.00557	0.002	-0.00357		

Sum of b values = 0.00304394
Sample Standard Deviation = 0.00104807
W Statistic = 0.937237

5% Critical value of 0.842 is less than 0.937237
Data is normally distributed at 95% level of significance

1% Critical value of 0.781 is less than 0.937237
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.002	0.00527	0.00327	0.5739	0.00187665
2	0.002	0.0035	0.0015	0.3291	0.00049365
3	0.002	0.00291	0.00091	0.2141	0.000194831
4	0.00203	0.00245	0.00042	0.1224	5.1408e-005
5	0.00229	0.00242	0.00013	0.0399	5.187e-006
6	0.00242	0.00229	-0.00013		
7	0.00245	0.00203	-0.00042		
8	0.00291	0.002	-0.00091		
9	0.0035	0.002	-0.0015		
10	0.00527	0.002	-0.00327		

Sum of b values = 0.00262173
Sample Standard Deviation = 0.00102822
W Statistic = 0.722366

5% Critical value of 0.842 exceeds 0.722366
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.722366
Evidence of non-normality 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 = 5 for 10 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	0.5739	0.000378774
2	0.002	0.00256	0.00056	0.3291	0.000184296
3	0.002	0.002	0	0.2141	0
4	0.002	0.002	0	0.1224	0
5	0.002	0.002	0	0.0399	0
6	0.002	0.002	0		
7	0.002	0.002	0		
8	0.002	0.002	0		
9	0.00256	0.002	-0.00056		
10	0.00266	0.002	-0.00066		

Sum of b values = 0.00056307
Sample Standard Deviation = 0.000258276
W Statistic = 0.528096

5% Critical value of 0.842 exceeds 0.528096
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.528096
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality

Parameter: Phenols, total
Location: MW1
Normality Test of Parameter Concentrations
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit
K = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.0184	0.0376	0.0192	0.5739	0.0110189
2	0.0196	0.0216	0.002	0.3291	0.0006582
3	0.02	0.0204	0.0004	0.2141	8.564e-005
4	0.02	0.02	0	0.1224	0
5	0.02	0.02	0	0.0399	0
6	0.02	0.02	0		
7	0.02	0.02	0		
8	0.0204	0.02	-0.0004		
9	0.0216	0.0196	-0.002		
10	0.0376	0.0184	-0.0192		

Sum of b values = 0.0117627
Sample Standard Deviation = 0.00561965
W Statistic = 0.486805

5% Critical value of 0.842 exceeds 0.486805
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.486805
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	796	976	180	0.5739	103.302
2	811	928	117	0.3291	38.5047
3	828	927	99	0.2141	21.1959
4	880	924	44	0.1224	5.3856
5	885	903	18	0.0399	0.7182
6	903	885	-18		
7	924	880	-44		
8	927	828	-99		
9	928	811	-117		
10	976	796	-180		

Sum of b values = 169.106
Sample Standard Deviation = 58.1221
W Statistic = 0.940579

5% Critical value of 0.842 is less than 0.940579
Data is normally distributed at 95% level of significance

1% Critical value of 0.781 is less than 0.940579
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	13.2	21.9	8.7	0.5739	4.99293
2	13.7	20.1	6.4	0.3291	2.10624
3	14.3	20	5.7	0.2141	1.22037
4	14.4	19.2	4.8	0.1224	0.58752
5	16.5	18.2	1.7	0.0399	0.06783
6	18.2	16.5	-1.7		
7	19.2	14.4	-4.8		
8	20	14.3	-5.7		
9	20.1	13.7	-6.4		
10	21.9	13.2	-8.7		

Sum of b values = 8.97489
Sample Standard Deviation = 3.13236
W Statistic = 0.912164

5% Critical value of 0.842 is less than 0.912164
Data is normally distributed at 95% level of significance

1% Critical value of 0.781 is less than 0.912164
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	5	49.9	44.9	0.5739	25.7681
2	7.08	34.7	27.62	0.3291	9.08974
3	27	32.6	5.6	0.2141	1.19896
4	28.5	30.6	2.1	0.1224	0.25704
5	29.2	29.6	0.4	0.0399	0.01596
6	29.6	29.2	-0.4		
7	30.6	28.5	-2.1		
8	32.6	27	-5.6		
9	34.7	7.08	-27.62		
10	49.9	5	-44.9		

Sum of b values = 36.3298
Sample Standard Deviation = 12.9997
W Statistic = 0.867795

5% Critical value of 0.842 is less than 0.867795
Data is normally distributed at 95% level of significance

1% Critical value of 0.781 is less than 0.867795
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	119	183	64	0.5739	36.7296
2	136	174	38	0.3291	12.5058
3	136	161	25	0.2141	5.3525
4	143	160	17	0.1224	2.0808
5	143	158	15	0.0399	0.5985
6	158	143	-15		
7	160	143	-17		
8	161	136	-25		
9	174	136	-38		
10	183	119	-64		

Sum of b values = 57.2672
Sample Standard Deviation = 19.391
W Statistic = 0.9691

5% Critical value of 0.842 is less than 0.9691
Data is normally distributed at 95% level of significance

1% Critical value of 0.781 is less than 0.9691
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	14.9	24.7	9.8	0.5739	5.62422
2	16	20.8	4.8	0.3291	1.57968
3	17.2	20.2	3	0.2141	0.6423
4	18.1	19.7	1.6	0.1224	0.19584
5	18.5	19.1	0.6	0.0399	0.02394
6	19.1	18.5	-0.6		
7	19.7	18.1	-1.6		
8	20.2	17.2	-3		
9	20.8	16	-4.8		
10	24.7	14.9	-9.8		

Sum of b values = 8.06598
Sample Standard Deviation = 2.74299
W Statistic = 0.960778

5% Critical value of 0.842 is less than 0.960778
Data is normally distributed at 95% level of significance

1% Critical value of 0.781 is less than 0.960778
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.02	0.0679	0.0479	0.5739	0.0274898
2	0.02	0.0633	0.0433	0.3291	0.01425
3	0.02	0.0611	0.0411	0.2141	0.00879951
4	0.02	0.02	0	0.1224	0
5	0.02	0.02	0	0.0399	0
6	0.02	0.02	0		
7	0.02	0.02	0		
8	0.0611	0.02	-0.0411		
9	0.0633	0.02	-0.0433		
10	0.0679	0.02	-0.0479		

Sum of b values = 0.0505393
Sample Standard Deviation = 0.021365
W Statistic = 0.621741

5% Critical value of 0.842 exceeds 0.621741
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.621741
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.02	2.49	2.47	0.5739	1.41753
2	0.02	0.571	0.551	0.3291	0.181334
3	0.02	0.258	0.238	0.2141	0.0509558
4	0.02	0.227	0.207	0.1224	0.0253368
5	0.02	0.02	0	0.0399	0
6	0.02	0.02	0		
7	0.227	0.02	-0.207		
8	0.258	0.02	-0.238		
9	0.571	0.02	-0.551		
10	2.49	0.02	-2.47		

Sum of b values = 1.67516
Sample Standard Deviation = 0.767585
W Statistic = 0.529197

5% Critical value of 0.842 exceeds 0.529197
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.529197
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality
Parameter: Zinc
Location: MW3
Normality Test of Parameter Concentrations
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit
K = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.02	0.0759	0.0559	0.5739	0.032081
2	0.02	0.02	0	0.3291	0
3	0.02	0.02	0	0.2141	0
4	0.02	0.02	0	0.1224	0
5	0.02	0.02	0	0.0399	0
6	0.02	0.02	0		
7	0.02	0.02	0		
8	0.02	0.02	0		
9	0.02	0.02	0		
10	0.0759	0.02	-0.0559		

Sum of b values = 0.032081
Sample Standard Deviation = 0.0176771
W Statistic = 0.365957

5% Critical value of 0.842 exceeds 0.365957
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.365957
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 = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.02	0.346	0.326	0.5739	0.187091
2	0.02	0.0787	0.0587	0.3291	0.0193182
3	0.02	0.0218	0.0018	0.2141	0.00038538
4	0.02	0.02	0	0.1224	0
5	0.02	0.02	0	0.0399	0
6	0.02	0.02	0		
7	0.02	0.02	0		
8	0.0218	0.02	-0.0018		
9	0.0787	0.02	-0.0587		
10	0.346	0.02	-0.326		

Sum of b values = 0.206795
Sample Standard Deviation = 0.102625
W Statistic = 0.451162

5% Critical value of 0.842 exceeds 0.451162
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.451162
Evidence of non-normality at 99% level of significance

Shapiro-Wilks Test of Normality
Parameter: Zinc
Location: MW5
Normality Test of Parameter Concentrations
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit
K = 5 for 10 measurements

i	x(i)	x(n-i+1)	x(n-1+1)-x(i)	a(n-i+1)	b(i)
1	0.02	0.286	0.266	0.5739	0.152657
2	0.02	0.177	0.157	0.3291	0.0516687
3	0.02	0.02	0	0.2141	0
4	0.02	0.02	0	0.1224	0
5	0.02	0.02	0	0.0399	0
6	0.02	0.02	0		
7	0.02	0.02	0		
8	0.02	0.02	0		
9	0.177	0.02	-0.157		
10	0.286	0.02	-0.266		

Sum of b values = 0.204326
Sample Standard Deviation = 0.0928033
W Statistic = 0.538615

5% Critical value of 0.842 exceeds 0.538615
Evidence of non-normality at 95% level of significance

1% Critical value of 0.781 exceeds 0.538615
Evidence of non-normality at 99% level of significance

APPENDIX C

Outlier Tests (Dixon's)

Dixon's Test for Outliers
Parameter: Aluminum, total
Location: MW2
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.827826	0	0.477	0.165
2	0.434343	0	0.512	None

Loc.	Date	Conc.	Outlier
MW2	3/11/2020	ND<0.05	FALSE
	6/1/2020	0.0612	FALSE
	9/16/2020	0.0698	FALSE
	12/18/2020	ND<0.05	FALSE
	3/1/2021	**0.165**	**TRUE**
	9/20/2021	ND<0.05	FALSE
	3/18/2022	ND<0.05	FALSE
	9/16/2022	ND<0.05	FALSE
	4/25/2023	ND<0.05	FALSE
	9/25/2023	ND<0.05	FALSE

Dixon's Test for Outliers
Parameter: Aluminum, total
Location: MW2
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.827826	0	0.597	0.165
2	0.434343	0	0.635	None

Loc.	Date	Conc.	Outlier
MW2	3/11/2020	ND<0.05	FALSE
	6/1/2020	0.0612	FALSE
	9/16/2020	0.0698	FALSE
	12/18/2020	ND<0.05	FALSE
	3/1/2021	**0.165**	**TRUE**
	9/20/2021	ND<0.05	FALSE
	3/18/2022	ND<0.05	FALSE
	9/16/2022	ND<0.05	FALSE
	4/25/2023	ND<0.05	FALSE
	9/25/2023	ND<0.05	FALSE

Dixon's Test for Outliers

Parameter: Ammonia Nitrogen
Location: MW5
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.995048	0	0.477	9.79
2	0.369565	0	0.512	None

Loc.	Date	Conc.	Outlier
MW5	3/5/2020	ND<0.5	FALSE
	6/4/2020	0.546	FALSE
	9/23/2020	ND<0.5	FALSE
	12/23/2020	**9.79**	**TRUE**
	3/11/2021	ND<0.5	FALSE
	9/30/2021	ND<0.5	FALSE
	4/1/2022	ND<0.5	FALSE
	9/30/2022	0.529	FALSE
	5/2/2023	ND<0.5	FALSE
	9/18/2023	ND<0.5	FALSE

Dixon's Test for Outliers

Parameter: Ammonia Nitrogen
Location: MW5
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.995048	0	0.597	9.79
2	0.369565	0	0.635	None

Loc.	Date	Conc.	Outlier
MW5	3/5/2020	ND<0.5	FALSE
	6/4/2020	0.546	FALSE
	9/23/2020	ND<0.5	FALSE
	12/23/2020	**9.79**	**TRUE**
	3/11/2021	ND<0.5	FALSE
	9/30/2021	ND<0.5	FALSE
	4/1/2022	ND<0.5	FALSE
	9/30/2022	0.529	FALSE
	5/2/2023	ND<0.5	FALSE
	9/18/2023	ND<0.5	FALSE

Dixon's Test for Outliers

Parameter: Barium
Location: MW1
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.0629371	0.151899	0.477	None

Loc.	Date	Conc.	Outlier
MW1	3/12/2020	0.0374	FALSE
	5/29/2020	0.0365	FALSE
	9/8/2020	0.0294	FALSE
	12/11/2020	0.0294	FALSE
	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

Dixon's Test for Outliers

Parameter: Barium
Location: MW1
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.0629371	0.151899	0.597	None

Loc.	Date	Conc.	Outlier
MW1	3/12/2020	0.0374	FALSE
	5/29/2020	0.0365	FALSE
	9/8/2020	0.0294	FALSE
	12/11/2020	0.0294	FALSE
	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

Dixon's Test for Outliers

Parameter: Barium
Location: MW2
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.371237	0.0646766	0.477	None

Loc.	Date	Conc.	Outlier		
MW2	3/11/2020	0.0617	FALSE		
	6/1/2020	0.0872	FALSE		
	9/16/2020	0.0556	FALSE		
	12/18/2020	0.0958	FALSE		
	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		

Dixon's Test for Outliers
Parameter: Barium
Location: MW2
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.371237	0.0646766	0.597	None

Loc.	Date	Conc.	Outlier
MW2	3/11/2020	0.0617	FALSE
	6/1/2020	0.0872	FALSE
	9/16/2020	0.0556	FALSE
	12/18/2020	0.0958	FALSE
	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

Dixon's Test for Outliers

Parameter: Barium
Location: MW3
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.424354	0.0769231	0.477	None

Loc.	Date	Conc.	Outlier
MW3	3/3/2020	0.384	FALSE
	6/13/2020	0.499	FALSE
	10/2/2020	0.215	FALSE
	12/29/2020	0.228	FALSE
	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

Dixon's Test for Outliers

Parameter: Barium
Location: MW3
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.424354	0.0769231	0.597	None

Loc.	Date	Conc.	Outlier
MW3	3/3/2020	0.384	FALSE
	6/13/2020	0.499	FALSE
	10/2/2020	0.215	FALSE
	12/29/2020	0.228	FALSE
	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

Dixon's Test for Outliers

Parameter: Barium
Location: MW4
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.697368	0.436275	0.477	0.188
2	0.0869565	0.458763	0.512	None

Loc.	Date	Conc.	Outlier
MW4	3/6/2020	0.0942	FALSE
	5/26/2020	0.112	FALSE
	9/4/2020	0.125	FALSE
	12/15/2020	0.133	FALSE
	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

Dixon's Test for Outliers

Parameter: Barium
Location: MW4
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.697368	0.436275	0.597	0.188
2	0.0869565	0.458763	0.635	None

Loc.	Date	Conc.	Outlier
MW4	3/6/2020	0.0942	FALSE
	5/26/2020	0.112	FALSE
	9/4/2020	0.125	FALSE
	12/15/2020	0.133	FALSE
	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

Dixon's Test for Outliers
Parameter: Barium
Location: MW5
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.124417	0.153383	0.477	None

Loc.	Date	Conc.	Outlier
MW5	3/5/2020	0.103	FALSE
	6/4/2020	0.0902	FALSE
	9/23/2020	0.152	FALSE
	12/23/2020	0.144	FALSE
	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

Dixon's Test for Outliers
Parameter: Barium
Location: MW5
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.124417	0.153383	0.597	None

Loc.	Date	Conc.	Outlier
MW5	3/5/2020	0.103	FALSE
	6/4/2020	0.0902	FALSE
	9/23/2020	0.152	FALSE
	12/23/2020	0.144	FALSE
	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

Dixon's Test for Outliers

Parameter: Boron
Location: MW1
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.422535	0.226415	0.477	None

Loc.	Date	Conc.	Outlier
MW1	3/12/2020	ND<0.2	FALSE
	5/29/2020	0.166	FALSE
	9/8/2020	0.152	FALSE
	12/11/2020	0.144	FALSE
	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

Dixon's Test for Outliers
Parameter: Boron
Location: MW1
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.422535	0.226415	0.597	None

Loc.	Date	Conc.	Outlier
MW1	3/12/2020	ND<0.2	FALSE
	5/29/2020	0.166	FALSE
	9/8/2020	0.152	FALSE
	12/11/2020	0.144	FALSE
	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

Dixon's Test for Outliers

Parameter: Boron
Location: MW5
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.333333	0.0555556	0.477	None

Loc.	Date	Conc.	Outlier
MW5	3/5/2020	ND<0.2	FALSE
	6/4/2020	0.179	FALSE
	9/23/2020	0.2	FALSE
	12/23/2020	0.181	FALSE
	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

Dixon's Test for Outliers

Parameter: Boron
Location: MW5
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.333333	0.0555556	0.597	None

Loc.	Date	Conc.	Outlier
MW5	3/5/2020	ND<0.2	FALSE
	6/4/2020	0.179	FALSE
	9/23/2020	0.2	FALSE
	12/23/2020	0.181	FALSE
	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

Dixon's Test for Outliers
Parameter: Chloride
Location: MW1
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.347126	0.208914	0.477	None

Loc.	Date	Conc.	Outlier
MW1	3/12/2020	5.75	FALSE
	5/29/2020	7.37	FALSE
	9/8/2020	7.3	FALSE
	12/11/2020	8.59	FALSE
	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

Dixon's Test for Outliers
Parameter: Chloride
Location: MW1
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.347126	0.208914	0.597	None

Loc.	Date	Conc.	Outlier
MW1	3/12/2020	5.75	FALSE
	5/29/2020	7.37	FALSE
	9/8/2020	7.3	FALSE
	12/11/2020	8.59	FALSE
	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

Dixon's Test for Outliers
Parameter: Chloride
Location: MW2
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.554545	0	0.477	71
2	0.966327	0	0.512	34.4
3	0.333333	0	0.554	None

Loc.	Date	Conc.	Outlier
MW2	3/11/2020	71	TRUE
	6/1/2020	ND<5	FALSE
	9/16/2020	ND<5	FALSE
	12/18/2020	34.4	TRUE
	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

Dixon's Test for Outliers

Parameter: Chloride
Location: MW2
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.554545	0	0.597	None

Loc.	Date	Conc.	Outlier
MW2	3/11/2020	71	FALSE
	6/1/2020	ND<5	FALSE
	9/16/2020	ND<5	FALSE
	12/18/2020	34.4	FALSE
	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

Dixon's Test for Outliers

Parameter: Chloride
Location: MW3
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.221374	0	0.477	None

Loc.	Date	Conc.	Outlier
MW3	3/3/2020	ND<5	FALSE
	6/13/2020	ND<5	FALSE
	10/2/2020	24.9	FALSE
	12/29/2020	21.6	FALSE
	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

Dixon's Test for Outliers

Parameter: Chloride

Location: MW3

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.221374	0	0.597	None

Loc.	Date	Conc.	Outlier
MW3	3/3/2020	ND<5	FALSE
	6/13/2020	ND<5	FALSE
	10/2/2020	24.9	FALSE
	12/29/2020	21.6	FALSE
	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

Dixon's Test for Outliers
Parameter: Cobalt
Location: MW2
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.868889	0	0.477	0.0275
2	0.423729	0	0.512	None

Loc.	Date	Conc.	Outlier
MW2	3/11/2020	0.00141	FALSE
	6/1/2020	**0.0275**	**TRUE**
	9/16/2020	ND<0.0005	FALSE
	12/18/2020	0.000725	FALSE
	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

Dixon's Test for Outliers
Parameter: Cobalt
Location: MW2
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.868889	0	0.597	0.0275
2	0.423729	0	0.635	None

Loc.	Date	Conc.	Outlier
MW2	3/11/2020	0.00141	FALSE
	6/1/2020	**0.0275**	**TRUE**
	9/16/2020	ND<0.0005	FALSE
	12/18/2020	0.000725	FALSE
	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

Dixon's Test for Outliers
Parameter: Cobalt
Location: MW4
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.230088	0	0.477	None

Loc.	Date	Conc.	Outlier
MW4	3/6/2020	ND<0.0005	FALSE
	5/26/2020	0.00145	FALSE
	9/4/2020	0.00572	FALSE
	12/15/2020	0.00728	FALSE
	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

Dixon's Test for Outliers
Parameter: Cobalt
Location: MW4
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.230088	0	0.597	None

Loc.	Date	Conc.	Outlier
MW4	3/6/2020	ND<0.0005	FALSE
	5/26/2020	0.00145	FALSE
	9/4/2020	0.00572	FALSE
	12/15/2020	0.00728	FALSE
	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

Dixon's Test for Outliers
Parameter: Cobalt
Location: MW5
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.67284	0	0.477	0.00212
2	0.556604	0	0.512	0.00103

A Divide-By-Zero error occurred in the calculations.
Additional Outliers May Exist.

Loc.	Date	Conc.	Outlier
MW5	3/5/2020	ND<0.0005	FALSE
	6/4/2020	0.000735	FALSE
	9/23/2020	**0.00212**	**TRUE**
	12/23/2020	**0.00103**	**TRUE**
	3/11/2021	ND<0.0005	FALSE
	9/30/2021	ND<0.0005	FALSE
	4/1/2022	ND<0.0005	FALSE
	9/30/2022	ND<0.0005	FALSE
	5/2/2023	ND<0.0005	FALSE
	9/18/2023	ND<0.0005	FALSE

Dixon's Test for Outliers

Parameter: Cobalt
Location: MW5
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.67284	0	0.597	0.00212
2	0.556604	0	0.635	None

Loc.	Date	Conc.	Outlier
MW5	3/5/2020	ND<0.0005	FALSE
	6/4/2020	0.000735	FALSE
	9/23/2020	**0.00212**	**TRUE**
	12/23/2020	0.00103	FALSE
	3/11/2021	ND<0.0005	FALSE
	9/30/2021	ND<0.0005	FALSE
	4/1/2022	ND<0.0005	FALSE
	9/30/2022	ND<0.0005	FALSE
	5/2/2023	ND<0.0005	FALSE
	9/18/2023	ND<0.0005	FALSE

Dixon's Test for Outliers
Parameter: Fluoride
Location: MW2
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0	0	0.477	None

Loc.	Date	Conc.	Outlier
MW2	3/11/2020	0.884	FALSE
	6/1/2020	0.71	FALSE
	9/16/2020	0.504	FALSE
	12/18/2020	0.64	FALSE
	3/1/2021	0.636	FALSE
	9/20/2021	ND<0.5	FALSE
	3/18/2022	ND<0.5	FALSE
	9/16/2022	0.713	FALSE
	4/25/2023	ND<1	FALSE
	9/25/2023	ND<1	FALSE

Dixon's Test for Outliers
Parameter: Fluoride
Location: MW2
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0	0	0.597	None

Loc.	Date	Conc.	Outlier
MW2	3/11/2020	0.884	FALSE
	6/1/2020	0.71	FALSE
	9/16/2020	0.504	FALSE
	12/18/2020	0.64	FALSE
	3/1/2021	0.636	FALSE
	9/20/2021	ND<0.5	FALSE
	3/18/2022	ND<0.5	FALSE
	9/16/2022	0.713	FALSE
	4/25/2023	ND<1	FALSE
	9/25/2023	ND<1	FALSE

Dixon's Test for Outliers
Parameter: Fluoride
Location: MW5
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.473684	0	0.477	None

Loc.	Date	Conc.	Outlier
MW5	3/5/2020	0.677	FALSE
	6/4/2020	0.675	FALSE
	9/23/2020	0.63	FALSE
	12/23/2020	0.647	FALSE
	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

Dixon's Test for Outliers
Parameter: Fluoride
Location: MW5
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.473684	0	0.597	None

Loc.	Date	Conc.	Outlier
MW5	3/5/2020	0.677	FALSE
	6/4/2020	0.675	FALSE
	9/23/2020	0.63	FALSE
	12/23/2020	0.647	FALSE
	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

Dixon's Test for Outliers

Parameter: Manganese
Location: MW1
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.127273	0.357143	0.477	None

Loc.	Date	Conc.	Outlier
MW1	3/12/2020	0.0699	FALSE
	5/29/2020	0.0713	FALSE
	9/8/2020	0.0685	FALSE
	12/11/2020	0.073	FALSE
	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

Dixon's Test for Outliers

Parameter: Manganese
Location: MW1
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.127273	0.357143	0.597	None

Loc.	Date	Conc.	Outlier
MW1	3/12/2020	0.0699	FALSE
	5/29/2020	0.0713	FALSE
	9/8/2020	0.0685	FALSE
	12/11/2020	0.073	FALSE
	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

Dixon's Test for Outliers

Parameter: Manganese
Location: MW2
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.332103	0.019236	0.477	None

Loc.	Date	Conc.	Outlier
MW2	3/11/2020	0.383	FALSE
	6/1/2020	0.563	FALSE
	9/16/2020	0.0139	FALSE
	12/18/2020	0.0636	FALSE
	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

Dixon's Test for Outliers
Parameter: Manganese
Location: MW2
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.332103	0.019236	0.597	None

Loc.	Date	Conc.	Outlier
MW2	3/11/2020	0.383	FALSE
	6/1/2020	0.563	FALSE
	9/16/2020	0.0139	FALSE
	12/18/2020	0.0636	FALSE
	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

Dixon's Test for Outliers
Parameter: Manganese
Location: MW3
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.783831	0	0.477	0.579
2	0.834959	0	0.512	0.133
3	0.20197	0	0.554	None

Loc.	Date	Conc.	Outlier
MW3	3/3/2020	0.133	TRUE
	6/13/2020	0.579	TRUE
	10/2/2020	0.0262	FALSE
	12/29/2020	0.0114	FALSE
	3/8/2021	ND<0.01	FALSE
	10/5/2021	ND<0.01	FALSE
	4/8/2022	ND<0.01	FALSE
	9/26/2022	ND<0.01	FALSE
	5/9/2023	0.0303	FALSE
	9/1/2023	ND<0.01	FALSE

Dixon's Test for Outliers
Parameter: Manganese
Location: MW3
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.783831	0	0.597	0.579
2	0.834959	0	0.635	0.133
3	0.20197	0	0.683	None

Loc.	Date	Conc.	Outlier
MW3	3/3/2020	**0.133**	**TRUE**
	6/13/2020	**0.579**	**TRUE**
	10/2/2020	0.0262	FALSE
	12/29/2020	0.0114	FALSE
	3/8/2021	ND<0.01	FALSE
	10/5/2021	ND<0.01	FALSE
	4/8/2022	ND<0.01	FALSE
	9/26/2022	ND<0.01	FALSE
	5/9/2023	0.0303	FALSE
	9/1/2023	ND<0.01	FALSE

Dixon's Test for Outliers

Parameter: Manganese
Location: MW4
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.66359	0.0788207	0.597	0.529
2	0.568256	0.165404	0.635	None

Loc.	Date	Conc.	Outlier
MW4	3/6/2020	**0.529**	**TRUE**
	5/26/2020	0.227	FALSE
	9/4/2020	0.0969	FALSE
	12/15/2020	0.127	FALSE
	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

Dixon's Test for Outliers
Parameter: Manganese
Location: MW4
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.66359	0.0788207	0.597	0.529
2	0.568256	0.165404	0.635	None

Loc.	Date	Conc.	Outlier
MW4	3/6/2020	0.529	TRUE
	5/26/2020	0.227	FALSE
	9/4/2020	0.0969	FALSE
	12/15/2020	0.127	FALSE
	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

Dixon's Test for Outliers
Parameter: Manganese
Location: MW5
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.416667	0.0694864	0.477	None

Loc.	Date	Conc.	Outlier
MW5	3/5/2020	0.0759	FALSE
	6/4/2020	0.0706	FALSE
	9/23/2020	0.164	FALSE
	12/23/2020	0.113	FALSE
	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

Dixon's Test for Outliers

Parameter: Manganese
Location: MW5
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.416667	0.0694864	0.597	None

Loc.	Date	Conc.	Outlier
MW5	3/5/2020	0.0759	FALSE
	6/4/2020	0.0706	FALSE
	9/23/2020	0.164	FALSE
	12/23/2020	0.113	FALSE
	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

Dixon's Test for Outliers
Parameter: Molybdenum
Location: MW1
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.288889	0	0.477	None

Loc.	Date	Conc.	Outlier
MW1	3/12/2020	ND<0.002	FALSE
	5/29/2020	ND<0.002	FALSE
	9/8/2020	ND<0.002	FALSE
	12/11/2020	ND<0.002	FALSE
	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

Dixon's Test for Outliers

Parameter: Molybdenum
Location: MW1
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.288889	0	0.597	None

Loc.	Date	Conc.	Outlier
MW1	3/12/2020	ND<0.002	FALSE
	5/29/2020	ND<0.002	FALSE
	9/8/2020	ND<0.002	FALSE
	12/11/2020	ND<0.002	FALSE
	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

Dixon's Test for Outliers

Parameter: Molybdenum
Location: MW2
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.0790514	0.0411523	0.477	None

Loc.	Date	Conc.	Outlier
MW2	3/11/2020	0.00478	FALSE
	6/1/2020	0.00435	FALSE
	9/16/2020	0.00215	FALSE
	12/18/2020	0.0033	FALSE
	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

Dixon's Test for Outliers

Parameter: Molybdenum
Location: MW2
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.0790514	0.0411523	0.597	None

Loc.	Date	Conc.	Outlier
MW2	3/11/2020	0.00478	FALSE
	6/1/2020	0.00435	FALSE
	9/16/2020	0.00215	FALSE
	12/18/2020	0.0033	FALSE
	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

Dixon's Test for Outliers
Parameter: Molybdenum
Location: MW3
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.420168	0	0.477	None

Loc.	Date	Conc.	Outlier
MW3	3/3/2020	ND<0.002	FALSE
	6/13/2020	ND<0.002	FALSE
	10/2/2020	0.00364	FALSE
	12/29/2020	0.00407	FALSE
	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

Dixon's Test for Outliers

Parameter: Molybdenum
Location: MW3
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.420168	0	0.597	None

Loc.	Date	Conc.	Outlier
MW3	3/3/2020	ND<0.002	FALSE
	6/13/2020	ND<0.002	FALSE
	10/2/2020	0.00364	FALSE
	12/29/2020	0.00407	FALSE
	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

Dixon's Test for Outliers
Parameter: Molybdenum
Location: MW4
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.541284	0	0.477	0.00527
2	0.393333	0	0.512	None

Loc.	Date	Conc.	Outlier
MW4	3/6/2020	0.00203	FALSE
	5/26/2020	**0.00527**	**TRUE**
	9/4/2020	ND<0.002	FALSE
	12/15/2020	0.00245	FALSE
	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

Dixon's Test for Outliers

Parameter: Molybdenum
Location: MW4
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.541284	0	0.597	None

Loc.	Date	Conc.	Outlier
MW4	3/6/2020	0.00203	FALSE
	5/26/2020	0.00527	FALSE
	9/4/2020	ND<0.002	FALSE
	12/15/2020	0.00245	FALSE
	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

Dixon's Test for Outliers
Parameter: Sulfate
Location: MW1
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.290909	0.113636	0.477	None

Loc.	Date	Conc.	Outlier
MW1	3/12/2020	811	FALSE
	5/29/2020	880	FALSE
	9/8/2020	796	FALSE
	12/11/2020	885	FALSE
	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

Dixon's Test for Outliers
Parameter: Sulfate
Location: MW1
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.290909	0.113636	0.597	None

Loc.	Date	Conc.	Outlier
MW1	3/12/2020	811	FALSE
	5/29/2020	880	FALSE
	9/8/2020	796	FALSE
	12/11/2020	885	FALSE
	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

Dixon's Test for Outliers
Parameter: Sulfate
Location: MW2
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.219512	0.0724638	0.477	None

Loc.	Date	Conc.	Outlier
MW2	3/11/2020	18.2	FALSE
	6/1/2020	20	FALSE
	9/16/2020	13.2	FALSE
	12/18/2020	21.9	FALSE
	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

Dixon's Test for Outliers

Parameter: Sulfate
Location: MW2
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.219512	0.0724638	0.597	None

Loc.	Date	Conc.	Outlier		
MW2	3/11/2020	18.2	FALSE		
	6/1/2020	20	FALSE		
	9/16/2020	13.2	FALSE		
	12/18/2020	21.9	FALSE		
	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		

Dixon's Test for Outliers
Parameter: Sulfate
Location: MW3
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.354974	0.0700337	0.477	None

Loc.	Date	Conc.	Outlier
MW3	3/3/2020	7.08	FALSE
	6/13/2020	ND<5	FALSE
	10/2/2020	29.6	FALSE
	12/29/2020	27	FALSE
	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

Dixon's Test for Outliers

Parameter: Sulfate
Location: MW3
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.354974	0.0700337	0.597	None

Loc.	Date	Conc.	Outlier
MW3	3/3/2020	7.08	FALSE
	6/13/2020	ND<5	FALSE
	10/2/2020	29.6	FALSE
	12/29/2020	27	FALSE
	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

Dixon's Test for Outliers

Parameter: Sulfate
Location: MW4
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.191489	0.309091	0.477	None

Loc.	Date	Conc.	Outlier
MW4	3/6/2020	119	FALSE
	5/26/2020	136	FALSE
	9/4/2020	136	FALSE
	12/15/2020	183	FALSE
	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

Dixon's Test for Outliers
Parameter: Sulfate
Location: MW4
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.191489	0.309091	0.597	None

Loc.	Date	Conc.	Outlier
MW4	3/6/2020	119	FALSE
	5/26/2020	136	FALSE
	9/4/2020	136	FALSE
	12/15/2020	183	FALSE
	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

Dixon's Test for Outliers

Parameter: Sulfate
Location: MW5
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.448276	0.186441	0.477	None

Loc.	Date	Conc.	Outlier
MW5	3/5/2020	16	FALSE
	6/4/2020	19.1	FALSE
	9/23/2020	14.9	FALSE
	12/23/2020	17.2	FALSE
	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

Dixon's Test for Outliers
Parameter: Sulfate
Location: MW5
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.448276	0.186441	0.597	None

Loc.	Date	Conc.	Outlier
MW5	3/5/2020	16	FALSE
	6/4/2020	19.1	FALSE
	9/23/2020	14.9	FALSE
	12/23/2020	17.2	FALSE
	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

Dixon's Test for Outliers
Parameter: Zinc
Location: MW1
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.0960334	0	0.477	None

Loc.	Date	Conc.	Outlier
MW1	3/12/2020	ND<0.02	FALSE
	5/29/2020	ND<0.02	FALSE
	9/8/2020	0.0679	FALSE
	12/11/2020	0.0611	FALSE
	2/26/2021	0.0633	FALSE
	9/17/2021	ND<0.02	FALSE
	3/11/2022	ND<0.02	FALSE
	9/12/2022	ND<0.02	FALSE
	4/11/2023	ND<0.02	FALSE
	9/29/2023	ND<0.02	FALSE

Dixon's Test for Outliers

Parameter: Zinc
Location: MW1
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.0960334	0	0.597	None

Loc.	Date	Conc.	Outlier
MW1	3/12/2020	ND<0.02	FALSE
	5/29/2020	ND<0.02	FALSE
	9/8/2020	0.0679	FALSE
	12/11/2020	0.0611	FALSE
	2/26/2021	0.0633	FALSE
	9/17/2021	ND<0.02	FALSE
	3/11/2022	ND<0.02	FALSE
	9/12/2022	ND<0.02	FALSE
	4/11/2023	ND<0.02	FALSE
	9/29/2023	ND<0.02	FALSE

Dixon's Test for Outliers
Parameter: Zinc
Location: MW2
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.776923	0	0.477	2.49
2	0.568058	0	0.512	0.571
3	0.130252	0	0.554	None

Loc.	Date	Conc.	Outlier
MW2	3/11/2020	0.258	FALSE
	6/1/2020	ND<0.02	FALSE
	9/16/2020	0.227	FALSE
	12/18/2020	2.49	TRUE
	3/1/2021	0.571	TRUE
	9/20/2021	ND<0.02	FALSE
	3/18/2022	ND<0.02	FALSE
	9/16/2022	ND<0.02	FALSE
	4/25/2023	ND<0.02	FALSE
	9/25/2023	ND<0.02	FALSE

Dixon's Test for Outliers
Parameter: Zinc
Location: MW2
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.776923	0	0.597	2.49
2	0.568058	0	0.635	None

Loc.	Date	Conc.	Outlier
MW2	3/11/2020	0.258	FALSE
	6/1/2020	ND<0.02	FALSE
	9/16/2020	0.227	FALSE
	12/18/2020	**2.49**	**TRUE**
	3/1/2021	0.571	FALSE
	9/20/2021	ND<0.02	FALSE
	3/18/2022	ND<0.02	FALSE
	9/16/2022	ND<0.02	FALSE
	4/25/2023	ND<0.02	FALSE
	9/25/2023	ND<0.02	FALSE

Dixon's Test for Outliers
Parameter: Zinc
Location: MW4
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.819939	0	0.477	0.346
2	0.969336	0	0.512	0.0787

A Divide-By-Zero error occurred in the calculations.
Additional Outliers May Exist.

Loc.	Date	Conc.	Outlier
MW4	3/6/2020	ND<0.02	FALSE
	5/26/2020	ND<0.02	FALSE
	9/4/2020	**0.0787**	**TRUE**
	12/15/2020	**0.346**	**TRUE**
	3/4/2021	0.0218	FALSE
	9/27/2021	ND<0.02	FALSE
	3/25/2022	ND<0.02	FALSE
	9/21/2022	ND<0.02	FALSE
	4/17/2023	ND<0.02	FALSE
	9/11/2023	ND<0.02	FALSE

Dixon's Test for Outliers
Parameter: Zinc
Location: MW4
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

For 10 Measurements...
1% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.819939	0	0.597	0.346
2	0.969336	0	0.635	0.0787

A Divide-By-Zero error occurred in the calculations.
Additional Outliers May Exist.

Loc.	Date	Conc.	Outlier	
MW4	3/6/2020	ND<0.02	FALSE	
	5/26/2020	ND<0.02	FALSE	
	9/4/2020	**0.0787**	**TRUE**	
	12/15/2020	**0.346**	**TRUE**	
	3/4/2021	0.0218	FALSE	
	9/27/2021	ND<0.02	FALSE	
	3/25/2022	ND<0.02	FALSE	
	9/21/2022	ND<0.02	FALSE	
	4/17/2023	ND<0.02	FALSE	
	9/11/2023	ND<0.02	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
0.0612	ND<0.05	0.0112	1	0
0.0698	ND<0.05	0.0198	2	0
ND<0.05	ND<0.05	0	2	0
0.165	ND<0.05	0.115	3	0
ND<0.05	ND<0.05	0	3	0
ND<0.05	ND<0.05	0	3	0
ND<0.05	ND<0.05	0	3	0
ND<0.05	ND<0.05	0	3	0
ND<0.05	ND<0.05	0	3	0
0.0698	0.0612	0.0086	4	0
ND<0.05	0.0612	-0.0112	4	1
0.165	0.0612	0.1038	5	1
ND<0.05	0.0612	-0.0112	5	2
ND<0.05	0.0612	-0.0112	5	3
ND<0.05	0.0612	-0.0112	5	4
ND<0.05	0.0612	-0.0112	5	5
ND<0.05	0.0612	-0.0112	5	6
ND<0.05	0.0698	-0.0198	5	7
0.165	0.0698	0.0952	6	7
ND<0.05	0.0698	-0.0198	6	8
ND<0.05	0.0698	-0.0198	6	9
ND<0.05	0.0698	-0.0198	6	10
ND<0.05	0.0698	-0.0198	6	11
ND<0.05	0.0698	-0.0198	6	12
0.165	ND<0.05	0.115	7	12
ND<0.05	ND<0.05	0	7	12
ND<0.05	ND<0.05	0	7	12
ND<0.05	ND<0.05	0	7	12
ND<0.05	ND<0.05	0	7	12
ND<0.05	ND<0.05	0	7	12
ND<0.05	0.165	-0.115	7	13
ND<0.05	0.165	-0.115	7	14
ND<0.05	0.165	-0.115	7	15
ND<0.05	0.165	-0.115	7	16
ND<0.05	0.165	-0.115	7	17
ND<0.05	ND<0.05	0	7	17
ND<0.05	ND<0.05	0	7	17
ND<0.05	ND<0.05	0	7	17
ND<0.05	ND<0.05	0	7	17
ND<0.05	ND<0.05	0	7	17
ND<0.05	ND<0.05	0	7	17

ND<0.05	ND<0.05	0	7	17
ND<0.05	ND<0.05	0	7	17
ND<0.05	ND<0.05	0	7	17
ND<0.05	ND<0.05	0	7	17

S Statistic = 7 - 17 = -10
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-10| is 0.432
0.432 >= 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Aluminum, total
Location: MW3
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.05	ND<0.05	0	0	0
0.0844	ND<0.05	0.0344	1	0
ND<0.05	ND<0.05	0	1	0
ND<0.05	ND<0.05	0	1	0
ND<0.05	ND<0.05	0	1	0
ND<0.05	ND<0.05	0	1	0
ND<0.05	ND<0.05	0	1	0
ND<0.05	ND<0.05	0	1	0
ND<0.05	ND<0.05	0	1	0
0.0844	ND<0.05	0.0344	2	0
ND<0.05	ND<0.05	0	2	0
ND<0.05	ND<0.05	0	2	0
ND<0.05	ND<0.05	0	2	0
ND<0.05	ND<0.05	0	2	0
ND<0.05	ND<0.05	0	2	0
ND<0.05	ND<0.05	0	2	0
ND<0.05	ND<0.05	0	2	0
ND<0.05	0.0844	-0.0344	2	1
ND<0.05	0.0844	-0.0344	2	2
ND<0.05	0.0844	-0.0344	2	3
ND<0.05	0.0844	-0.0344	2	4
ND<0.05	0.0844	-0.0344	2	5
ND<0.05	0.0844	-0.0344	2	6
ND<0.05	0.0844	-0.0344	2	7
ND<0.05	ND<0.05	0	2	7
ND<0.05	ND<0.05	0	2	7
ND<0.05	ND<0.05	0	2	7
ND<0.05	ND<0.05	0	2	7
ND<0.05	ND<0.05	0	2	7
ND<0.05	ND<0.05	0	2	7
ND<0.05	ND<0.05	0	2	7
ND<0.05	ND<0.05	0	2	7
ND<0.05	ND<0.05	0	2	7
ND<0.05	ND<0.05	0	2	7
ND<0.05	ND<0.05	0	2	7
ND<0.05	ND<0.05	0	2	7
ND<0.05	ND<0.05	0	2	7
ND<0.05	ND<0.05	0	2	7
ND<0.05	ND<0.05	0	2	7
ND<0.05	ND<0.05	0	2	7
ND<0.05	ND<0.05	0	2	7

ND<0.05	ND<0.05	0	2	7
ND<0.05	ND<0.05	0	2	7
ND<0.05	ND<0.05	0	2	7
ND<0.05	ND<0.05	0	2	7

S Statistic = 2 - 7 = -5
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-5| is 0.728
0.728 >= 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
0.546	ND<0.5	0.046	1	0
ND<0.5	ND<0.5	0	1	0
9.79	ND<0.5	9.29	2	0
ND<0.5	ND<0.5	0	2	0
ND<0.5	ND<0.5	0	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	0.546	-0.046	3	1
9.79	0.546	9.244	4	1
ND<0.5	0.546	-0.046	4	2
ND<0.5	0.546	-0.046	4	3
ND<0.5	0.546	-0.046	4	4
0.529	0.546	-0.017	4	5
ND<0.5	0.546	-0.046	4	6
ND<0.5	0.546	-0.046	4	7
9.79	ND<0.5	9.29	5	7
ND<0.5	ND<0.5	0	5	7
ND<0.5	ND<0.5	0	5	7
ND<0.5	ND<0.5	0	5	7
0.529	ND<0.5	0.029	6	7
ND<0.5	ND<0.5	0	6	7
ND<0.5	ND<0.5	0	6	7
ND<0.5	9.79	-9.29	6	8
ND<0.5	9.79	-9.29	6	9
ND<0.5	9.79	-9.29	6	10
0.529	9.79	-9.261	6	11
ND<0.5	9.79	-9.29	6	12
ND<0.5	9.79	-9.29	6	13
ND<0.5	ND<0.5	0	6	13
ND<0.5	ND<0.5	0	6	13
0.529	ND<0.5	0.029	7	13
ND<0.5	ND<0.5	0	7	13
ND<0.5	ND<0.5	0	7	13
ND<0.5	ND<0.5	0	7	13
0.529	ND<0.5	0.029	8	13
ND<0.5	ND<0.5	0	8	13
ND<0.5	ND<0.5	0	8	13
0.529	ND<0.5	0.029	9	13
ND<0.5	ND<0.5	0	9	13

ND<0.5	ND<0.5	0	9	13
ND<0.5	0.529	-0.029	9	14
ND<0.5	0.529	-0.029	9	15
ND<0.5	ND<0.5	0	9	15

S Statistic = 9 - 15 = -6
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-6| is 0.664
0.664 >= 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis
Parameter: Antimony
Location: MW2
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
0.0013	ND<0.001	0.0003	1	0
ND<0.001	ND<0.001	0	1	0
ND<0.001	ND<0.001	0	1	0
ND<0.002	ND<0.001	0.001	2	0
ND<0.002	ND<0.001	0.001	3	0
ND<0.002	ND<0.001	0.001	4	0
ND<0.002	ND<0.001	0.001	5	0
ND<0.002	ND<0.001	0.001	6	0
ND<0.002	ND<0.001	0.001	7	0
ND<0.001	0.0013	-0.0003	7	1
ND<0.001	0.0013	-0.0003	7	2
ND<0.002	0.0013	0.0007	8	2
ND<0.002	0.0013	0.0007	9	2
ND<0.002	0.0013	0.0007	10	2
ND<0.002	0.0013	0.0007	11	2
ND<0.002	0.0013	0.0007	12	2
ND<0.002	0.0013	0.0007	13	2
ND<0.001	ND<0.001	0	13	2
ND<0.002	ND<0.001	0.001	14	2
ND<0.002	ND<0.001	0.001	15	2
ND<0.002	ND<0.001	0.001	16	2
ND<0.002	ND<0.001	0.001	17	2
ND<0.002	ND<0.001	0.001	18	2
ND<0.002	ND<0.001	0.001	19	2
ND<0.002	ND<0.001	0.001	20	2
ND<0.002	ND<0.001	0.001	21	2
ND<0.002	ND<0.001	0.001	22	2
ND<0.002	ND<0.001	0.001	23	2
ND<0.002	ND<0.001	0.001	24	2
ND<0.002	ND<0.001	0.001	25	2
ND<0.002	ND<0.002	0	25	2
ND<0.002	ND<0.002	0	25	2
ND<0.002	ND<0.002	0	25	2
ND<0.002	ND<0.002	0	25	2
ND<0.002	ND<0.002	0	25	2
ND<0.002	ND<0.002	0	25	2
ND<0.002	ND<0.002	0	25	2
ND<0.002	ND<0.002	0	25	2
ND<0.002	ND<0.002	0	25	2
ND<0.002	ND<0.002	0	25	2
ND<0.002	ND<0.002	0	25	2

ND<0.002	ND<0.002	0	25	2
ND<0.002	ND<0.002	0	25	2
ND<0.002	ND<0.002	0	25	2
ND<0.002	ND<0.002	0	25	2

S Statistic = 25 - 2 = 23
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |23| is 0.046
0.046 >= 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
0.0365	0.0374	-0.0009	0	1
0.0294	0.0374	-0.008	0	2
0.0294	0.0374	-0.008	0	3
0.0268	0.0374	-0.0106	0	4
0.0252	0.0374	-0.0122	0	5
0.0236	0.0374	-0.0138	0	6
0.0231	0.0374	-0.0143	0	7
0.0233	0.0374	-0.0141	0	8
0.0207	0.0374	-0.0167	0	9
0.0294	0.0365	-0.0071	0	10
0.0294	0.0365	-0.0071	0	11
0.0268	0.0365	-0.0097	0	12
0.0252	0.0365	-0.0113	0	13
0.0236	0.0365	-0.0129	0	14
0.0231	0.0365	-0.0134	0	15
0.0233	0.0365	-0.0132	0	16
0.0207	0.0365	-0.0158	0	17
0.0294	0.0294	0	0	17
0.0268	0.0294	-0.0026	0	18
0.0252	0.0294	-0.0042	0	19
0.0236	0.0294	-0.0058	0	20
0.0231	0.0294	-0.0063	0	21
0.0233	0.0294	-0.0061	0	22
0.0207	0.0294	-0.0087	0	23
0.0268	0.0294	-0.0026	0	24
0.0252	0.0294	-0.0042	0	25
0.0236	0.0294	-0.0058	0	26
0.0231	0.0294	-0.0063	0	27
0.0233	0.0294	-0.0061	0	28
0.0207	0.0294	-0.0087	0	29
0.0252	0.0268	-0.0016	0	30
0.0236	0.0268	-0.0032	0	31
0.0231	0.0268	-0.0037	0	32
0.0233	0.0268	-0.0035	0	33
0.0207	0.0268	-0.0061	0	34
0.0236	0.0252	-0.0016	0	35
0.0231	0.0252	-0.0021	0	36
0.0233	0.0252	-0.0019	0	37
0.0207	0.0252	-0.0045	0	38
0.0231	0.0236	-0.0005	0	39
0.0233	0.0236	-0.0003	0	40

0.0207	0.0236	-0.0029	0	41
0.0233	0.0231	0.0002	1	41
0.0207	0.0231	-0.0024	1	42
0.0207	0.0233	-0.0026	1	43

S Statistic = 1 - 43 = -42
Comparing at 95% confidence level (downward trend)
Probability of obtaining S >= 42 is 8.9e-006
S < 0 and 8.9e-006 < 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
0.0872	0.0617	0.0255	1	0
0.0556	0.0617	-0.0061	1	1
0.0958	0.0617	0.0341	2	1
0.0808	0.0617	0.0191	3	1
0.0882	0.0617	0.0265	4	1
0.072	0.0617	0.0103	5	1
0.0582	0.0617	-0.0035	5	2
0.0727	0.0617	0.011	6	2
0.118	0.0617	0.0563	7	2
0.0556	0.0872	-0.0316	7	3
0.0958	0.0872	0.0086	8	3
0.0808	0.0872	-0.0064	8	4
0.0882	0.0872	0.001	9	4
0.072	0.0872	-0.0152	9	5
0.0582	0.0872	-0.029	9	6
0.0727	0.0872	-0.0145	9	7
0.118	0.0872	0.0308	10	7
0.0958	0.0556	0.0402	11	7
0.0808	0.0556	0.0252	12	7
0.0882	0.0556	0.0326	13	7
0.072	0.0556	0.0164	14	7
0.0582	0.0556	0.0026	15	7
0.0727	0.0556	0.0171	16	7
0.118	0.0556	0.0624	17	7
0.0808	0.0958	-0.015	17	8
0.0882	0.0958	-0.0076	17	9
0.072	0.0958	-0.0238	17	10
0.0582	0.0958	-0.0376	17	11
0.0727	0.0958	-0.0231	17	12
0.118	0.0958	0.0222	18	12
0.0882	0.0808	0.0074	19	12
0.072	0.0808	-0.0088	19	13
0.0582	0.0808	-0.0226	19	14
0.0727	0.0808	-0.0081	19	15
0.118	0.0808	0.0372	20	15
0.072	0.0882	-0.0162	20	16
0.0582	0.0882	-0.03	20	17
0.0727	0.0882	-0.0155	20	18
0.118	0.0882	0.0298	21	18
0.0582	0.072	-0.0138	21	19
0.0727	0.072	0.0007	22	19

0.118	0.072	0.046	23	19
0.0727	0.0582	0.0145	24	19
0.118	0.0582	0.0598	25	19
0.118	0.0727	0.0453	26	19

S Statistic = 26 - 19 = 7
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |7| is 0.6
0.6 >= 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
0.499	0.384	0.115	1	0
0.215	0.384	-0.169	1	1
0.228	0.384	-0.156	1	2
0.264	0.384	-0.12	1	3
0.229	0.384	-0.155	1	4
0.295	0.384	-0.089	1	5
0.282	0.384	-0.102	1	6
0.32	0.384	-0.064	1	7
0.325	0.384	-0.059	1	8
0.215	0.499	-0.284	1	9
0.228	0.499	-0.271	1	10
0.264	0.499	-0.235	1	11
0.229	0.499	-0.27	1	12
0.295	0.499	-0.204	1	13
0.282	0.499	-0.217	1	14
0.32	0.499	-0.179	1	15
0.325	0.499	-0.174	1	16
0.228	0.215	0.013	2	16
0.264	0.215	0.049	3	16
0.229	0.215	0.014	4	16
0.295	0.215	0.08	5	16
0.282	0.215	0.067	6	16
0.32	0.215	0.105	7	16
0.325	0.215	0.11	8	16
0.264	0.228	0.036	9	16
0.229	0.228	0.001	10	16
0.295	0.228	0.067	11	16
0.282	0.228	0.054	12	16
0.32	0.228	0.092	13	16
0.325	0.228	0.097	14	16
0.229	0.264	-0.035	14	17
0.295	0.264	0.031	15	17
0.282	0.264	0.018	16	17
0.32	0.264	0.056	17	17
0.325	0.264	0.061	18	17
0.295	0.229	0.066	19	17
0.282	0.229	0.053	20	17
0.32	0.229	0.091	21	17
0.325	0.229	0.096	22	17
0.282	0.295	-0.013	22	18
0.32	0.295	0.025	23	18

0.325	0.295	0.03	24	18
0.32	0.282	0.038	25	18
0.325	0.282	0.043	26	18
0.325	0.32	0.005	27	18

S Statistic = 27 - 18 = 9
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |9| is 0.484
0.484 >= 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
0.112	0.0942	0.0178	1	0
0.125	0.0942	0.0308	2	0
0.133	0.0942	0.0388	3	0
0.12	0.0942	0.0258	4	0
0.188	0.0942	0.0938	5	0
0.125	0.0942	0.0308	6	0
0.129	0.0942	0.0348	7	0
0.125	0.0942	0.0308	8	0
0.135	0.0942	0.0408	9	0
0.125	0.112	0.013	10	0
0.133	0.112	0.021	11	0
0.12	0.112	0.008	12	0
0.188	0.112	0.076	13	0
0.125	0.112	0.013	14	0
0.129	0.112	0.017	15	0
0.125	0.112	0.013	16	0
0.135	0.112	0.023	17	0
0.133	0.125	0.008	18	0
0.12	0.125	-0.005	18	1
0.188	0.125	0.063	19	1
0.125	0.125	0	19	1
0.129	0.125	0.004	20	1
0.125	0.125	0	20	1
0.135	0.125	0.01	21	1
0.12	0.133	-0.013	21	2
0.188	0.133	0.055	22	2
0.125	0.133	-0.008	22	3
0.129	0.133	-0.004	22	4
0.125	0.133	-0.008	22	5
0.135	0.133	0.002	23	5
0.188	0.12	0.068	24	5
0.125	0.12	0.005	25	5
0.129	0.12	0.009	26	5
0.125	0.12	0.005	27	5
0.135	0.12	0.015	28	5
0.125	0.188	-0.063	28	6
0.129	0.188	-0.059	28	7
0.125	0.188	-0.063	28	8
0.135	0.188	-0.053	28	9
0.129	0.125	0.004	29	9
0.125	0.125	0	29	9

0.135	0.125	0.01	30	9
0.125	0.129	-0.004	30	10
0.135	0.129	0.006	31	10
0.135	0.125	0.01	32	10

S Statistic = 32 - 10 = 22
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |22| is 0.059
0.059 >= 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
0.0902	0.103	-0.0128	0	1
0.152	0.103	0.049	1	1
0.144	0.103	0.041	2	1
0.0972	0.103	-0.0058	2	2
0.0877	0.103	-0.0153	2	3
0.126	0.103	0.023	3	3
0.0965	0.103	-0.0065	3	4
0.0775	0.103	-0.0255	3	5
0.0955	0.103	-0.0075	3	6
0.152	0.0902	0.0618	4	6
0.144	0.0902	0.0538	5	6
0.0972	0.0902	0.007	6	6
0.0877	0.0902	-0.0025	6	7
0.126	0.0902	0.0358	7	7
0.0965	0.0902	0.0063	8	7
0.0775	0.0902	-0.0127	8	8
0.0955	0.0902	0.0053	9	8
0.144	0.152	-0.008	9	9
0.0972	0.152	-0.0548	9	10
0.0877	0.152	-0.0643	9	11
0.126	0.152	-0.026	9	12
0.0965	0.152	-0.0555	9	13
0.0775	0.152	-0.0745	9	14
0.0955	0.152	-0.0565	9	15
0.0972	0.144	-0.0468	9	16
0.0877	0.144	-0.0563	9	17
0.126	0.144	-0.018	9	18
0.0965	0.144	-0.0475	9	19
0.0775	0.144	-0.0665	9	20
0.0955	0.144	-0.0485	9	21
0.0877	0.0972	-0.0095	9	22
0.126	0.0972	0.0288	10	22
0.0965	0.0972	-0.0007	10	23
0.0775	0.0972	-0.0197	10	24
0.0955	0.0972	-0.0017	10	25
0.126	0.0877	0.0383	11	25
0.0965	0.0877	0.0088	12	25
0.0775	0.0877	-0.0102	12	26
0.0955	0.0877	0.0078	13	26
0.0965	0.126	-0.0295	13	27
0.0775	0.126	-0.0485	13	28

0.0955	0.126	-0.0305	13	29
0.0775	0.0965	-0.019	13	30
0.0955	0.0965	-0.001	13	31
0.0955	0.0775	0.018	14	31

S Statistic = 14 - 31 = -17
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-17| is 0.156
0.156 >= 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
0.166	ND<0.2	-0.034	0	1
0.152	ND<0.2	-0.048	0	2
0.144	ND<0.2	-0.056	0	3
0.134	ND<0.2	-0.066	0	4
0.129	ND<0.2	-0.071	0	5
0.168	ND<0.2	-0.032	0	6
0.135	ND<0.2	-0.065	0	7
0.117	ND<0.2	-0.083	0	8
0.17	ND<0.2	-0.03	0	9
0.152	0.166	-0.014	0	10
0.144	0.166	-0.022	0	11
0.134	0.166	-0.032	0	12
0.129	0.166	-0.037	0	13
0.168	0.166	0.002	1	13
0.135	0.166	-0.031	1	14
0.117	0.166	-0.049	1	15
0.17	0.166	0.004	2	15
0.144	0.152	-0.008	2	16
0.134	0.152	-0.018	2	17
0.129	0.152	-0.023	2	18
0.168	0.152	0.016	3	18
0.135	0.152	-0.017	3	19
0.117	0.152	-0.035	3	20
0.17	0.152	0.018	4	20
0.134	0.144	-0.01	4	21
0.129	0.144	-0.015	4	22
0.168	0.144	0.024	5	22
0.135	0.144	-0.009	5	23
0.117	0.144	-0.027	5	24
0.17	0.144	0.026	6	24
0.129	0.134	-0.005	6	25
0.168	0.134	0.034	7	25
0.135	0.134	0.001	8	25
0.117	0.134	-0.017	8	26
0.17	0.134	0.036	9	26
0.168	0.129	0.039	10	26
0.135	0.129	0.006	11	26
0.117	0.129	-0.012	11	27
0.17	0.129	0.041	12	27
0.135	0.168	-0.033	12	28
0.117	0.168	-0.051	12	29

0.17	0.168	0.002	13	29
0.117	0.135	-0.018	13	30
0.17	0.135	0.035	14	30
0.17	0.117	0.053	15	30

S Statistic = 15 - 30 = -15
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-15| is 0.216
0.216 >= 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Boron
Location: MW2
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
0.119	ND<0.2	-0.081	0	1
ND<0.1	ND<0.2	-0.1	0	2
ND<0.1	ND<0.2	-0.1	0	3
ND<0.1	ND<0.2	-0.1	0	4
ND<0.1	ND<0.2	-0.1	0	5
ND<0.1	ND<0.2	-0.1	0	6
ND<0.1	ND<0.2	-0.1	0	7
ND<0.1	ND<0.2	-0.1	0	8
ND<0.1	ND<0.2	-0.1	0	9
ND<0.1	0.119	-0.019	0	10
ND<0.1	0.119	-0.019	0	11
ND<0.1	0.119	-0.019	0	12
ND<0.1	0.119	-0.019	0	13
ND<0.1	0.119	-0.019	0	14
ND<0.1	0.119	-0.019	0	15
ND<0.1	0.119	-0.019	0	16
ND<0.1	0.119	-0.019	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17

ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17
ND<0.1	ND<0.1	0	0	17

S Statistic = 0 - 17 = -17
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-17| is 0.156
0.156 >= 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis
Parameter: Boron
Location: MW4
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.1	ND<0.2	-0.1	0	1
ND<0.1	ND<0.2	-0.1	0	2
ND<0.1	ND<0.2	-0.1	0	3
0.106	ND<0.2	-0.094	0	4
ND<0.1	ND<0.2	-0.1	0	5
ND<0.1	ND<0.2	-0.1	0	6
ND<0.1	ND<0.2	-0.1	0	7
ND<0.1	ND<0.2	-0.1	0	8
ND<0.1	ND<0.2	-0.1	0	9
ND<0.1	ND<0.1	0	0	9
ND<0.1	ND<0.1	0	0	9
0.106	ND<0.1	0.006	1	9
ND<0.1	ND<0.1	0	1	9
ND<0.1	ND<0.1	0	1	9
ND<0.1	ND<0.1	0	1	9
ND<0.1	ND<0.1	0	1	9
ND<0.1	ND<0.1	0	1	9
ND<0.1	ND<0.1	0	1	9
0.106	ND<0.1	0.006	2	9
ND<0.1	ND<0.1	0	2	9
ND<0.1	ND<0.1	0	2	9
ND<0.1	ND<0.1	0	2	9
ND<0.1	ND<0.1	0	2	9
ND<0.1	ND<0.1	0	2	9
0.106	ND<0.1	0.006	3	9
ND<0.1	ND<0.1	0	3	9
ND<0.1	ND<0.1	0	3	9
ND<0.1	ND<0.1	0	3	9
ND<0.1	ND<0.1	0	3	9
ND<0.1	ND<0.1	0	3	9
ND<0.1	0.106	-0.006	3	10
ND<0.1	0.106	-0.006	3	11
ND<0.1	0.106	-0.006	3	12
ND<0.1	0.106	-0.006	3	13
ND<0.1	0.106	-0.006	3	14
ND<0.1	ND<0.1	0	3	14
ND<0.1	ND<0.1	0	3	14
ND<0.1	ND<0.1	0	3	14
ND<0.1	ND<0.1	0	3	14
ND<0.1	ND<0.1	0	3	14
ND<0.1	ND<0.1	0	3	14

ND<0.1	ND<0.1	0	3	14
ND<0.1	ND<0.1	0	3	14
ND<0.1	ND<0.1	0	3	14
ND<0.1	ND<0.1	0	3	14

S Statistic = 3 - 14 = -11
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-11| is 0.38
0.38 >= 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
0.179	ND<0.2	-0.021	0	1
0.2	ND<0.2	0	0	1
0.181	ND<0.2	-0.019	0	2
0.177	ND<0.2	-0.023	0	3
0.182	ND<0.2	-0.018	0	4
0.23	ND<0.2	0.03	1	4
0.191	ND<0.2	-0.009	1	5
0.188	ND<0.2	-0.012	1	6
0.213	ND<0.2	0.013	2	6
0.2	0.179	0.021	3	6
0.181	0.179	0.002	4	6
0.177	0.179	-0.002	4	7
0.182	0.179	0.003	5	7
0.23	0.179	0.051	6	7
0.191	0.179	0.012	7	7
0.188	0.179	0.009	8	7
0.213	0.179	0.034	9	7
0.181	0.2	-0.019	9	8
0.177	0.2	-0.023	9	9
0.182	0.2	-0.018	9	10
0.23	0.2	0.03	10	10
0.191	0.2	-0.009	10	11
0.188	0.2	-0.012	10	12
0.213	0.2	0.013	11	12
0.177	0.181	-0.004	11	13
0.182	0.181	0.001	12	13
0.23	0.181	0.049	13	13
0.191	0.181	0.01	14	13
0.188	0.181	0.007	15	13
0.213	0.181	0.032	16	13
0.182	0.177	0.005	17	13
0.23	0.177	0.053	18	13
0.191	0.177	0.014	19	13
0.188	0.177	0.011	20	13
0.213	0.177	0.036	21	13
0.23	0.182	0.048	22	13
0.191	0.182	0.009	23	13
0.188	0.182	0.006	24	13
0.213	0.182	0.031	25	13
0.191	0.23	-0.039	25	14
0.188	0.23	-0.042	25	15

0.213	0.23	-0.017	25	16
0.188	0.191	-0.003	25	17
0.213	0.191	0.022	26	17
0.213	0.188	0.025	27	17

S Statistic = 27 - 17 = 10
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |10| is 0.432
0.432 >= 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis
Parameter: Cadmium
Location: MW1
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.0001	ND<0.0001	0	0	0
0.000111	ND<0.0001	1.1e-005	1	0
ND<0.0001	ND<0.0001	0	1	0
ND<0.0001	ND<0.0001	0	1	0
ND<0.0001	ND<0.0001	0	1	0
ND<0.0001	ND<0.0001	0	1	0
ND<0.0001	ND<0.0001	0	1	0
ND<0.0002	ND<0.0001	0.0001	2	0
ND<0.0002	ND<0.0001	0.0001	3	0
0.000111	ND<0.0001	1.1e-005	4	0
ND<0.0001	ND<0.0001	0	4	0
ND<0.0001	ND<0.0001	0	4	0
ND<0.0001	ND<0.0001	0	4	0
ND<0.0001	ND<0.0001	0	4	0
ND<0.0001	ND<0.0001	0	4	0
ND<0.0002	ND<0.0001	0.0001	5	0
ND<0.0002	ND<0.0001	0.0001	6	0
ND<0.0001	0.000111	-1.1e-005	6	1
ND<0.0001	0.000111	-1.1e-005	6	2
ND<0.0001	0.000111	-1.1e-005	6	3
ND<0.0001	0.000111	-1.1e-005	6	4
ND<0.0001	0.000111	-1.1e-005	6	5
ND<0.0002	0.000111	8.9e-005	7	5
ND<0.0002	0.000111	8.9e-005	8	5
ND<0.0001	ND<0.0001	0	8	5
ND<0.0001	ND<0.0001	0	8	5
ND<0.0001	ND<0.0001	0	8	5
ND<0.0001	ND<0.0001	0	8	5
ND<0.0002	ND<0.0001	0.0001	9	5
ND<0.0002	ND<0.0001	0.0001	10	5
ND<0.0001	ND<0.0001	0	10	5
ND<0.0001	ND<0.0001	0	10	5
ND<0.0001	ND<0.0001	0	10	5
ND<0.0002	ND<0.0001	0.0001	11	5
ND<0.0002	ND<0.0001	0.0001	12	5
ND<0.0001	ND<0.0001	0	12	5
ND<0.0001	ND<0.0001	0	12	5
ND<0.0002	ND<0.0001	0.0001	13	5
ND<0.0002	ND<0.0001	0.0001	14	5
ND<0.0001	ND<0.0001	0	14	5
ND<0.0002	ND<0.0001	0.0001	15	5

ND<0.0002	ND<0.0001	0.0001	16	5
ND<0.0002	ND<0.0001	0.0001	17	5
ND<0.0002	ND<0.0001	0.0001	18	5
ND<0.0002	ND<0.0002	0	18	5

S Statistic = 18 - 5 = 13
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |13| is 0.292
0.292 >= 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
7.37	5.75	1.62	1	0
7.3	5.75	1.55	2	0
8.59	5.75	2.84	3	0
10.1	5.75	4.35	4	0
7.45	5.75	1.7	5	0
6.25	5.75	0.5	6	0
6.86	5.75	1.11	7	0
ND<5	5.75	-0.75	7	1
6.38	5.75	0.63	8	1
7.3	7.37	-0.07	8	2
8.59	7.37	1.22	9	2
10.1	7.37	2.73	10	2
7.45	7.37	0.08	11	2
6.25	7.37	-1.12	11	3
6.86	7.37	-0.51	11	4
ND<5	7.37	-2.37	11	5
6.38	7.37	-0.99	11	6
8.59	7.3	1.29	12	6
10.1	7.3	2.8	13	6
7.45	7.3	0.15	14	6
6.25	7.3	-1.05	14	7
6.86	7.3	-0.44	14	8
ND<5	7.3	-2.3	14	9
6.38	7.3	-0.92	14	10
10.1	8.59	1.51	15	10
7.45	8.59	-1.14	15	11
6.25	8.59	-2.34	15	12
6.86	8.59	-1.73	15	13
ND<5	8.59	-3.59	15	14
6.38	8.59	-2.21	15	15
7.45	10.1	-2.65	15	16
6.25	10.1	-3.85	15	17
6.86	10.1	-3.24	15	18
ND<5	10.1	-5.1	15	19
6.38	10.1	-3.72	15	20
6.25	7.45	-1.2	15	21
6.86	7.45	-0.59	15	22
ND<5	7.45	-2.45	15	23
6.38	7.45	-1.07	15	24
6.86	6.25	0.61	16	24
ND<5	6.25	-1.25	16	25

6.38	6.25	0.13	17	25
ND<5	6.86	-1.86	17	26
6.38	6.86	-0.48	17	27
6.38	ND<5	1.38	18	27

S Statistic = 18 - 27 = -9
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-9| is 0.484
0.484 >= 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	71	-66	0	1
ND<5	71	-66	0	2
34.4	71	-36.6	0	3
5.66	71	-65.34	0	4
ND<5	71	-66	0	5
ND<5	71	-66	0	6
ND<5	71	-66	0	7
ND<5	71	-66	0	8
5.99	71	-65.01	0	9
ND<5	ND<5	0	0	9
34.4	ND<5	29.4	1	9
5.66	ND<5	0.66	2	9
ND<5	ND<5	0	2	9
ND<5	ND<5	0	2	9
ND<5	ND<5	0	2	9
ND<5	ND<5	0	2	9
5.99	ND<5	0.99	3	9
34.4	ND<5	29.4	4	9
5.66	ND<5	0.66	5	9
ND<5	ND<5	0	5	9
ND<5	ND<5	0	5	9
ND<5	ND<5	0	5	9
ND<5	ND<5	0	5	9
5.99	ND<5	0.99	6	9
5.66	34.4	-28.74	6	10
ND<5	34.4	-29.4	6	11
ND<5	34.4	-29.4	6	12
ND<5	34.4	-29.4	6	13
ND<5	34.4	-29.4	6	14
5.99	34.4	-28.41	6	15
ND<5	5.66	-0.66	6	16
ND<5	5.66	-0.66	6	17
ND<5	5.66	-0.66	6	18
ND<5	5.66	-0.66	6	19
5.99	5.66	0.33	7	19
ND<5	ND<5	0	7	19
ND<5	ND<5	0	7	19
ND<5	ND<5	0	7	19
5.99	ND<5	0.99	8	19
ND<5	ND<5	0	8	19
ND<5	ND<5	0	8	19

5.99	ND<5	0.99	9	19
ND<5	ND<5	0	9	19
5.99	ND<5	0.99	10	19
5.99	ND<5	0.99	11	19

S Statistic = 11 - 19 = -8
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-8| is 0.542
0.542 >= 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
ND<5	ND<5	0	0	0
24.9	ND<5	19.9	1	0
21.6	ND<5	16.6	2	0
23.5	ND<5	18.5	3	0
48.3	ND<5	43.3	4	0
60.4	ND<5	55.4	5	0
61.4	ND<5	56.4	6	0
136	ND<5	131	7	0
107	ND<5	102	8	0
24.9	ND<5	19.9	9	0
21.6	ND<5	16.6	10	0
23.5	ND<5	18.5	11	0
48.3	ND<5	43.3	12	0
60.4	ND<5	55.4	13	0
61.4	ND<5	56.4	14	0
136	ND<5	131	15	0
107	ND<5	102	16	0
21.6	24.9	-3.3	16	1
23.5	24.9	-1.4	16	2
48.3	24.9	23.4	17	2
60.4	24.9	35.5	18	2
61.4	24.9	36.5	19	2
136	24.9	111.1	20	2
107	24.9	82.1	21	2
23.5	21.6	1.9	22	2
48.3	21.6	26.7	23	2
60.4	21.6	38.8	24	2
61.4	21.6	39.8	25	2
136	21.6	114.4	26	2
107	21.6	85.4	27	2
48.3	23.5	24.8	28	2
60.4	23.5	36.9	29	2
61.4	23.5	37.9	30	2
136	23.5	112.5	31	2
107	23.5	83.5	32	2
60.4	48.3	12.1	33	2
61.4	48.3	13.1	34	2
136	48.3	87.7	35	2
107	48.3	58.7	36	2
61.4	60.4	1	37	2
136	60.4	75.6	38	2

107	60.4	46.6	39	2
136	61.4	74.6	40	2
107	61.4	45.6	41	2
107	136	-29	41	3

S Statistic = 41 - 3 = 38
Comparing at 95% confidence level (upward trend)
Probability of obtaining S >= 38 is 0.000119
S > 0 and 0.000119 < 0.05 indicating an upward 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	ND<0.0005	0	0	0
ND<0.0005	ND<0.0005	0	0	0
ND<0.0005	ND<0.0005	0	0	0
0.00117	ND<0.0005	0.00067	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
0.00117	ND<0.0005	0.00067	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
0.00117	ND<0.0005	0.00067	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
ND<0.0005	ND<0.0005	0	3	0
0.00117	ND<0.0005	0.00067	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	ND<0.0005	0	4	0
ND<0.0005	ND<0.0005	0	4	0
ND<0.0005	0.00117	-0.00067	4	1
ND<0.0005	0.00117	-0.00067	4	2
ND<0.0005	0.00117	-0.00067	4	3
ND<0.0005	0.00117	-0.00067	4	4
ND<0.0005	0.00117	-0.00067	4	5
ND<0.0005	ND<0.0005	0	4	5
ND<0.0005	ND<0.0005	0	4	5
ND<0.0005	ND<0.0005	0	4	5
ND<0.0005	ND<0.0005	0	4	5
ND<0.0005	ND<0.0005	0	4	5
ND<0.0005	ND<0.0005	0	4	5

ND<0.0005	ND<0.0005	0	4	5
ND<0.0005	ND<0.0005	0	4	5
ND<0.0005	ND<0.0005	0	4	5
ND<0.0005	ND<0.0005	0	4	5

S Statistic = 4 - 5 = -1
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-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
0.0275	0.00141	0.02609	1	0
ND<0.0005	0.00141	-0.00091	1	1
0.000725	0.00141	-0.000685	1	2
ND<0.0005	0.00141	-0.00091	1	3
0.00404	0.00141	0.00263	2	3
0.00254	0.00141	0.00113	3	3
0.000769	0.00141	-0.000641	3	4
0.00109	0.00141	-0.00032	3	5
ND<0.0005	0.00141	-0.00091	3	6
ND<0.0005	0.0275	-0.027	3	7
0.000725	0.0275	-0.026775	3	8
ND<0.0005	0.0275	-0.027	3	9
0.00404	0.0275	-0.02346	3	10
0.00254	0.0275	-0.02496	3	11
0.000769	0.0275	-0.026731	3	12
0.00109	0.0275	-0.02641	3	13
ND<0.0005	0.0275	-0.027	3	14
0.000725	ND<0.0005	0.000225	4	14
ND<0.0005	ND<0.0005	0	4	14
0.00404	ND<0.0005	0.00354	5	14
0.00254	ND<0.0005	0.00204	6	14
0.000769	ND<0.0005	0.000269	7	14
0.00109	ND<0.0005	0.00059	8	14
ND<0.0005	ND<0.0005	0	8	14
ND<0.0005	0.000725	-0.000225	8	15
0.00404	0.000725	0.003315	9	15
0.00254	0.000725	0.001815	10	15
0.000769	0.000725	4.4e-005	11	15
0.00109	0.000725	0.000365	12	15
ND<0.0005	0.000725	-0.000225	12	16
0.00404	ND<0.0005	0.00354	13	16
0.00254	ND<0.0005	0.00204	14	16
0.000769	ND<0.0005	0.000269	15	16
0.00109	ND<0.0005	0.00059	16	16
ND<0.0005	ND<0.0005	0	16	16
0.00254	0.00404	-0.0015	16	17
0.000769	0.00404	-0.003271	16	18
0.00109	0.00404	-0.00295	16	19
ND<0.0005	0.00404	-0.00354	16	20
0.000769	0.00254	-0.001771	16	21
0.00109	0.00254	-0.00145	16	22

ND<0.0005	0.00254	-0.00204	16	23
0.00109	0.000769	0.000321	17	23
ND<0.0005	0.000769	-0.000269	17	24
ND<0.0005	0.00109	-0.00059	17	25

S Statistic = 17 - 25 = -8
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-8| is 0.542
0.542 >= 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
0.00159	ND<0.0005	0.00109	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	0.00159	-0.00109	2	1
ND<0.0005	0.00159	-0.00109	2	2
ND<0.0005	0.00159	-0.00109	2	3
ND<0.0005	0.00159	-0.00109	2	4
ND<0.0005	0.00159	-0.00109	2	5
ND<0.0005	0.00159	-0.00109	2	6
0.000731	0.00159	-0.000859	2	7
ND<0.0005	0.00159	-0.00109	2	8
ND<0.0005	ND<0.0005	0	2	8
ND<0.0005	ND<0.0005	0	2	8
ND<0.0005	ND<0.0005	0	2	8
ND<0.0005	ND<0.0005	0	2	8
ND<0.0005	ND<0.0005	0	2	8
0.000731	ND<0.0005	0.000231	3	8
ND<0.0005	ND<0.0005	0	3	8
ND<0.0005	ND<0.0005	0	3	8
ND<0.0005	ND<0.0005	0	3	8
ND<0.0005	ND<0.0005	0	3	8
ND<0.0005	ND<0.0005	0	3	8
0.000731	ND<0.0005	0.000231	4	8
ND<0.0005	ND<0.0005	0	4	8
ND<0.0005	ND<0.0005	0	4	8
ND<0.0005	ND<0.0005	0	4	8
ND<0.0005	ND<0.0005	0	4	8
0.000731	ND<0.0005	0.000231	5	8
ND<0.0005	ND<0.0005	0	5	8
ND<0.0005	ND<0.0005	0	5	8
ND<0.0005	ND<0.0005	0	5	8
0.000731	ND<0.0005	0.000231	6	8
ND<0.0005	ND<0.0005	0	6	8
ND<0.0005	ND<0.0005	0	6	8
0.000731	ND<0.0005	0.000231	7	8

ND<0.0005	ND<0.0005	0	7	8
0.000731	ND<0.0005	0.000231	8	8
ND<0.0005	ND<0.0005	0	8	8
ND<0.0005	0.000731	-0.000231	8	9

S Statistic = 8 - 9 = -1
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-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
0.00145	ND<0.0005	0.00095	1	0
0.00572	ND<0.0005	0.00522	2	0
0.00728	ND<0.0005	0.00678	3	0
0.00102	ND<0.0005	0.00052	4	0
0.000795	ND<0.0005	0.000295	5	0
ND<0.0005	ND<0.0005	0	5	0
0.00209	ND<0.0005	0.00159	6	0
ND<0.0005	ND<0.0005	0	6	0
0.00121	ND<0.0005	0.00071	7	0
0.00572	0.00145	0.00427	8	0
0.00728	0.00145	0.00583	9	0
0.00102	0.00145	-0.00043	9	1
0.000795	0.00145	-0.000655	9	2
ND<0.0005	0.00145	-0.00095	9	3
0.00209	0.00145	0.00064	10	3
ND<0.0005	0.00145	-0.00095	10	4
0.00121	0.00145	-0.00024	10	5
0.00728	0.00572	0.00156	11	5
0.00102	0.00572	-0.0047	11	6
0.000795	0.00572	-0.004925	11	7
ND<0.0005	0.00572	-0.00522	11	8
0.00209	0.00572	-0.00363	11	9
ND<0.0005	0.00572	-0.00522	11	10
0.00121	0.00572	-0.00451	11	11
0.00102	0.00728	-0.00626	11	12
0.000795	0.00728	-0.006485	11	13
ND<0.0005	0.00728	-0.00678	11	14
0.00209	0.00728	-0.00519	11	15
ND<0.0005	0.00728	-0.00678	11	16
0.00121	0.00728	-0.00607	11	17
0.000795	0.00102	-0.000225	11	18
ND<0.0005	0.00102	-0.00052	11	19
0.00209	0.00102	0.00107	12	19
ND<0.0005	0.00102	-0.00052	12	20
0.00121	0.00102	0.00019	13	20
ND<0.0005	0.000795	-0.000295	13	21
0.00209	0.000795	0.001295	14	21
ND<0.0005	0.000795	-0.000295	14	22
0.00121	0.000795	0.000415	15	22
0.00209	ND<0.0005	0.00159	16	22
ND<0.0005	ND<0.0005	0	16	22

0.00121	ND<0.0005	0.00071	17	22
ND<0.0005	0.00209	-0.00159	17	23
0.00121	0.00209	-0.00088	17	24
0.00121	ND<0.0005	0.00071	18	24

S Statistic = 18 - 24 = -6
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-6| is 0.664
0.664 >= 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
0.000735	ND<0.0005	0.000235	1	0
0.00212	ND<0.0005	0.00162	2	0
0.00103	ND<0.0005	0.00053	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
ND<0.0005	ND<0.0005	0	3	0
ND<0.0005	ND<0.0005	0	3	0
0.00212	0.000735	0.001385	4	0
0.00103	0.000735	0.000295	5	0
ND<0.0005	0.000735	-0.000235	5	1
ND<0.0005	0.000735	-0.000235	5	2
ND<0.0005	0.000735	-0.000235	5	3
ND<0.0005	0.000735	-0.000235	5	4
ND<0.0005	0.000735	-0.000235	5	5
ND<0.0005	0.000735	-0.000235	5	6
0.00103	0.00212	-0.00109	5	7
ND<0.0005	0.00212	-0.00162	5	8
ND<0.0005	0.00212	-0.00162	5	9
ND<0.0005	0.00212	-0.00162	5	10
ND<0.0005	0.00212	-0.00162	5	11
ND<0.0005	0.00212	-0.00162	5	12
ND<0.0005	0.00212	-0.00162	5	13
ND<0.0005	0.00103	-0.00053	5	14
ND<0.0005	0.00103	-0.00053	5	15
ND<0.0005	0.00103	-0.00053	5	16
ND<0.0005	0.00103	-0.00053	5	17
ND<0.0005	0.00103	-0.00053	5	18
ND<0.0005	0.00103	-0.00053	5	19
ND<0.0005	ND<0.0005	0	5	19
ND<0.0005	ND<0.0005	0	5	19
ND<0.0005	ND<0.0005	0	5	19
ND<0.0005	ND<0.0005	0	5	19
ND<0.0005	ND<0.0005	0	5	19
ND<0.0005	ND<0.0005	0	5	19
ND<0.0005	ND<0.0005	0	5	19
ND<0.0005	ND<0.0005	0	5	19
ND<0.0005	ND<0.0005	0	5	19
ND<0.0005	ND<0.0005	0	5	19
ND<0.0005	ND<0.0005	0	5	19

ND<0.0005	ND<0.0005	0	5	19
ND<0.0005	ND<0.0005	0	5	19
ND<0.0005	ND<0.0005	0	5	19
ND<0.0005	ND<0.0005	0	5	19

S Statistic = 5 - 19 = -14
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-14| is 0.254
0.254 >= 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Iron
Location: MW5
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.1	ND<0.1	0	0	0
0.894	ND<0.1	0.794	1	0
ND<0.1	ND<0.1	0	1	0
ND<0.1	ND<0.1	0	1	0
ND<0.1	ND<0.1	0	1	0
ND<0.1	ND<0.1	0	1	0
ND<0.1	ND<0.1	0	1	0
ND<0.1	ND<0.1	0	1	0
ND<0.1	ND<0.1	0	1	0
0.894	ND<0.1	0.794	2	0
ND<0.1	ND<0.1	0	2	0
ND<0.1	ND<0.1	0	2	0
ND<0.1	ND<0.1	0	2	0
ND<0.1	ND<0.1	0	2	0
ND<0.1	ND<0.1	0	2	0
ND<0.1	ND<0.1	0	2	0
ND<0.1	ND<0.1	0	2	0
ND<0.1	0.894	-0.794	2	1
ND<0.1	0.894	-0.794	2	2
ND<0.1	0.894	-0.794	2	3
ND<0.1	0.894	-0.794	2	4
ND<0.1	0.894	-0.794	2	5
ND<0.1	0.894	-0.794	2	6
ND<0.1	0.894	-0.794	2	7
ND<0.1	ND<0.1	0	2	7
ND<0.1	ND<0.1	0	2	7
ND<0.1	ND<0.1	0	2	7
ND<0.1	ND<0.1	0	2	7
ND<0.1	ND<0.1	0	2	7
ND<0.1	ND<0.1	0	2	7
ND<0.1	ND<0.1	0	2	7
ND<0.1	ND<0.1	0	2	7
ND<0.1	ND<0.1	0	2	7
ND<0.1	ND<0.1	0	2	7
ND<0.1	ND<0.1	0	2	7
ND<0.1	ND<0.1	0	2	7
ND<0.1	ND<0.1	0	2	7
ND<0.1	ND<0.1	0	2	7
ND<0.1	ND<0.1	0	2	7
ND<0.1	ND<0.1	0	2	7
ND<0.1	ND<0.1	0	2	7

ND<0.1	ND<0.1	0	2	7
ND<0.1	ND<0.1	0	2	7
ND<0.1	ND<0.1	0	2	7
ND<0.1	ND<0.1	0	2	7

S Statistic = 2 - 7 = -5
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-5| is 0.728
0.728 >= 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	ND<0.5	0	0	0
ND<0.5	ND<0.5	0	0	0
ND<0.5	ND<0.5	0	0	0
0.709	ND<0.5	0.209	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
ND<1	ND<0.5	0.5	2	0
ND<1	ND<0.5	0.5	3	0
ND<0.5	ND<0.5	0	3	0
ND<0.5	ND<0.5	0	3	0
0.709	ND<0.5	0.209	4	0
ND<0.5	ND<0.5	0	4	0
ND<0.5	ND<0.5	0	4	0
ND<0.5	ND<0.5	0	4	0
ND<1	ND<0.5	0.5	5	0
ND<1	ND<0.5	0.5	6	0
ND<0.5	ND<0.5	0	6	0
0.709	ND<0.5	0.209	7	0
ND<0.5	ND<0.5	0	7	0
ND<0.5	ND<0.5	0	7	0
ND<0.5	ND<0.5	0	7	0
ND<1	ND<0.5	0.5	8	0
ND<1	ND<0.5	0.5	9	0
0.709	ND<0.5	0.209	10	0
ND<0.5	ND<0.5	0	10	0
ND<0.5	ND<0.5	0	10	0
ND<0.5	ND<0.5	0	10	0
ND<1	ND<0.5	0.5	11	0
ND<1	ND<0.5	0.5	12	0
ND<0.5	0.709	-0.209	12	1
ND<0.5	0.709	-0.209	12	2
ND<0.5	0.709	-0.209	12	3
ND<1	0.709	0.291	13	3
ND<1	0.709	0.291	14	3
ND<0.5	ND<0.5	0	14	3
ND<0.5	ND<0.5	0	14	3
ND<1	ND<0.5	0.5	15	3
ND<1	ND<0.5	0.5	16	3
ND<0.5	ND<0.5	0	16	3
ND<1	ND<0.5	0.5	17	3

ND<1	ND<0.5	0.5	18	3
ND<1	ND<0.5	0.5	19	3
ND<1	ND<0.5	0.5	20	3
ND<1	ND<1	0	20	3

S Statistic = 20 - 3 = 17
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |17| is 0.156
0.156 >= 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
0.71	0.884	-0.174	0	1
0.504	0.884	-0.38	0	2
0.64	0.884	-0.244	0	3
0.636	0.884	-0.248	0	4
ND<0.5	0.884	-0.384	0	5
ND<0.5	0.884	-0.384	0	6
0.713	0.884	-0.171	0	7
ND<1	0.884	0.116	1	7
ND<1	0.884	0.116	2	7
0.504	0.71	-0.206	2	8
0.64	0.71	-0.07	2	9
0.636	0.71	-0.074	2	10
ND<0.5	0.71	-0.21	2	11
ND<0.5	0.71	-0.21	2	12
0.713	0.71	0.003	3	12
ND<1	0.71	0.29	4	12
ND<1	0.71	0.29	5	12
0.64	0.504	0.136	6	12
0.636	0.504	0.132	7	12
ND<0.5	0.504	-0.004	7	13
ND<0.5	0.504	-0.004	7	14
0.713	0.504	0.209	8	14
ND<1	0.504	0.496	9	14
ND<1	0.504	0.496	10	14
0.636	0.64	-0.004	10	15
ND<0.5	0.64	-0.14	10	16
ND<0.5	0.64	-0.14	10	17
0.713	0.64	0.073	11	17
ND<1	0.64	0.36	12	17
ND<1	0.64	0.36	13	17
ND<0.5	0.636	-0.136	13	18
ND<0.5	0.636	-0.136	13	19
0.713	0.636	0.077	14	19
ND<1	0.636	0.364	15	19
ND<1	0.636	0.364	16	19
ND<0.5	ND<0.5	0	16	19
0.713	ND<0.5	0.213	17	19
ND<1	ND<0.5	0.5	18	19
ND<1	ND<0.5	0.5	19	19
0.713	ND<0.5	0.213	20	19
ND<1	ND<0.5	0.5	21	19

ND<1	ND<0.5	0.5	22	19
ND<1	0.713	0.287	23	19
ND<1	0.713	0.287	24	19
ND<1	ND<1	0	24	19

S Statistic = 24 - 19 = 5
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |5| is 0.728
0.728 >= 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	ND<0.5	0	0	0
ND<0.5	ND<0.5	0	0	0
ND<0.5	ND<0.5	0	0	0
1	ND<0.5	0.5	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
ND<1	ND<0.5	0.5	2	0
ND<1	ND<0.5	0.5	3	0
ND<0.5	ND<0.5	0	3	0
ND<0.5	ND<0.5	0	3	0
1	ND<0.5	0.5	4	0
ND<0.5	ND<0.5	0	4	0
ND<0.5	ND<0.5	0	4	0
ND<0.5	ND<0.5	0	4	0
ND<1	ND<0.5	0.5	5	0
ND<1	ND<0.5	0.5	6	0
ND<0.5	ND<0.5	0	6	0
1	ND<0.5	0.5	7	0
ND<0.5	ND<0.5	0	7	0
ND<0.5	ND<0.5	0	7	0
ND<0.5	ND<0.5	0	7	0
ND<1	ND<0.5	0.5	8	0
ND<1	ND<0.5	0.5	9	0
1	ND<0.5	0.5	10	0
ND<0.5	ND<0.5	0	10	0
ND<0.5	ND<0.5	0	10	0
ND<0.5	ND<0.5	0	10	0
ND<1	ND<0.5	0.5	11	0
ND<1	ND<0.5	0.5	12	0
ND<0.5	1	-0.5	12	1
ND<0.5	1	-0.5	12	2
ND<0.5	1	-0.5	12	3
ND<1	1	0	12	3
ND<1	1	0	12	3
ND<0.5	ND<0.5	0	12	3
ND<0.5	ND<0.5	0	12	3
ND<1	ND<0.5	0.5	13	3
ND<1	ND<0.5	0.5	14	3
ND<0.5	ND<0.5	0	14	3
ND<1	ND<0.5	0.5	15	3

ND<1	ND<0.5	0.5	16	3
ND<1	ND<0.5	0.5	17	3
ND<1	ND<0.5	0.5	18	3
ND<1	ND<1	0	18	3

S Statistic = 18 - 3 = 15
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |15| is 0.216
0.216 >= 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	ND<0.5	0	0	0
ND<0.5	ND<0.5	0	0	0
ND<0.5	ND<0.5	0	0	0
1.04	ND<0.5	0.54	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
ND<1	ND<0.5	0.5	2	0
ND<1	ND<0.5	0.5	3	0
ND<0.5	ND<0.5	0	3	0
ND<0.5	ND<0.5	0	3	0
1.04	ND<0.5	0.54	4	0
ND<0.5	ND<0.5	0	4	0
ND<0.5	ND<0.5	0	4	0
ND<0.5	ND<0.5	0	4	0
ND<1	ND<0.5	0.5	5	0
ND<1	ND<0.5	0.5	6	0
ND<0.5	ND<0.5	0	6	0
1.04	ND<0.5	0.54	7	0
ND<0.5	ND<0.5	0	7	0
ND<0.5	ND<0.5	0	7	0
ND<0.5	ND<0.5	0	7	0
ND<1	ND<0.5	0.5	8	0
ND<1	ND<0.5	0.5	9	0
1.04	ND<0.5	0.54	10	0
ND<0.5	ND<0.5	0	10	0
ND<0.5	ND<0.5	0	10	0
ND<0.5	ND<0.5	0	10	0
ND<1	ND<0.5	0.5	11	0
ND<1	ND<0.5	0.5	12	0
ND<0.5	1.04	-0.54	12	1
ND<0.5	1.04	-0.54	12	2
ND<0.5	1.04	-0.54	12	3
ND<1	1.04	-0.04	12	4
ND<1	1.04	-0.04	12	5
ND<0.5	ND<0.5	0	12	5
ND<0.5	ND<0.5	0	12	5
ND<1	ND<0.5	0.5	13	5
ND<1	ND<0.5	0.5	14	5
ND<0.5	ND<0.5	0	14	5
ND<1	ND<0.5	0.5	15	5

ND<1	ND<0.5	0.5	16	5
ND<1	ND<0.5	0.5	17	5
ND<1	ND<0.5	0.5	18	5
ND<1	ND<1	0	18	5

S Statistic = 18 - 5 = 13
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |13| is 0.292
0.292 >= 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
0.675	0.677	-0.002	0	1
0.63	0.677	-0.047	0	2
0.647	0.677	-0.03	0	3
1.45	0.677	0.773	1	3
ND<0.5	0.677	-0.177	1	4
0.721	0.677	0.044	2	4
ND<0.5	0.677	-0.177	2	5
ND<1	0.677	0.323	3	5
ND<1	0.677	0.323	4	5
0.63	0.675	-0.045	4	6
0.647	0.675	-0.028	4	7
1.45	0.675	0.775	5	7
ND<0.5	0.675	-0.175	5	8
0.721	0.675	0.046	6	8
ND<0.5	0.675	-0.175	6	9
ND<1	0.675	0.325	7	9
ND<1	0.675	0.325	8	9
0.647	0.63	0.017	9	9
1.45	0.63	0.82	10	9
ND<0.5	0.63	-0.13	10	10
0.721	0.63	0.091	11	10
ND<0.5	0.63	-0.13	11	11
ND<1	0.63	0.37	12	11
ND<1	0.63	0.37	13	11
1.45	0.647	0.803	14	11
ND<0.5	0.647	-0.147	14	12
0.721	0.647	0.074	15	12
ND<0.5	0.647	-0.147	15	13
ND<1	0.647	0.353	16	13
ND<1	0.647	0.353	17	13
ND<0.5	1.45	-0.95	17	14
0.721	1.45	-0.729	17	15
ND<0.5	1.45	-0.95	17	16
ND<1	1.45	-0.45	17	17
ND<1	1.45	-0.45	17	18
0.721	ND<0.5	0.221	18	18
ND<0.5	ND<0.5	0	18	18
ND<1	ND<0.5	0.5	19	18
ND<1	ND<0.5	0.5	20	18
ND<0.5	0.721	-0.221	20	19
ND<1	0.721	0.279	21	19

ND<1	0.721	0.279	22	19
ND<1	ND<0.5	0.5	23	19
ND<1	ND<0.5	0.5	24	19
ND<1	ND<1	0	24	19

S Statistic = 24 - 19 = 5
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |5| is 0.728
0.728 >= 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	28.7	-18.7	0	1
ND<10	28.7	-18.7	0	2
ND<10	28.7	-18.7	0	3
ND<10	28.7	-18.7	0	4
ND<10	28.7	-18.7	0	5
ND<10	28.7	-18.7	0	6
12	28.7	-16.7	0	7
ND<10	28.7	-18.7	0	8
ND<10	28.7	-18.7	0	9
ND<10	ND<10	0	0	9
ND<10	ND<10	0	0	9
ND<10	ND<10	0	0	9
ND<10	ND<10	0	0	9
ND<10	ND<10	0	0	9
12	ND<10	2	1	9
ND<10	ND<10	0	1	9
ND<10	ND<10	0	1	9
ND<10	ND<10	0	1	9
ND<10	ND<10	0	1	9
ND<10	ND<10	0	1	9
ND<10	ND<10	0	1	9
12	ND<10	2	2	9
ND<10	ND<10	0	2	9
ND<10	ND<10	0	2	9
ND<10	ND<10	0	2	9
ND<10	ND<10	0	2	9
ND<10	ND<10	0	2	9
12	ND<10	2	3	9
ND<10	ND<10	0	3	9
ND<10	ND<10	0	3	9
ND<10	ND<10	0	3	9
ND<10	ND<10	0	3	9
12	ND<10	2	4	9
ND<10	ND<10	0	4	9
ND<10	ND<10	0	4	9
ND<10	ND<10	0	4	9
12	ND<10	2	5	9
ND<10	ND<10	0	5	9
ND<10	ND<10	0	5	9
12	ND<10	2	6	9
ND<10	ND<10	0	6	9

ND<10	ND<10	0	6	9
ND<10	12	-2	6	10
ND<10	12	-2	6	11
ND<10	ND<10	0	6	11

S Statistic = 6 - 11 = -5
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-5| is 0.728
0.728 >= 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
ND<10	ND<10	0	0	0
ND<10	ND<10	0	0	0
ND<10	ND<10	0	0	0
ND<10	ND<10	0	0	0
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
ND<10	ND<10	0	2	0
55.4	ND<10	45.4	3	0
13.8	ND<10	3.8	4	0
ND<10	ND<10	0	4	0
ND<10	ND<10	0	4	0
ND<10	ND<10	0	4	0
ND<10	ND<10	0	4	0
ND<10	ND<10	0	4	0
55.4	ND<10	45.4	5	0
13.8	ND<10	3.8	6	0
ND<10	ND<10	0	6	0
ND<10	ND<10	0	6	0
ND<10	ND<10	0	6	0
ND<10	ND<10	0	6	0
55.4	ND<10	45.4	7	0
13.8	ND<10	3.8	8	0
ND<10	ND<10	0	8	0
ND<10	ND<10	0	8	0
ND<10	ND<10	0	8	0
55.4	ND<10	45.4	9	0
13.8	ND<10	3.8	10	0
ND<10	ND<10	0	10	0
ND<10	ND<10	0	10	0
ND<10	ND<10	0	10	0
13.8	55.4	-41.6	10	1
ND<10	55.4	-45.4	10	2
ND<10	55.4	-45.4	10	3
ND<10	55.4	-45.4	10	4
ND<10	13.8	-3.8	10	5
ND<10	13.8	-3.8	10	6

ND<10	13.8	-3.8	10	7
ND<10	ND<10	0	10	7
ND<10	ND<10	0	10	7
ND<10	ND<10	0	10	7

S Statistic = 10 - 7 = 3
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |3| is 0.862
0.862 >= 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<0.06	ND<0.15	-0.09	0	1
ND<0.06	ND<0.15	-0.09	0	2
ND<0.06	ND<0.15	-0.09	0	3
ND<0.04	ND<0.15	-0.11	0	4
ND<0.04	ND<0.15	-0.11	0	5
ND<0.04	ND<0.15	-0.11	0	6
0.0492	ND<0.15	-0.1008	0	7
ND<0.04	ND<0.15	-0.11	0	8
ND<0.04	ND<0.15	-0.11	0	9
ND<0.06	ND<0.06	0	0	9
ND<0.06	ND<0.06	0	0	9
ND<0.04	ND<0.06	-0.02	0	10
ND<0.04	ND<0.06	-0.02	0	11
ND<0.04	ND<0.06	-0.02	0	12
0.0492	ND<0.06	-0.0108	0	13
ND<0.04	ND<0.06	-0.02	0	14
ND<0.04	ND<0.06	-0.02	0	15
ND<0.06	ND<0.06	0	0	15
ND<0.04	ND<0.06	-0.02	0	16
ND<0.04	ND<0.06	-0.02	0	17
ND<0.04	ND<0.06	-0.02	0	18
0.0492	ND<0.06	-0.0108	0	19
ND<0.04	ND<0.06	-0.02	0	20
ND<0.04	ND<0.06	-0.02	0	21
ND<0.04	ND<0.06	-0.02	0	22
ND<0.04	ND<0.06	-0.02	0	23
ND<0.04	ND<0.06	-0.02	0	24
0.0492	ND<0.06	-0.0108	0	25
ND<0.04	ND<0.06	-0.02	0	26
ND<0.04	ND<0.06	-0.02	0	27
ND<0.04	ND<0.04	0	0	27
ND<0.04	ND<0.04	0	0	27
0.0492	ND<0.04	0.0092	1	27
ND<0.04	ND<0.04	0	1	27
ND<0.04	ND<0.04	0	1	27
ND<0.04	ND<0.04	0	1	27
0.0492	ND<0.04	0.0092	2	27
ND<0.04	ND<0.04	0	2	27
ND<0.04	ND<0.04	0	2	27
0.0492	ND<0.04	0.0092	3	27
ND<0.04	ND<0.04	0	3	27

ND<0.04	ND<0.04	0	3	27
ND<0.04	0.0492	-0.0092	3	28
ND<0.04	0.0492	-0.0092	3	29
ND<0.04	ND<0.04	0	3	29

S Statistic = 3 - 29 = -26
Comparing at 95% confidence level (downward trend)
Probability of obtaining S >= 26 is 0.01115
S < 0 and 0.01115 < 0.05 indicating a downward 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<0.06	ND<0.06	0	0	0
ND<0.06	ND<0.06	0	0	0
ND<0.06	ND<0.06	0	0	0
ND<0.04	ND<0.06	-0.02	0	1
ND<0.04	ND<0.06	-0.02	0	2
ND<0.04	ND<0.06	-0.02	0	3
0.119	ND<0.06	0.059	1	3
ND<0.04	ND<0.06	-0.02	1	4
ND<0.04	ND<0.06	-0.02	1	5
ND<0.06	ND<0.06	0	1	5
ND<0.06	ND<0.06	0	1	5
ND<0.04	ND<0.06	-0.02	1	6
ND<0.04	ND<0.06	-0.02	1	7
ND<0.04	ND<0.06	-0.02	1	8
0.119	ND<0.06	0.059	2	8
ND<0.04	ND<0.06	-0.02	2	9
ND<0.04	ND<0.06	-0.02	2	10
ND<0.06	ND<0.06	0	2	10
ND<0.04	ND<0.06	-0.02	2	11
ND<0.04	ND<0.06	-0.02	2	12
ND<0.04	ND<0.06	-0.02	2	13
0.119	ND<0.06	0.059	3	13
ND<0.04	ND<0.06	-0.02	3	14
ND<0.04	ND<0.06	-0.02	3	15
ND<0.04	ND<0.06	-0.02	3	16
ND<0.04	ND<0.06	-0.02	3	17
ND<0.04	ND<0.06	-0.02	3	18
0.119	ND<0.06	0.059	4	18
ND<0.04	ND<0.06	-0.02	4	19
ND<0.04	ND<0.06	-0.02	4	20
ND<0.04	ND<0.04	0	4	20
ND<0.04	ND<0.04	0	4	20
0.119	ND<0.04	0.079	5	20
ND<0.04	ND<0.04	0	5	20
ND<0.04	ND<0.04	0	5	20
ND<0.04	ND<0.04	0	5	20
0.119	ND<0.04	0.079	6	20
ND<0.04	ND<0.04	0	6	20
ND<0.04	ND<0.04	0	6	20
0.119	ND<0.04	0.079	7	20
ND<0.04	ND<0.04	0	7	20

ND<0.04	ND<0.04	0	7	20
ND<0.04	0.119	-0.079	7	21
ND<0.04	0.119	-0.079	7	22
ND<0.04	ND<0.04	0	7	22

S Statistic = 7 - 22 = -15
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-15| is 0.216
0.216 >= 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<0.15	ND<0.06	0.09	1	0
ND<0.06	ND<0.06	0	1	0
ND<0.06	ND<0.06	0	1	0
ND<0.04	ND<0.06	-0.02	1	1
ND<0.04	ND<0.06	-0.02	1	2
ND<0.04	ND<0.06	-0.02	1	3
0.0667	ND<0.06	0.0067	2	3
ND<0.04	ND<0.06	-0.02	2	4
0.0861	ND<0.06	0.0261	3	4
ND<0.06	ND<0.15	-0.09	3	5
ND<0.06	ND<0.15	-0.09	3	6
ND<0.04	ND<0.15	-0.11	3	7
ND<0.04	ND<0.15	-0.11	3	8
ND<0.04	ND<0.15	-0.11	3	9
0.0667	ND<0.15	-0.0833	3	10
ND<0.04	ND<0.15	-0.11	3	11
0.0861	ND<0.15	-0.0639	3	12
ND<0.06	ND<0.06	0	3	12
ND<0.04	ND<0.06	-0.02	3	13
ND<0.04	ND<0.06	-0.02	3	14
ND<0.04	ND<0.06	-0.02	3	15
0.0667	ND<0.06	0.0067	4	15
ND<0.04	ND<0.06	-0.02	4	16
0.0861	ND<0.06	0.0261	5	16
ND<0.04	ND<0.06	-0.02	5	17
ND<0.04	ND<0.06	-0.02	5	18
ND<0.04	ND<0.06	-0.02	5	19
0.0667	ND<0.06	0.0067	6	19
ND<0.04	ND<0.06	-0.02	6	20
0.0861	ND<0.06	0.0261	7	20
ND<0.04	ND<0.04	0	7	20
ND<0.04	ND<0.04	0	7	20
0.0667	ND<0.04	0.0267	8	20
ND<0.04	ND<0.04	0	8	20
0.0861	ND<0.04	0.0461	9	20
ND<0.04	ND<0.04	0	9	20
0.0667	ND<0.04	0.0267	10	20
ND<0.04	ND<0.04	0	10	20
0.0861	ND<0.04	0.0461	11	20
0.0667	ND<0.04	0.0267	12	20
ND<0.04	ND<0.04	0	12	20

0.0861	ND<0.04	0.0461	13	20
ND<0.04	0.0667	-0.0267	13	21
0.0861	0.0667	0.0194	14	21
0.0861	ND<0.04	0.0461	15	21

S Statistic = 15 - 21 = -6
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-6| is 0.664
0.664 >= 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<0.06	ND<0.15	-0.09	0	1
ND<0.06	ND<0.15	-0.09	0	2
ND<0.06	ND<0.15	-0.09	0	3
ND<0.04	ND<0.15	-0.11	0	4
ND<0.04	ND<0.15	-0.11	0	5
ND<0.04	ND<0.15	-0.11	0	6
0.0688	ND<0.15	-0.0812	0	7
ND<0.04	ND<0.15	-0.11	0	8
ND<0.04	ND<0.15	-0.11	0	9
ND<0.06	ND<0.06	0	0	9
ND<0.06	ND<0.06	0	0	9
ND<0.04	ND<0.06	-0.02	0	10
ND<0.04	ND<0.06	-0.02	0	11
ND<0.04	ND<0.06	-0.02	0	12
0.0688	ND<0.06	0.0088	1	12
ND<0.04	ND<0.06	-0.02	1	13
ND<0.04	ND<0.06	-0.02	1	14
ND<0.06	ND<0.06	0	1	14
ND<0.04	ND<0.06	-0.02	1	15
ND<0.04	ND<0.06	-0.02	1	16
ND<0.04	ND<0.06	-0.02	1	17
0.0688	ND<0.06	0.0088	2	17
ND<0.04	ND<0.06	-0.02	2	18
ND<0.04	ND<0.06	-0.02	2	19
ND<0.04	ND<0.06	-0.02	2	20
ND<0.04	ND<0.06	-0.02	2	21
ND<0.04	ND<0.06	-0.02	2	22
0.0688	ND<0.06	0.0088	3	22
ND<0.04	ND<0.06	-0.02	3	23
ND<0.04	ND<0.06	-0.02	3	24
ND<0.04	ND<0.04	0	3	24
ND<0.04	ND<0.04	0	3	24
0.0688	ND<0.04	0.0288	4	24
ND<0.04	ND<0.04	0	4	24
ND<0.04	ND<0.04	0	4	24
ND<0.04	ND<0.04	0	4	24
0.0688	ND<0.04	0.0288	5	24
ND<0.04	ND<0.04	0	5	24
ND<0.04	ND<0.04	0	5	24
0.0688	ND<0.04	0.0288	6	24
ND<0.04	ND<0.04	0	6	24

ND<0.04	ND<0.04	0	6	24
ND<0.04	0.0688	-0.0288	6	25
ND<0.04	0.0688	-0.0288	6	26
ND<0.04	ND<0.04	0	6	26

S Statistic = 6 - 26 = -20
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-20| is 0.09
0.09 >= 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<0.06	ND<0.06	0	0	0
ND<0.06	ND<0.06	0	0	0
ND<0.06	ND<0.06	0	0	0
ND<0.04	ND<0.06	-0.02	0	1
ND<0.04	ND<0.06	-0.02	0	2
ND<0.04	ND<0.06	-0.02	0	3
0.757	ND<0.06	0.697	1	3
ND<0.04	ND<0.06	-0.02	1	4
ND<0.04	ND<0.06	-0.02	1	5
ND<0.06	ND<0.06	0	1	5
ND<0.06	ND<0.06	0	1	5
ND<0.04	ND<0.06	-0.02	1	6
ND<0.04	ND<0.06	-0.02	1	7
ND<0.04	ND<0.06	-0.02	1	8
0.757	ND<0.06	0.697	2	8
ND<0.04	ND<0.06	-0.02	2	9
ND<0.04	ND<0.06	-0.02	2	10
ND<0.06	ND<0.06	0	2	10
ND<0.04	ND<0.06	-0.02	2	11
ND<0.04	ND<0.06	-0.02	2	12
ND<0.04	ND<0.06	-0.02	2	13
0.757	ND<0.06	0.697	3	13
ND<0.04	ND<0.06	-0.02	3	14
ND<0.04	ND<0.06	-0.02	3	15
ND<0.04	ND<0.06	-0.02	3	16
ND<0.04	ND<0.06	-0.02	3	17
ND<0.04	ND<0.06	-0.02	3	18
0.757	ND<0.06	0.697	4	18
ND<0.04	ND<0.06	-0.02	4	19
ND<0.04	ND<0.06	-0.02	4	20
ND<0.04	ND<0.04	0	4	20
ND<0.04	ND<0.04	0	4	20
0.757	ND<0.04	0.717	5	20
ND<0.04	ND<0.04	0	5	20
ND<0.04	ND<0.04	0	5	20
ND<0.04	ND<0.04	0	5	20
0.757	ND<0.04	0.717	6	20
ND<0.04	ND<0.04	0	6	20
ND<0.04	ND<0.04	0	6	20
0.757	ND<0.04	0.717	7	20
ND<0.04	ND<0.04	0	7	20

ND<0.04	ND<0.04	0	7	20
ND<0.04	0.757	-0.717	7	21
ND<0.04	0.757	-0.717	7	22
ND<0.04	ND<0.04	0	7	22

S Statistic = 7 - 22 = -15
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-15| is 0.216
0.216 >= 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
0.0713	0.0699	0.0014	1	0
0.0685	0.0699	-0.0014	1	1
0.073	0.0699	0.0031	2	1
0.0605	0.0699	-0.0094	2	2
0.0766	0.0699	0.0067	3	2
0.0829	0.0699	0.013	4	2
0.085	0.0699	0.0151	5	2
0.0821	0.0699	0.0122	6	2
0.0753	0.0699	0.0054	7	2
0.0685	0.0713	-0.0028	7	3
0.073	0.0713	0.0017	8	3
0.0605	0.0713	-0.0108	8	4
0.0766	0.0713	0.0053	9	4
0.0829	0.0713	0.0116	10	4
0.085	0.0713	0.0137	11	4
0.0821	0.0713	0.0108	12	4
0.0753	0.0713	0.004	13	4
0.073	0.0685	0.0045	14	4
0.0605	0.0685	-0.008	14	5
0.0766	0.0685	0.0081	15	5
0.0829	0.0685	0.0144	16	5
0.085	0.0685	0.0165	17	5
0.0821	0.0685	0.0136	18	5
0.0753	0.0685	0.0068	19	5
0.0605	0.073	-0.0125	19	6
0.0766	0.073	0.0036	20	6
0.0829	0.073	0.0099	21	6
0.085	0.073	0.012	22	6
0.0821	0.073	0.0091	23	6
0.0753	0.073	0.0023	24	6
0.0766	0.0605	0.0161	25	6
0.0829	0.0605	0.0224	26	6
0.085	0.0605	0.0245	27	6
0.0821	0.0605	0.0216	28	6
0.0753	0.0605	0.0148	29	6
0.0829	0.0766	0.0063	30	6
0.085	0.0766	0.0084	31	6
0.0821	0.0766	0.0055	32	6
0.0753	0.0766	-0.0013	32	7
0.085	0.0829	0.0021	33	7
0.0821	0.0829	-0.0008	33	8

0.0753	0.0829	-0.0076	33	9
0.0821	0.085	-0.0029	33	10
0.0753	0.085	-0.0097	33	11
0.0753	0.0821	-0.0068	33	12

S Statistic = 33 - 12 = 21
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |21| is 0.072
0.072 >= 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Manganese
Location: MW2
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
0.563	0.383	0.18	1	0
0.0139	0.383	-0.3691	1	1
0.0636	0.383	-0.3194	1	2
0.021	0.383	-0.362	1	3
0.354	0.383	-0.029	1	4
0.205	0.383	-0.178	1	5
0.0601	0.383	-0.3229	1	6
0.088	0.383	-0.295	1	7
0.0237	0.383	-0.3593	1	8
0.0139	0.563	-0.5491	1	9
0.0636	0.563	-0.4994	1	10
0.021	0.563	-0.542	1	11
0.354	0.563	-0.209	1	12
0.205	0.563	-0.358	1	13
0.0601	0.563	-0.5029	1	14
0.088	0.563	-0.475	1	15
0.0237	0.563	-0.5393	1	16
0.0636	0.0139	0.0497	2	16
0.021	0.0139	0.0071	3	16
0.354	0.0139	0.3401	4	16
0.205	0.0139	0.1911	5	16
0.0601	0.0139	0.0462	6	16
0.088	0.0139	0.0741	7	16
0.0237	0.0139	0.0098	8	16
0.021	0.0636	-0.0426	8	17
0.354	0.0636	0.2904	9	17
0.205	0.0636	0.1414	10	17
0.0601	0.0636	-0.0035	10	18
0.088	0.0636	0.0244	11	18
0.0237	0.0636	-0.0399	11	19
0.354	0.021	0.333	12	19
0.205	0.021	0.184	13	19
0.0601	0.021	0.0391	14	19
0.088	0.021	0.067	15	19
0.0237	0.021	0.0027	16	19
0.205	0.354	-0.149	16	20
0.0601	0.354	-0.2939	16	21
0.088	0.354	-0.266	16	22
0.0237	0.354	-0.3303	16	23
0.0601	0.205	-0.1449	16	24
0.088	0.205	-0.117	16	25

0.0237	0.205	-0.1813	16	26
0.088	0.0601	0.0279	17	26
0.0237	0.0601	-0.0364	17	27
0.0237	0.088	-0.0643	17	28

S Statistic = 17 - 28 = -11
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-11| is 0.38
0.38 >= 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
0.579	0.133	0.446	1	0
0.0262	0.133	-0.1068	1	1
0.0114	0.133	-0.1216	1	2
ND<0.01	0.133	-0.123	1	3
ND<0.01	0.133	-0.123	1	4
ND<0.01	0.133	-0.123	1	5
ND<0.01	0.133	-0.123	1	6
0.0303	0.133	-0.1027	1	7
ND<0.01	0.133	-0.123	1	8
0.0262	0.579	-0.5528	1	9
0.0114	0.579	-0.5676	1	10
ND<0.01	0.579	-0.569	1	11
ND<0.01	0.579	-0.569	1	12
ND<0.01	0.579	-0.569	1	13
ND<0.01	0.579	-0.569	1	14
0.0303	0.579	-0.5487	1	15
ND<0.01	0.579	-0.569	1	16
0.0114	0.0262	-0.0148	1	17
ND<0.01	0.0262	-0.0162	1	18
ND<0.01	0.0262	-0.0162	1	19
ND<0.01	0.0262	-0.0162	1	20
ND<0.01	0.0262	-0.0162	1	21
0.0303	0.0262	0.0041	2	21
ND<0.01	0.0262	-0.0162	2	22
ND<0.01	0.0114	-0.0014	2	23
ND<0.01	0.0114	-0.0014	2	24
ND<0.01	0.0114	-0.0014	2	25
ND<0.01	0.0114	-0.0014	2	26
0.0303	0.0114	0.0189	3	26
ND<0.01	0.0114	-0.0014	3	27
ND<0.01	ND<0.01	0	3	27
ND<0.01	ND<0.01	0	3	27
ND<0.01	ND<0.01	0	3	27
0.0303	ND<0.01	0.0203	4	27
ND<0.01	ND<0.01	0	4	27
ND<0.01	ND<0.01	0	4	27
ND<0.01	ND<0.01	0	4	27
0.0303	ND<0.01	0.0203	5	27
ND<0.01	ND<0.01	0	5	27
ND<0.01	ND<0.01	0	5	27
0.0303	ND<0.01	0.0203	6	27

ND<0.01	ND<0.01	0	6	27
0.0303	ND<0.01	0.0203	7	27
ND<0.01	ND<0.01	0	7	27
ND<0.01	0.0303	-0.0203	7	28

S Statistic = 7 - 28 = -21
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-21| is 0.072
0.072 >= 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
0.227	0.529	-0.302	0	1
0.0969	0.529	-0.4321	0	2
0.127	0.529	-0.402	0	3
0.11	0.529	-0.419	0	4
0.111	0.529	-0.418	0	5
0.0923	0.529	-0.4367	0	6
0.14	0.529	-0.389	0	7
0.0739	0.529	-0.4551	0	8
0.0608	0.529	-0.4682	0	9
0.0969	0.227	-0.1301	0	10
0.127	0.227	-0.1	0	11
0.11	0.227	-0.117	0	12
0.111	0.227	-0.116	0	13
0.0923	0.227	-0.1347	0	14
0.14	0.227	-0.087	0	15
0.0739	0.227	-0.1531	0	16
0.0608	0.227	-0.1662	0	17
0.127	0.0969	0.0301	1	17
0.11	0.0969	0.0131	2	17
0.111	0.0969	0.0141	3	17
0.0923	0.0969	-0.0046	3	18
0.14	0.0969	0.0431	4	18
0.0739	0.0969	-0.023	4	19
0.0608	0.0969	-0.0361	4	20
0.11	0.127	-0.017	4	21
0.111	0.127	-0.016	4	22
0.0923	0.127	-0.0347	4	23
0.14	0.127	0.013	5	23
0.0739	0.127	-0.0531	5	24
0.0608	0.127	-0.0662	5	25
0.111	0.11	0.001	6	25
0.0923	0.11	-0.0177	6	26
0.14	0.11	0.03	7	26
0.0739	0.11	-0.0361	7	27
0.0608	0.11	-0.0492	7	28
0.0923	0.111	-0.0187	7	29
0.14	0.111	0.029	8	29
0.0739	0.111	-0.0371	8	30
0.0608	0.111	-0.0502	8	31
0.14	0.0923	0.0477	9	31
0.0739	0.0923	-0.0184	9	32

0.0608	0.0923	-0.0315	9	33
0.0739	0.14	-0.0661	9	34
0.0608	0.14	-0.0792	9	35
0.0608	0.0739	-0.0131	9	36

S Statistic = 9 - 36 = -27
Comparing at 95% confidence level (downward trend)
Probability of obtaining S >= 27 is 0.0083
S < 0 and 0.0083 < 0.05 indicating a downward 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
0.0706	0.0759	-0.0053	0	1
0.164	0.0759	0.0881	1	1
0.113	0.0759	0.0371	2	1
0.0613	0.0759	-0.0146	2	2
0.0584	0.0759	-0.0175	2	3
0.12	0.0759	0.0441	3	3
0.0595	0.0759	-0.0164	3	4
0.0538	0.0759	-0.0221	3	5
0.0806	0.0759	0.0047	4	5
0.164	0.0706	0.0934	5	5
0.113	0.0706	0.0424	6	5
0.0613	0.0706	-0.0093	6	6
0.0584	0.0706	-0.0122	6	7
0.12	0.0706	0.0494	7	7
0.0595	0.0706	-0.0111	7	8
0.0538	0.0706	-0.0168	7	9
0.0806	0.0706	0.01	8	9
0.113	0.164	-0.051	8	10
0.0613	0.164	-0.1027	8	11
0.0584	0.164	-0.1056	8	12
0.12	0.164	-0.044	8	13
0.0595	0.164	-0.1045	8	14
0.0538	0.164	-0.1102	8	15
0.0806	0.164	-0.0834	8	16
0.0613	0.113	-0.0517	8	17
0.0584	0.113	-0.0546	8	18
0.12	0.113	0.007	9	18
0.0595	0.113	-0.0535	9	19
0.0538	0.113	-0.0592	9	20
0.0806	0.113	-0.0324	9	21
0.0584	0.0613	-0.0029	9	22
0.12	0.0613	0.0587	10	22
0.0595	0.0613	-0.0018	10	23
0.0538	0.0613	-0.0075	10	24
0.0806	0.0613	0.0193	11	24
0.12	0.0584	0.0616	12	24
0.0595	0.0584	0.0011	13	24
0.0538	0.0584	-0.0046	13	25
0.0806	0.0584	0.0222	14	25
0.0595	0.12	-0.0605	14	26
0.0538	0.12	-0.0662	14	27

0.0806	0.12	-0.0394	14	28
0.0538	0.0595	-0.0057	14	29
0.0806	0.0595	0.0211	15	29
0.0806	0.0538	0.0268	16	29

S Statistic = 16 - 29 = -13
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-13| is 0.292
0.292 >= 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	ND<0.002	0	0	0
ND<0.002	ND<0.002	0	0	0
ND<0.002	ND<0.002	0	0	0
0.0029	ND<0.002	0.0009	1	0
ND<0.002	ND<0.002	0	1	0
ND<0.002	ND<0.002	0	1	0
0.0021	ND<0.002	0.0001	2	0
0.00203	ND<0.002	3e-005	3	0
0.00264	ND<0.002	0.00064	4	0
ND<0.002	ND<0.002	0	4	0
ND<0.002	ND<0.002	0	4	0
0.0029	ND<0.002	0.0009	5	0
ND<0.002	ND<0.002	0	5	0
ND<0.002	ND<0.002	0	5	0
0.0021	ND<0.002	0.0001	6	0
0.00203	ND<0.002	3e-005	7	0
0.00264	ND<0.002	0.00064	8	0
ND<0.002	ND<0.002	0	8	0
0.0029	ND<0.002	0.0009	9	0
ND<0.002	ND<0.002	0	9	0
ND<0.002	ND<0.002	0	9	0
0.0021	ND<0.002	0.0001	10	0
0.00203	ND<0.002	3e-005	11	0
0.00264	ND<0.002	0.00064	12	0
0.0029	ND<0.002	0.0009	13	0
ND<0.002	ND<0.002	0	13	0
ND<0.002	ND<0.002	0	13	0
0.0021	ND<0.002	0.0001	14	0
0.00203	ND<0.002	3e-005	15	0
0.00264	ND<0.002	0.00064	16	0
ND<0.002	0.0029	-0.0009	16	1
ND<0.002	0.0029	-0.0009	16	2
0.0021	0.0029	-0.0008	16	3
0.00203	0.0029	-0.00087	16	4
0.00264	0.0029	-0.00026	16	5
ND<0.002	ND<0.002	0	16	5
0.0021	ND<0.002	0.0001	17	5
0.00203	ND<0.002	3e-005	18	5
0.00264	ND<0.002	0.00064	19	5
0.0021	ND<0.002	0.0001	20	5
0.00203	ND<0.002	3e-005	21	5

0.00264	ND<0.002	0.00064	22	5
0.00203	0.0021	-7e-005	22	6
0.00264	0.0021	0.00054	23	6
0.00264	0.00203	0.00061	24	6

S Statistic = 24 - 6 = 18
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |18| is 0.132
0.132 >= 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
0.00435	0.00478	-0.00043	0	1
0.00215	0.00478	-0.00263	0	2
0.0033	0.00478	-0.00148	0	3
0.00254	0.00478	-0.00224	0	4
0.00268	0.00478	-0.0021	0	5
0.0024	0.00478	-0.00238	0	6
0.00318	0.00478	-0.0016	0	7
0.00458	0.00478	-0.0002	0	8
0.00225	0.00478	-0.00253	0	9
0.00215	0.00435	-0.0022	0	10
0.0033	0.00435	-0.00105	0	11
0.00254	0.00435	-0.00181	0	12
0.00268	0.00435	-0.00167	0	13
0.0024	0.00435	-0.00195	0	14
0.00318	0.00435	-0.00117	0	15
0.00458	0.00435	0.00023	1	15
0.00225	0.00435	-0.0021	1	16
0.0033	0.00215	0.00115	2	16
0.00254	0.00215	0.00039	3	16
0.00268	0.00215	0.00053	4	16
0.0024	0.00215	0.00025	5	16
0.00318	0.00215	0.00103	6	16
0.00458	0.00215	0.00243	7	16
0.00225	0.00215	0.0001	8	16
0.00254	0.0033	-0.00076	8	17
0.00268	0.0033	-0.00062	8	18
0.0024	0.0033	-0.0009	8	19
0.00318	0.0033	-0.00012	8	20
0.00458	0.0033	0.00128	9	20
0.00225	0.0033	-0.00105	9	21
0.00268	0.00254	0.00014	10	21
0.0024	0.00254	-0.00014	10	22
0.00318	0.00254	0.00064	11	22
0.00458	0.00254	0.00204	12	22
0.00225	0.00254	-0.00029	12	23
0.0024	0.00268	-0.00028	12	24
0.00318	0.00268	0.0005	13	24
0.00458	0.00268	0.0019	14	24
0.00225	0.00268	-0.00043	14	25
0.00318	0.0024	0.00078	15	25
0.00458	0.0024	0.00218	16	25

0.00225	0.0024	-0.00015	16	26
0.00458	0.00318	0.0014	17	26
0.00225	0.00318	-0.00093	17	27
0.00225	0.00458	-0.00233	17	28

S Statistic = 17 - 28 = -11
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-11| is 0.38
0.38 >= 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
ND<0.002	ND<0.002	0	0	0
0.00364	ND<0.002	0.00164	1	0
0.00407	ND<0.002	0.00207	2	0
0.00315	ND<0.002	0.00115	3	0
0.0032	ND<0.002	0.0012	4	0
0.00284	ND<0.002	0.00084	5	0
0.00397	ND<0.002	0.00197	6	0
0.00557	ND<0.002	0.00357	7	0
0.0035	ND<0.002	0.0015	8	0
0.00364	ND<0.002	0.00164	9	0
0.00407	ND<0.002	0.00207	10	0
0.00315	ND<0.002	0.00115	11	0
0.0032	ND<0.002	0.0012	12	0
0.00284	ND<0.002	0.00084	13	0
0.00397	ND<0.002	0.00197	14	0
0.00557	ND<0.002	0.00357	15	0
0.0035	ND<0.002	0.0015	16	0
0.00407	0.00364	0.00043	17	0
0.00315	0.00364	-0.00049	17	1
0.0032	0.00364	-0.00044	17	2
0.00284	0.00364	-0.0008	17	3
0.00397	0.00364	0.00033	18	3
0.00557	0.00364	0.00193	19	3
0.0035	0.00364	-0.00014	19	4
0.00315	0.00407	-0.00092	19	5
0.0032	0.00407	-0.00087	19	6
0.00284	0.00407	-0.00123	19	7
0.00397	0.00407	-0.0001	19	8
0.00557	0.00407	0.0015	20	8
0.0035	0.00407	-0.00057	20	9
0.0032	0.00315	5e-005	21	9
0.00284	0.00315	-0.00031	21	10
0.00397	0.00315	0.00082	22	10
0.00557	0.00315	0.00242	23	10
0.0035	0.00315	0.00035	24	10
0.00284	0.0032	-0.00036	24	11
0.00397	0.0032	0.00077	25	11
0.00557	0.0032	0.00237	26	11
0.0035	0.0032	0.0003	27	11
0.00397	0.00284	0.00113	28	11
0.00557	0.00284	0.00273	29	11

0.0035	0.00284	0.00066	30	11
0.00557	0.00397	0.0016	31	11
0.0035	0.00397	-0.00047	31	12
0.0035	0.00557	-0.00207	31	13

S Statistic = 31 - 13 = 18
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |18| is 0.132
0.132 >= 0.025 indicating no evidence of a trend

Sen's Slope Analysis
Parameter: Molybdenum
Location: MW4
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

90% Confidence Level

Xj	Xk	(Xj - Xk)/(j-k)	Q
0.00527 (5/26/2020)	0.00203 (3/6/2020)	(0.00527 - 0.00203)/(2 - 1)	0.00324
ND<0.002 (9/4/2020)	0.00203 (3/6/2020)	(0.002 - 0.00203)/(3 - 1)	-1.5e-005
0.00245 (12/15/2020)	0.00203 (3/6/2020)	(0.00245 - 0.00203)/(4 - 1)	0.00014
0.0035 (3/4/2021)	0.00203 (3/6/2020)	(0.0035 - 0.00203)/(5 - 1)	0.0003675
ND<0.002 (9/27/2021)	0.00203 (3/6/2020)	(0.002 - 0.00203)/(6 - 1)	-6e-006
ND<0.002 (3/25/2022)	0.00203 (3/6/2020)	(0.002 - 0.00203)/(7 - 1)	-5e-006
0.00229 (9/21/2022)	0.00203 (3/6/2020)	(0.00229 - 0.00203)/(8 - 1)	3.71429e-005
0.00291 (4/17/2023)	0.00203 (3/6/2020)	(0.00291 - 0.00203)/(9 - 1)	0.00011
0.00242 (9/11/2023)	0.00203 (3/6/2020)	(0.00242 - 0.00203)/(10 - 1)	4.33333e-005
ND<0.002 (9/4/2020)	0.00527 (5/26/2020)	(0.002 - 0.00527)/(3 - 2)	-0.00327
0.00245 (12/15/2020)	0.00527 (5/26/2020)	(0.00245 - 0.00527)/(4 - 2)	-0.00141
0.0035 (3/4/2021)	0.00527 (5/26/2020)	(0.0035 - 0.00527)/(5 - 2)	-0.00059
ND<0.002 (9/27/2021)	0.00527 (5/26/2020)	(0.002 - 0.00527)/(6 - 2)	-0.0008175
ND<0.002 (3/25/2022)	0.00527 (5/26/2020)	(0.002 - 0.00527)/(7 - 2)	-0.000654
0.00229 (9/21/2022)	0.00527 (5/26/2020)	(0.00229 - 0.00527)/(8 - 2)	-0.000496667
0.00291 (4/17/2023)	0.00527 (5/26/2020)	(0.00291 - 0.00527)/(9 - 2)	-0.000337143
0.00242 (9/11/2023)	0.00527 (5/26/2020)	(0.00242 - 0.00527)/(10 - 2)	-0.00035625
0.00245 (12/15/2020)	ND<0.002 (9/4/2020)	(0.00245 - 0.002)/(4 - 3)	0.00045
0.0035 (3/4/2021)	ND<0.002 (9/4/2020)	(0.0035 - 0.002)/(5 - 3)	0.00075
ND<0.002 (9/27/2021)	ND<0.002 (9/4/2020)	(0.002 - 0.002)/(6 - 3)	0
ND<0.002 (3/25/2022)	ND<0.002 (9/4/2020)	(0.002 - 0.002)/(7 - 3)	0
0.00229 (9/21/2022)	ND<0.002 (9/4/2020)	(0.00229 - 0.002)/(8 - 3)	5.8e-005
0.00291 (4/17/2023)	ND<0.002 (9/4/2020)	(0.00291 - 0.002)/(9 - 3)	0.000151667
0.00242 (9/11/2023)	ND<0.002 (9/4/2020)	(0.00242 - 0.002)/(10 - 3)	6e-005
0.0035 (3/4/2021)	0.00245 (12/15/2020)	(0.0035 - 0.00245)/(5 - 4)	0.00105
ND<0.002 (9/27/2021)	0.00245 (12/15/2020)	(0.002 - 0.00245)/(6 - 4)	-0.000225
ND<0.002 (3/25/2022)	0.00245 (12/15/2020)	(0.002 - 0.00245)/(7 - 4)	-0.00015
0.00229 (9/21/2022)	0.00245 (12/15/2020)	(0.00229 - 0.00245)/(8 - 4)	-4e-005
0.00291 (4/17/2023)	0.00245 (12/15/2020)	(0.00291 - 0.00245)/(9 - 4)	9.2e-005
0.00242 (9/11/2023)	0.00245 (12/15/2020)	(0.00242 - 0.00245)/(10 - 4)	-5e-006
ND<0.002 (9/27/2021)	0.0035 (3/4/2021)	(0.002 - 0.0035)/(6 - 5)	-0.0015
ND<0.002 (3/25/2022)	0.0035 (3/4/2021)	(0.002 - 0.0035)/(7 - 5)	-0.00075
0.00229 (9/21/2022)	0.0035 (3/4/2021)	(0.00229 - 0.0035)/(8 - 5)	-0.000403333
0.00291 (4/17/2023)	0.0035 (3/4/2021)	(0.00291 - 0.0035)/(9 - 5)	-0.0001475
0.00242 (9/11/2023)	0.0035 (3/4/2021)	(0.00242 - 0.0035)/(10 - 5)	-0.000216
ND<0.002 (3/25/2022)	ND<0.002 (9/27/2021)	(0.002 - 0.002)/(7 - 6)	0
0.00229 (9/21/2022)	ND<0.002 (9/27/2021)	(0.00229 - 0.002)/(8 - 6)	0.000145
0.00291 (4/17/2023)	ND<0.002 (9/27/2021)	(0.00291 - 0.002)/(9 - 6)	0.000303333
0.00242 (9/11/2023)	ND<0.002 (9/27/2021)	(0.00242 - 0.002)/(10 - 6)	0.000105
0.00229 (9/21/2022)	ND<0.002 (3/25/2022)	(0.00229 - 0.002)/(8 - 7)	0.00029
0.00291 (4/17/2023)	ND<0.002 (3/25/2022)	(0.00291 - 0.002)/(9 - 7)	0.000455
0.00242 (9/11/2023)	ND<0.002 (3/25/2022)	(0.00242 - 0.002)/(10 - 7)	0.00014

0.00291 (4/17/2023)	0.00229 (9/21/2022)	(0.00291 - 0.00229)/(9 - 8)	0.00062
0.00242 (9/11/2023)	0.00229 (9/21/2022)	(0.00242 - 0.00229)/(10 - 8)	6.5e-005
0.00242 (9/11/2023)	0.00291 (4/17/2023)	(0.00242 - 0.00291)/(10 - 9)	-0.00049

Number of Q values = 45

Ordered Q Values

n	Q
1	-0.00327
2	-0.0015
3	-0.00141
4	-0.0008175
5	-0.00075
6	-0.000654
7	-0.00059
8	-0.000496667
9	-0.00049
10	-0.000403333
11	-0.00035625
12	-0.000337143
13	-0.000225
14	-0.000216
15	-0.00015
16	-0.0001475
17	-4e-005
18	-1.5e-005
19	-6e-006
20	-5e-006
21	-5e-006
22	0
23	0
24	0
25	3.71429e-005
26	4.33333e-005
27	5.8e-005
28	6e-005
29	6.5e-005
30	9.2e-005
31	0.000105
32	0.00011
33	0.00014
34	0.00014
35	0.000145
36	0.000151667
37	0.00029
38	0.000303333
39	0.0003675
40	0.00045
41	0.000455
42	0.00062
43	0.00075
44	0.00105
45	0.00324

Sen's Estimator (Median Q) is 0

Tied Group	Value	Members
1	0.002	3

Time Period	Observations
3/6/2020	1
5/26/2020	1
9/4/2020	1
12/15/2020	1
3/4/2021	1
9/27/2021	1
3/25/2022	1
9/21/2022	1
4/17/2023	1
9/11/2023	1

There are 0 time periods with multiple data

A = 66
B = 0
C = 6
D = 0
E = 6
F = 0
a = 2250
b = 6480
c = 180
Group Variance = 121.333
For 90% confidence interval (two-tailed), Z at (1-0.9)/2 = 1.64485
C = 18.1183
M1 = (45 - 18.1183)/2.0 = 13.4409
M2 = (45 + 18.1183)/2.0 + 1 = 32.5591
Lower limit is -0.000225 = Q(13)
Upper limit is 0.00014 = Q(33)
-0.000225 < 0 < 0.00014 indicating no trend in data.

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
0.00256	ND<0.002	0.00056	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
0.00256	ND<0.002	0.00056	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
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	0.00256	-0.00056	4	1
ND<0.002	0.00256	-0.00056	4	2
ND<0.002	0.00256	-0.00056	4	3
ND<0.002	0.00256	-0.00056	4	4
ND<0.002	0.00256	-0.00056	4	5
0.00266	0.00256	0.0001	5	5
ND<0.002	0.00256	-0.00056	5	6
ND<0.002	ND<0.002	0	5	6
ND<0.002	ND<0.002	0	5	6
ND<0.002	ND<0.002	0	5	6
ND<0.002	ND<0.002	0	5	6
0.00266	ND<0.002	0.00066	6	6
ND<0.002	ND<0.002	0	6	6
ND<0.002	ND<0.002	0	6	6
ND<0.002	ND<0.002	0	6	6
ND<0.002	ND<0.002	0	6	6
0.00266	ND<0.002	0.00066	7	6
ND<0.002	ND<0.002	0	7	6
ND<0.002	ND<0.002	0	7	6
ND<0.002	ND<0.002	0	7	6
0.00266	ND<0.002	0.00066	8	6
ND<0.002	ND<0.002	0	8	6
ND<0.002	ND<0.002	0	8	6
0.00266	ND<0.002	0.00066	9	6

ND<0.002	ND<0.002	0	9	6
0.00266	ND<0.002	0.00066	10	6
ND<0.002	ND<0.002	0	10	6
ND<0.002	0.00266	-0.00066	10	7

S Statistic = 10 - 7 = 3
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |3| is 0.862
0.862 >= 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis
Parameter: Phenols, total
Location: MW1
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.02	ND<0.0196	0.0004	1	0
0.0376	ND<0.0196	0.018	2	0
ND<0.02	ND<0.0196	0.0004	3	0
ND<0.02	ND<0.0196	0.0004	4	0
ND<0.0184	ND<0.0196	-0.0012	4	1
ND<0.02	ND<0.0196	0.0004	5	1
ND<0.02	ND<0.0196	0.0004	6	1
ND<0.0204	ND<0.0196	0.0008	7	1
ND<0.0216	ND<0.0196	0.002	8	1
0.0376	ND<0.02	0.0176	9	1
ND<0.02	ND<0.02	0	9	1
ND<0.02	ND<0.02	0	9	1
ND<0.0184	ND<0.02	-0.0016	9	2
ND<0.02	ND<0.02	0	9	2
ND<0.02	ND<0.02	0	9	2
ND<0.0204	ND<0.02	0.0004	10	2
ND<0.0216	ND<0.02	0.0016	11	2
ND<0.02	0.0376	-0.0176	11	3
ND<0.02	0.0376	-0.0176	11	4
ND<0.0184	0.0376	-0.0192	11	5
ND<0.02	0.0376	-0.0176	11	6
ND<0.02	0.0376	-0.0176	11	7
ND<0.0204	0.0376	-0.0172	11	8
ND<0.0216	0.0376	-0.016	11	9
ND<0.02	ND<0.02	0	11	9
ND<0.0184	ND<0.02	-0.0016	11	10
ND<0.02	ND<0.02	0	11	10
ND<0.02	ND<0.02	0	11	10
ND<0.0204	ND<0.02	0.0004	12	10
ND<0.0216	ND<0.02	0.0016	13	10
ND<0.0184	ND<0.02	-0.0016	13	11
ND<0.02	ND<0.02	0	13	11
ND<0.02	ND<0.02	0	13	11
ND<0.0204	ND<0.02	0.0004	14	11
ND<0.0216	ND<0.02	0.0016	15	11
ND<0.02	ND<0.0184	0.0016	16	11
ND<0.02	ND<0.0184	0.0016	17	11
ND<0.0204	ND<0.0184	0.002	18	11
ND<0.0216	ND<0.0184	0.0032	19	11
ND<0.02	ND<0.02	0	19	11
ND<0.0204	ND<0.02	0.0004	20	11

ND<0.0216	ND<0.02	0.0016	21	11
ND<0.0204	ND<0.02	0.0004	22	11
ND<0.0216	ND<0.02	0.0016	23	11
ND<0.0216	ND<0.0204	0.0012	24	11

S Statistic = 24 - 11 = 13
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |13| is 0.292
0.292 >= 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
880	811	69	1	0
796	811	-15	1	1
885	811	74	2	1
828	811	17	3	1
903	811	92	4	1
976	811	165	5	1
928	811	117	6	1
924	811	113	7	1
927	811	116	8	1
796	880	-84	8	2
885	880	5	9	2
828	880	-52	9	3
903	880	23	10	3
976	880	96	11	3
928	880	48	12	3
924	880	44	13	3
927	880	47	14	3
885	796	89	15	3
828	796	32	16	3
903	796	107	17	3
976	796	180	18	3
928	796	132	19	3
924	796	128	20	3
927	796	131	21	3
828	885	-57	21	4
903	885	18	22	4
976	885	91	23	4
928	885	43	24	4
924	885	39	25	4
927	885	42	26	4
903	828	75	27	4
976	828	148	28	4
928	828	100	29	4
924	828	96	30	4
927	828	99	31	4
976	903	73	32	4
928	903	25	33	4
924	903	21	34	4
927	903	24	35	4
928	976	-48	35	5
924	976	-52	35	6

927	976	-49	35	7
924	928	-4	35	8
927	928	-1	35	9
927	924	3	36	9

S Statistic = 36 - 9 = 27
Comparing at 95% confidence level (upward trend)
Probability of obtaining S >= 27 is 0.0083
S > 0 and 0.0083 < 0.05 indicating an upward 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
20	18.2	1.8	1	0
13.2	18.2	-5	1	1
21.9	18.2	3.7	2	1
13.7	18.2	-4.5	2	2
19.2	18.2	1	3	2
20.1	18.2	1.9	4	2
14.4	18.2	-3.8	4	3
16.5	18.2	-1.7	4	4
14.3	18.2	-3.9	4	5
13.2	20	-6.8	4	6
21.9	20	1.9	5	6
13.7	20	-6.3	5	7
19.2	20	-0.8	5	8
20.1	20	0.1	6	8
14.4	20	-5.6	6	9
16.5	20	-3.5	6	10
14.3	20	-5.7	6	11
21.9	13.2	8.7	7	11
13.7	13.2	0.5	8	11
19.2	13.2	6	9	11
20.1	13.2	6.9	10	11
14.4	13.2	1.2	11	11
16.5	13.2	3.3	12	11
14.3	13.2	1.1	13	11
13.7	21.9	-8.2	13	12
19.2	21.9	-2.7	13	13
20.1	21.9	-1.8	13	14
14.4	21.9	-7.5	13	15
16.5	21.9	-5.4	13	16
14.3	21.9	-7.6	13	17
19.2	13.7	5.5	14	17
20.1	13.7	6.4	15	17
14.4	13.7	0.7	16	17
16.5	13.7	2.8	17	17
14.3	13.7	0.6	18	17
20.1	19.2	0.9	19	17
14.4	19.2	-4.8	19	18
16.5	19.2	-2.7	19	19
14.3	19.2	-4.9	19	20
14.4	20.1	-5.7	19	21
16.5	20.1	-3.6	19	22

14.3	20.1	-5.8	19	23
16.5	14.4	2.1	20	23
14.3	14.4	-0.1	20	24
14.3	16.5	-2.2	20	25

S Statistic = 20 - 25 = -5
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-5| is 0.728
0.728 >= 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
ND<5	7.08	-2.08	0	1
29.6	7.08	22.52	1	1
27	7.08	19.92	2	1
49.9	7.08	42.82	3	1
29.2	7.08	22.12	4	1
28.5	7.08	21.42	5	1
30.6	7.08	23.52	6	1
32.6	7.08	25.52	7	1
34.7	7.08	27.62	8	1
29.6	ND<5	24.6	9	1
27	ND<5	22	10	1
49.9	ND<5	44.9	11	1
29.2	ND<5	24.2	12	1
28.5	ND<5	23.5	13	1
30.6	ND<5	25.6	14	1
32.6	ND<5	27.6	15	1
34.7	ND<5	29.7	16	1
27	29.6	-2.6	16	2
49.9	29.6	20.3	17	2
29.2	29.6	-0.4	17	3
28.5	29.6	-1.1	17	4
30.6	29.6	1	18	4
32.6	29.6	3	19	4
34.7	29.6	5.1	20	4
49.9	27	22.9	21	4
29.2	27	2.2	22	4
28.5	27	1.5	23	4
30.6	27	3.6	24	4
32.6	27	5.6	25	4
34.7	27	7.7	26	4
29.2	49.9	-20.7	26	5
28.5	49.9	-21.4	26	6
30.6	49.9	-19.3	26	7
32.6	49.9	-17.3	26	8
34.7	49.9	-15.2	26	9
28.5	29.2	-0.7	26	10
30.6	29.2	1.4	27	10
32.6	29.2	3.4	28	10
34.7	29.2	5.5	29	10
30.6	28.5	2.1	30	10
32.6	28.5	4.1	31	10

34.7	28.5	6.2	32	10
32.6	30.6	2	33	10
34.7	30.6	4.1	34	10
34.7	32.6	2.1	35	10

S Statistic = 35 - 10 = 25
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |25| is 0.028
0.028 >= 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
136	119	17	1	0
136	119	17	2	0
183	119	64	3	0
143	119	24	4	0
143	119	24	5	0
158	119	39	6	0
161	119	42	7	0
174	119	55	8	0
160	119	41	9	0
136	136	0	9	0
183	136	47	10	0
143	136	7	11	0
143	136	7	12	0
158	136	22	13	0
161	136	25	14	0
174	136	38	15	0
160	136	24	16	0
183	136	47	17	0
143	136	7	18	0
143	136	7	19	0
158	136	22	20	0
161	136	25	21	0
174	136	38	22	0
160	136	24	23	0
143	183	-40	23	1
143	183	-40	23	2
158	183	-25	23	3
161	183	-22	23	4
174	183	-9	23	5
160	183	-23	23	6
143	143	0	23	6
158	143	15	24	6
161	143	18	25	6
174	143	31	26	6
160	143	17	27	6
158	143	15	28	6
161	143	18	29	6
174	143	31	30	6
160	143	17	31	6
161	158	3	32	6
174	158	16	33	6

160	158	2	34	6
174	161	13	35	6
160	161	-1	35	7
160	174	-14	35	8

S Statistic = 35 - 8 = 27
Comparing at 95% confidence level (upward trend)
Probability of obtaining S >= 27 is 0.0083
S > 0 and 0.0083 < 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
19.1	16	3.1	1	0
14.9	16	-1.1	1	1
17.2	16	1.2	2	1
19.7	16	3.7	3	1
20.2	16	4.2	4	1
18.1	16	2.1	5	1
18.5	16	2.5	6	1
24.7	16	8.7	7	1
20.8	16	4.8	8	1
14.9	19.1	-4.2	8	2
17.2	19.1	-1.9	8	3
19.7	19.1	0.6	9	3
20.2	19.1	1.1	10	3
18.1	19.1	-1	10	4
18.5	19.1	-0.6	10	5
24.7	19.1	5.6	11	5
20.8	19.1	1.7	12	5
17.2	14.9	2.3	13	5
19.7	14.9	4.8	14	5
20.2	14.9	5.3	15	5
18.1	14.9	3.2	16	5
18.5	14.9	3.6	17	5
24.7	14.9	9.8	18	5
20.8	14.9	5.9	19	5
19.7	17.2	2.5	20	5
20.2	17.2	3	21	5
18.1	17.2	0.9	22	5
18.5	17.2	1.3	23	5
24.7	17.2	7.5	24	5
20.8	17.2	3.6	25	5
20.2	19.7	0.5	26	5
18.1	19.7	-1.6	26	6
18.5	19.7	-1.2	26	7
24.7	19.7	5	27	7
20.8	19.7	1.1	28	7
18.1	20.2	-2.1	28	8
18.5	20.2	-1.7	28	9
24.7	20.2	4.5	29	9
20.8	20.2	0.6	30	9
18.5	18.1	0.4	31	9
24.7	18.1	6.6	32	9

20.8	18.1	2.7	33	9
24.7	18.5	6.2	34	9
20.8	18.5	2.3	35	9
20.8	24.7	-3.9	35	10

S Statistic = 35 - 10 = 25
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |25| is 0.028
0.028 >= 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	ND<0.02	0	0	0
0.0679	ND<0.02	0.0479	1	0
0.0611	ND<0.02	0.0411	2	0
0.0633	ND<0.02	0.0433	3	0
ND<0.02	ND<0.02	0	3	0
ND<0.02	ND<0.02	0	3	0
ND<0.02	ND<0.02	0	3	0
ND<0.02	ND<0.02	0	3	0
ND<0.02	ND<0.02	0	3	0
0.0679	ND<0.02	0.0479	4	0
0.0611	ND<0.02	0.0411	5	0
0.0633	ND<0.02	0.0433	6	0
ND<0.02	ND<0.02	0	6	0
ND<0.02	ND<0.02	0	6	0
ND<0.02	ND<0.02	0	6	0
ND<0.02	ND<0.02	0	6	0
ND<0.02	ND<0.02	0	6	0
0.0611	0.0679	-0.0068	6	1
0.0633	0.0679	-0.0046	6	2
ND<0.02	0.0679	-0.0479	6	3
ND<0.02	0.0679	-0.0479	6	4
ND<0.02	0.0679	-0.0479	6	5
ND<0.02	0.0679	-0.0479	6	6
ND<0.02	0.0679	-0.0479	6	7
0.0633	0.0611	0.0022	7	7
ND<0.02	0.0611	-0.0411	7	8
ND<0.02	0.0611	-0.0411	7	9
ND<0.02	0.0611	-0.0411	7	10
ND<0.02	0.0611	-0.0411	7	11
ND<0.02	0.0611	-0.0411	7	12
ND<0.02	0.0633	-0.0433	7	13
ND<0.02	0.0633	-0.0433	7	14
ND<0.02	0.0633	-0.0433	7	15
ND<0.02	0.0633	-0.0433	7	16
ND<0.02	0.0633	-0.0433	7	17
ND<0.02	ND<0.02	0	7	17
ND<0.02	ND<0.02	0	7	17
ND<0.02	ND<0.02	0	7	17
ND<0.02	ND<0.02	0	7	17
ND<0.02	ND<0.02	0	7	17
ND<0.02	ND<0.02	0	7	17

ND<0.02	ND<0.02	0	7	17
ND<0.02	ND<0.02	0	7	17
ND<0.02	ND<0.02	0	7	17
ND<0.02	ND<0.02	0	7	17

S Statistic = 7 - 17 = -10
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-10| is 0.432
0.432 >= 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	0.258	-0.238	0	1
0.227	0.258	-0.031	0	2
2.49	0.258	2.232	1	2
0.571	0.258	0.313	2	2
ND<0.02	0.258	-0.238	2	3
ND<0.02	0.258	-0.238	2	4
ND<0.02	0.258	-0.238	2	5
ND<0.02	0.258	-0.238	2	6
ND<0.02	0.258	-0.238	2	7
0.227	ND<0.02	0.207	3	7
2.49	ND<0.02	2.47	4	7
0.571	ND<0.02	0.551	5	7
ND<0.02	ND<0.02	0	5	7
ND<0.02	ND<0.02	0	5	7
ND<0.02	ND<0.02	0	5	7
ND<0.02	ND<0.02	0	5	7
ND<0.02	ND<0.02	0	5	7
2.49	0.227	2.263	6	7
0.571	0.227	0.344	7	7
ND<0.02	0.227	-0.207	7	8
ND<0.02	0.227	-0.207	7	9
ND<0.02	0.227	-0.207	7	10
ND<0.02	0.227	-0.207	7	11
ND<0.02	0.227	-0.207	7	12
0.571	2.49	-1.919	7	13
ND<0.02	2.49	-2.47	7	14
ND<0.02	2.49	-2.47	7	15
ND<0.02	2.49	-2.47	7	16
ND<0.02	2.49	-2.47	7	17
ND<0.02	2.49	-2.47	7	18
ND<0.02	0.571	-0.551	7	19
ND<0.02	0.571	-0.551	7	20
ND<0.02	0.571	-0.551	7	21
ND<0.02	0.571	-0.551	7	22
ND<0.02	0.571	-0.551	7	23
ND<0.02	ND<0.02	0	7	23
ND<0.02	ND<0.02	0	7	23
ND<0.02	ND<0.02	0	7	23
ND<0.02	ND<0.02	0	7	23
ND<0.02	ND<0.02	0	7	23
ND<0.02	ND<0.02	0	7	23

ND<0.02	ND<0.02	0	7	23
ND<0.02	ND<0.02	0	7	23
ND<0.02	ND<0.02	0	7	23
ND<0.02	ND<0.02	0	7	23

S Statistic = 7 - 23 = -16
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-16| is 0.186
0.186 >= 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis
Parameter: Zinc
Location: MW3
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.02	ND<0.02	0	0	0
ND<0.02	ND<0.02	0	0	0
0.0759	ND<0.02	0.0559	1	0
ND<0.02	ND<0.02	0	1	0
ND<0.02	ND<0.02	0	1	0
ND<0.02	ND<0.02	0	1	0
ND<0.02	ND<0.02	0	1	0
ND<0.02	ND<0.02	0	1	0
ND<0.02	ND<0.02	0	1	0
ND<0.02	ND<0.02	0	1	0
0.0759	ND<0.02	0.0559	2	0
ND<0.02	ND<0.02	0	2	0
ND<0.02	ND<0.02	0	2	0
ND<0.02	ND<0.02	0	2	0
ND<0.02	ND<0.02	0	2	0
ND<0.02	ND<0.02	0	2	0
ND<0.02	ND<0.02	0	2	0
0.0759	ND<0.02	0.0559	3	0
ND<0.02	ND<0.02	0	3	0
ND<0.02	ND<0.02	0	3	0
ND<0.02	ND<0.02	0	3	0
ND<0.02	ND<0.02	0	3	0
ND<0.02	ND<0.02	0	3	0
ND<0.02	ND<0.02	0	3	0
ND<0.02	0.0759	-0.0559	3	1
ND<0.02	0.0759	-0.0559	3	2
ND<0.02	0.0759	-0.0559	3	3
ND<0.02	0.0759	-0.0559	3	4
ND<0.02	0.0759	-0.0559	3	5
ND<0.02	0.0759	-0.0559	3	6
ND<0.02	ND<0.02	0	3	6
ND<0.02	ND<0.02	0	3	6
ND<0.02	ND<0.02	0	3	6
ND<0.02	ND<0.02	0	3	6
ND<0.02	ND<0.02	0	3	6
ND<0.02	ND<0.02	0	3	6
ND<0.02	ND<0.02	0	3	6
ND<0.02	ND<0.02	0	3	6
ND<0.02	ND<0.02	0	3	6
ND<0.02	ND<0.02	0	3	6
ND<0.02	ND<0.02	0	3	6

ND<0.02	ND<0.02	0	3	6
ND<0.02	ND<0.02	0	3	6
ND<0.02	ND<0.02	0	3	6
ND<0.02	ND<0.02	0	3	6

S Statistic = 3 - 6 = -3
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-3| is 0.862
0.862 >= 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	ND<0.02	0	0	0
0.0787	ND<0.02	0.0587	1	0
0.346	ND<0.02	0.326	2	0
0.0218	ND<0.02	0.0018	3	0
ND<0.02	ND<0.02	0	3	0
ND<0.02	ND<0.02	0	3	0
ND<0.02	ND<0.02	0	3	0
ND<0.02	ND<0.02	0	3	0
ND<0.02	ND<0.02	0	3	0
0.0787	ND<0.02	0.0587	4	0
0.346	ND<0.02	0.326	5	0
0.0218	ND<0.02	0.0018	6	0
ND<0.02	ND<0.02	0	6	0
ND<0.02	ND<0.02	0	6	0
ND<0.02	ND<0.02	0	6	0
ND<0.02	ND<0.02	0	6	0
ND<0.02	ND<0.02	0	6	0
0.346	0.0787	0.2673	7	0
0.0218	0.0787	-0.0569	7	1
ND<0.02	0.0787	-0.0587	7	2
ND<0.02	0.0787	-0.0587	7	3
ND<0.02	0.0787	-0.0587	7	4
ND<0.02	0.0787	-0.0587	7	5
ND<0.02	0.0787	-0.0587	7	6
0.0218	0.346	-0.3242	7	7
ND<0.02	0.346	-0.326	7	8
ND<0.02	0.346	-0.326	7	9
ND<0.02	0.346	-0.326	7	10
ND<0.02	0.346	-0.326	7	11
ND<0.02	0.346	-0.326	7	12
ND<0.02	0.0218	-0.0018	7	13
ND<0.02	0.0218	-0.0018	7	14
ND<0.02	0.0218	-0.0018	7	15
ND<0.02	0.0218	-0.0018	7	16
ND<0.02	0.0218	-0.0018	7	17
ND<0.02	ND<0.02	0	7	17
ND<0.02	ND<0.02	0	7	17
ND<0.02	ND<0.02	0	7	17
ND<0.02	ND<0.02	0	7	17
ND<0.02	ND<0.02	0	7	17
ND<0.02	ND<0.02	0	7	17

ND<0.02	ND<0.02	0	7	17
ND<0.02	ND<0.02	0	7	17
ND<0.02	ND<0.02	0	7	17
ND<0.02	ND<0.02	0	7	17

S Statistic = 7 - 17 = -10
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-10| is 0.432
0.432 >= 0.025 indicating no evidence of a trend

Mann-Kendall Trend Analysis
Parameter: Zinc
Location: MW5
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
ND<0.02	ND<0.02	0	0	0
0.177	ND<0.02	0.157	1	0
0.286	ND<0.02	0.266	2	0
ND<0.02	ND<0.02	0	2	0
ND<0.02	ND<0.02	0	2	0
ND<0.02	ND<0.02	0	2	0
ND<0.02	ND<0.02	0	2	0
ND<0.02	ND<0.02	0	2	0
ND<0.02	ND<0.02	0	2	0
0.177	ND<0.02	0.157	3	0
0.286	ND<0.02	0.266	4	0
ND<0.02	ND<0.02	0	4	0
ND<0.02	ND<0.02	0	4	0
ND<0.02	ND<0.02	0	4	0
ND<0.02	ND<0.02	0	4	0
ND<0.02	ND<0.02	0	4	0
ND<0.02	ND<0.02	0	4	0
0.286	0.177	0.109	5	0
ND<0.02	0.177	-0.157	5	1
ND<0.02	0.177	-0.157	5	2
ND<0.02	0.177	-0.157	5	3
ND<0.02	0.177	-0.157	5	4
ND<0.02	0.177	-0.157	5	5
ND<0.02	0.177	-0.157	5	6
ND<0.02	0.286	-0.266	5	7
ND<0.02	0.286	-0.266	5	8
ND<0.02	0.286	-0.266	5	9
ND<0.02	0.286	-0.266	5	10
ND<0.02	0.286	-0.266	5	11
ND<0.02	0.286	-0.266	5	12
ND<0.02	ND<0.02	0	5	12
ND<0.02	ND<0.02	0	5	12
ND<0.02	ND<0.02	0	5	12
ND<0.02	ND<0.02	0	5	12
ND<0.02	ND<0.02	0	5	12
ND<0.02	ND<0.02	0	5	12
ND<0.02	ND<0.02	0	5	12
ND<0.02	ND<0.02	0	5	12
ND<0.02	ND<0.02	0	5	12
ND<0.02	ND<0.02	0	5	12
ND<0.02	ND<0.02	0	5	12

ND<0.02	ND<0.02	0	5	12
ND<0.02	ND<0.02	0	5	12
ND<0.02	ND<0.02	0	5	12
ND<0.02	ND<0.02	0	5	12

S Statistic = 5 - 12 = -7
Comparing at 1.0 - (0.05 / 2) = 97.5% confidence level (two-tailed)
Probability of obtaining S >= |-7| is 0.6
0.6 >= 0.025 indicating no evidence of a trend

APPENDIX E

Parametric and Non-Parametric Prediction Limit

Non-Parametric Prediction Interval
Intra-Well Comparison for MW2
Parameter: Aluminum, total
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 66.6667%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.165
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/11/2020	ND<0.05
	6/1/2020	0.0612
	9/16/2020	0.0698
	12/18/2020	ND<0.05
	3/1/2021	0.165
	9/20/2021	ND<0.05
	3/18/2022	ND<0.05
	9/16/2022	ND<0.05
	4/25/2023	ND<0.05

Date	Count	Mean	Significant
9/25/2023	1	0.05	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW3
Parameter: Aluminum, total
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 88.8889%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.0844
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/3/2020	ND<0.05
	6/13/2020	ND<0.05
	10/2/2020	0.0844
	12/29/2020	ND<0.05
	3/8/2021	ND<0.05
	10/5/2021	ND<0.05
	4/8/2022	ND<0.05
	9/26/2022	ND<0.05
	5/9/2023	ND<0.05

Date	Count	Mean	Significant
9/1/2023	1	0.05	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW5
Parameter: Ammonia Nitrogen
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 66.6667%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 9.79
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/5/2020	ND<0.5
	6/4/2020	0.546
	9/23/2020	ND<0.5
	12/23/2020	9.79
	3/11/2021	ND<0.5
	9/30/2021	ND<0.5
	4/1/2022	ND<0.5
	9/30/2022	0.529
	5/2/2023	ND<0.5

Date	Count	Mean	Significant
9/18/2023	1	0.5	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW2
Parameter: Antimony
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 88.8889%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.002
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/11/2020	ND<0.001
	6/1/2020	0.0013
	9/16/2020	ND<0.001
	12/18/2020	ND<0.001
	3/1/2021	ND<0.002
	9/20/2021	ND<0.002
	3/18/2022	ND<0.002
	9/16/2022	ND<0.002
	4/25/2023	ND<0.002

Date	Count	Mean	Significant
9/25/2023	1	0.002	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW2
Parameter: Boron
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 88.8889%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.2
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/11/2020	ND<0.2
	6/1/2020	0.119
	9/16/2020	ND<0.1
	12/18/2020	ND<0.1
	3/1/2021	ND<0.1
	9/20/2021	ND<0.1
	3/18/2022	ND<0.1
	9/16/2022	ND<0.1
	4/25/2023	ND<0.1

Date	Count	Mean	Significant
9/25/2023	1	0.1	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW4
Parameter: Boron
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 88.8889%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.2
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/6/2020	ND<0.2
	5/26/2020	ND<0.1
	9/4/2020	ND<0.1
	12/15/2020	ND<0.1
	3/4/2021	0.106
	9/27/2021	ND<0.1
	3/25/2022	ND<0.1
	9/21/2022	ND<0.1
	4/17/2023	ND<0.1

Date	Count	Mean	Significant
9/11/2023	1	0.1	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW1
Parameter: Cadmium
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 88.8889%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.0002
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/12/2020	ND<0.0001
	5/29/2020	ND<0.0001
	9/8/2020	0.000111
	12/11/2020	ND<0.0001
	2/26/2021	ND<0.0001
	9/17/2021	ND<0.0001
	3/11/2022	ND<0.0001
	9/12/2022	ND<0.0001
	4/11/2023	ND<0.0002

Date	Count	Mean	Significant
9/29/2023	1	0.0002	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW2
Parameter: Chloride
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 66.6667%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 71
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/11/2020	71
	6/1/2020	ND<5
	9/16/2020	ND<5
	12/18/2020	34.4
	3/1/2021	5.66
	9/20/2021	ND<5
	3/18/2022	ND<5
	9/16/2022	ND<5
	4/25/2023	ND<5

Date	Count	Mean	Significant
9/25/2023	1	5.99	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW1
Parameter: Cobalt
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 88.8889%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.00117
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/12/2020	ND<0.0005
	5/29/2020	ND<0.0005
	9/8/2020	ND<0.0005
	12/11/2020	ND<0.0005
	2/26/2021	0.00117
	9/17/2021	ND<0.0005
	3/11/2022	ND<0.0005
	9/12/2022	ND<0.0005
	4/11/2023	ND<0.0005

Date	Count	Mean	Significant
9/29/2023	1	0.0005	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW2
Parameter: Cobalt
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 22.2222%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.0275
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/11/2020	0.00141
	6/1/2020	0.0275
	9/16/2020	ND<0.0005
	12/18/2020	0.000725
	3/1/2021	ND<0.0005
	9/20/2021	0.00404
	3/18/2022	0.00254
	9/16/2022	0.000769
	4/25/2023	0.00109

Date	Count	Mean	Significant
9/25/2023	1	0.0005	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW3
Parameter: Cobalt
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 77.7778%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.00159
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/3/2020	ND<0.0005
	6/13/2020	0.00159
	10/2/2020	ND<0.0005
	12/29/2020	ND<0.0005
	3/8/2021	ND<0.0005
	10/5/2021	ND<0.0005
	4/8/2022	ND<0.0005
	9/26/2022	ND<0.0005
	5/9/2023	0.000731

Date	Count	Mean	Significant
9/1/2023	1	0.0005	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW4
Parameter: Cobalt
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 33.3333%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.00728
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/6/2020	ND<0.0005
	5/26/2020	0.00145
	9/4/2020	0.00572
	12/15/2020	0.00728
	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

Date	Count	Mean	Significant
9/11/2023	1	0.00121	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW5
Parameter: Cobalt
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 66.6667%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.00212
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/5/2020	ND<0.0005
	6/4/2020	0.000735
	9/23/2020	0.00212
	12/23/2020	0.00103
	3/11/2021	ND<0.0005
	9/30/2021	ND<0.0005
	4/1/2022	ND<0.0005
	9/30/2022	ND<0.0005
	5/2/2023	ND<0.0005

Date	Count	Mean	Significant
9/18/2023	1	0.0005	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW5
Parameter: Iron
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 88.8889%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.894
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/5/2020	ND<0.1
	6/4/2020	ND<0.1
	9/23/2020	0.894
	12/23/2020	ND<0.1
	3/11/2021	ND<0.1
	9/30/2021	ND<0.1
	4/1/2022	ND<0.1
	9/30/2022	ND<0.1
	5/2/2023	ND<0.1

Date	Count	Mean	Significant
9/18/2023	1	0.1	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW1
Parameter: Fluoride
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 88.8889%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 1
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/12/2020	ND<0.5
	5/29/2020	ND<0.5
	9/8/2020	ND<0.5
	12/11/2020	ND<0.5
	2/26/2021	0.709
	9/17/2021	ND<0.5
	3/11/2022	ND<0.5
	9/12/2022	ND<0.5
	4/11/2023	ND<1

Date	Count	Mean	Significant
9/29/2023	1	1	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW3
Parameter: Fluoride
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 88.8889%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 1
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/3/2020	ND<0.5
	6/13/2020	ND<0.5
	10/2/2020	ND<0.5
	12/29/2020	ND<0.5
	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

Date	Count	Mean	Significant
9/1/2023	1	1	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW4
Parameter: Fluoride
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 88.8889%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 1.04
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/6/2020	ND<0.5
	5/26/2020	ND<0.5
	9/4/2020	ND<0.5
	12/15/2020	ND<0.5
	3/4/2021	1.04
	9/27/2021	ND<0.5
	3/25/2022	ND<0.5
	9/21/2022	ND<0.5
	4/17/2023	ND<1

Date	Count	Mean	Significant
9/11/2023	1	1	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW1
Parameter: Formaldehyde
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 77.7778%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 28.7
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/12/2020	28.7
	5/29/2020	ND<10
	9/8/2020	ND<10
	12/11/2020	ND<10
	2/26/2021	ND<10
	9/17/2021	ND<10
	3/11/2022	ND<10
	9/12/2022	12
	4/11/2023	ND<10

Date	Count	Mean	Significant
9/29/2023	1	10	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW3
Parameter: Formaldehyde
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 77.7778%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 55.4
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/3/2020	ND<10
	6/13/2020	ND<10
	10/2/2020	ND<10
	12/29/2020	ND<10
	3/8/2021	ND<10
	10/5/2021	55.4
	4/8/2022	13.8
	9/26/2022	ND<10
	5/9/2023	ND<10

Date	Count	Mean	Significant
9/1/2023	1	10	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW1
Parameter: Total Organic Halogens, Halides
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 88.8889%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.15
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/12/2020	ND<0.15
	5/29/2020	ND<0.06
	9/8/2020	ND<0.06
	12/11/2020	ND<0.06
	2/26/2021	ND<0.04
	9/17/2021	ND<0.04
	3/11/2022	ND<0.04
	9/12/2022	0.0492
	4/11/2023	ND<0.04

Date	Count	Mean	Significant
9/29/2023	1	0.04	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW2
Parameter: Total Organic Halogens, Halides
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 88.8889%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.119
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/11/2020	ND<0.06
	6/1/2020	ND<0.06
	9/16/2020	ND<0.06
	12/18/2020	ND<0.06
	3/1/2021	ND<0.04
	9/20/2021	ND<0.04
	3/18/2022	ND<0.04
	9/16/2022	0.119
	4/25/2023	ND<0.04

Date	Count	Mean	Significant
9/25/2023	1	0.04	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW3
Parameter: Total Organic Halogens, Halides
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 88.8889%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.15
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/3/2020	ND<0.06
	6/13/2020	ND<0.15
	10/2/2020	ND<0.06
	12/29/2020	ND<0.06
	3/8/2021	ND<0.04
	10/5/2021	ND<0.04
	4/8/2022	ND<0.04
	9/26/2022	0.0667
	5/9/2023	ND<0.04

Date	Count	Mean	Significant
9/1/2023	1	0.0861	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW4
Parameter: Total Organic Halogens, Halides
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 88.8889%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.15
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/6/2020	ND<0.15
	5/26/2020	ND<0.06
	9/4/2020	ND<0.06
	12/15/2020	ND<0.06
	3/4/2021	ND<0.04
	9/27/2021	ND<0.04
	3/25/2022	ND<0.04
	9/21/2022	0.0688
	4/17/2023	ND<0.04

Date	Count	Mean	Significant
9/11/2023	1	0.04	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW5
Parameter: Total Organic Halogens, Halides
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 88.8889%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.757
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/5/2020	ND<0.06
	6/4/2020	ND<0.06
	9/23/2020	ND<0.06
	12/23/2020	ND<0.06
	3/11/2021	ND<0.04
	9/30/2021	ND<0.04
	4/1/2022	ND<0.04
	9/30/2022	0.757
	5/2/2023	ND<0.04

Date	Count	Mean	Significant
9/18/2023	1	0.04	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW3
Parameter: Manganese
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 44.4444%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.579
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/3/2020	0.133
	6/13/2020	0.579
	10/2/2020	0.0262
	12/29/2020	0.0114
	3/8/2021	ND<0.01
	10/5/2021	ND<0.01
	4/8/2022	ND<0.01
	9/26/2022	ND<0.01
	5/9/2023	0.0303

Date	Count	Mean	Significant
9/1/2023	1	0.01	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW4
Parameter: Manganese
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 0%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.529
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/6/2020	0.529
	5/26/2020	0.227
	9/4/2020	0.0969
	12/15/2020	0.127
	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

Date	Count	Mean	Significant
9/11/2023	1	0.0608	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW1
Parameter: Molybdenum
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 66.6667%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.0029
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/12/2020	ND<0.002
	5/29/2020	ND<0.002
	9/8/2020	ND<0.002
	12/11/2020	ND<0.002
	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

Date	Count	Mean	Significant
9/29/2023	1	0.00264	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW4
Parameter: Molybdenum
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 33.3333%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.00527
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/6/2020	0.00203
	5/26/2020	0.00527
	9/4/2020	ND<0.002
	12/15/2020	0.00245
	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

Date	Count	Mean	Significant
9/11/2023	1	0.00242	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW5
Parameter: Molybdenum
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 77.7778%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.00266
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/5/2020	ND<0.002
	6/4/2020	ND<0.002
	9/23/2020	0.00256
	12/23/2020	ND<0.002
	3/11/2021	ND<0.002
	9/30/2021	ND<0.002
	4/1/2022	ND<0.002
	9/30/2022	ND<0.002
	5/2/2023	0.00266

Date	Count	Mean	Significant
9/18/2023	1	0.002	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW1
Parameter: Phenols, total
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 88.8889%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.0376
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/12/2020	ND<0.0196
	5/29/2020	ND<0.02
	9/8/2020	0.0376
	12/11/2020	ND<0.02
	2/26/2021	ND<0.02
	9/17/2021	ND<0.0184
	3/11/2022	ND<0.02
	9/12/2022	ND<0.02
	4/11/2023	ND<0.0204

Date	Count	Mean	Significant
9/29/2023	1	0.0216	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW1
Parameter: Zinc
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 66.6667%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.0679
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/12/2020	ND<0.02
	5/29/2020	ND<0.02
	9/8/2020	0.0679
	12/11/2020	0.0611
	2/26/2021	0.0633
	9/17/2021	ND<0.02
	3/11/2022	ND<0.02
	9/12/2022	ND<0.02
	4/11/2023	ND<0.02

Date	Count	Mean	Significant
9/29/2023	1	0.02	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW2
Parameter: Zinc
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 55.5556%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 2.49
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/11/2020	0.258
	6/1/2020	ND<0.02
	9/16/2020	0.227
	12/18/2020	2.49
	3/1/2021	0.571
	9/20/2021	ND<0.02
	3/18/2022	ND<0.02
	9/16/2022	ND<0.02
	4/25/2023	ND<0.02

Date	Count	Mean	Significant
9/25/2023	1	0.02	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW3
Parameter: Zinc
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 88.8889%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.0759
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/3/2020	ND<0.02
	6/13/2020	ND<0.02
	10/2/2020	ND<0.02
	12/29/2020	0.0759
	3/8/2021	ND<0.02
	10/5/2021	ND<0.02
	4/8/2022	ND<0.02
	9/26/2022	ND<0.02
	5/9/2023	ND<0.02

Date	Count	Mean	Significant
9/1/2023	1	0.02	FALSE

Non-Parametric Prediction Interval

Intra-Well Comparison for MW4
Parameter: Zinc
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 66.6667%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.346
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/6/2020	ND<0.02
	5/26/2020	ND<0.02
	9/4/2020	0.0787
	12/15/2020	0.346
	3/4/2021	0.0218
	9/27/2021	ND<0.02
	3/25/2022	ND<0.02
	9/21/2022	ND<0.02
	4/17/2023	ND<0.02

Date	Count	Mean	Significant
9/11/2023	1	0.02	FALSE

Non-Parametric Prediction Interval
Intra-Well Comparison for MW5
Parameter: Zinc
Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 77.7778%
Future Samples (k) = 1
Recent Dates = 1
Baseline Measurements (n) = 9
Maximum Baseline Concentration = 0.286
Confidence Level = 90%
False Positive Rate = 10%

Baseline Measurements	Date	Value
	3/5/2020	ND<0.02
	6/4/2020	ND<0.02
	9/23/2020	0.177
	12/23/2020	0.286
	3/11/2021	ND<0.02
	9/30/2021	ND<0.02
	4/1/2022	ND<0.02
	9/30/2022	ND<0.02
	5/2/2023	ND<0.02

Date	Count	Mean	Significant
9/18/2023	1	0.02	FALSE

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
	3/12/2020	0.0374
	5/29/2020	0.0365
	9/8/2020	0.0294
	12/11/2020	0.0294
	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

From 9 baseline samples
Baseline mean = 0.0283
Baseline std Dev = 0.00545962

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 = 9 (background observations) - 1
t(0.99, 8) = 2.89647

Date	Samples	Mean	Interval	Significant
9/29/2023	1	0.0207	[0, 0.044969]	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
	3/11/2020	0.0617
	6/1/2020	0.0872
	9/16/2020	0.0556
	12/18/2020	0.0958
	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

From 9 baseline samples
Baseline mean = 0.0746889
Baseline std Dev = 0.0143103

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 = 9 (background observations) - 1
t(0.99, 8) = 2.89647

Date	Samples	Mean	Interval	Significant
9/25/2023	1	0.118	[0, 0.11838]	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
	3/3/2020	0.384
	6/13/2020	0.499
	10/2/2020	0.215
	12/29/2020	0.228
	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

From 9 baseline samples
Baseline mean = 0.301778
Baseline std Dev = 0.0909145

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 = 9 (background observations) - 1
t(0.99, 8) = 2.89647

Date	Samples	Mean	Interval	Significant
9/1/2023	1	0.325	[0, 0.579353]	FALSE

Parametric Prediction Interval Analysis
Intra-Well Comparison for MW4
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
	3/6/2020	0.0942
	5/26/2020	0.112
	9/4/2020	0.125
	12/15/2020	0.133
	3/4/2021	0.12
	9/27/2021	0.188
	3/25/2022	0.125
	9/21/2022	0.129
	4/17/2023	0.125

From 9 baseline samples
Baseline mean = 0.127911
Baseline std Dev = 0.0252868

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 = 9 (background observations) - 1
t(0.99, 8) = 2.89647

Date	Samples	Mean	Interval	Significant
9/11/2023	1	0.135	[0, 0.205115]	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
	3/5/2020	0.103
	6/4/2020	0.0902
	9/23/2020	0.152
	12/23/2020	0.144
	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

From 9 baseline samples
Baseline mean = 0.108233
Baseline std Dev = 0.026193

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 = 9 (background observations) - 1
t(0.99, 8) = 2.89647

Date	Samples	Mean	Interval	Significant
9/18/2023	1	0.0955	[0, 0.188204]	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
	3/12/2020	ND<0.2
	5/29/2020	0.166
	9/8/2020	0.152
	12/11/2020	0.144
	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

From 9 baseline samples
Baseline mean = 0.149444
Baseline std Dev = 0.0253185

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 = 9 (background observations) - 1
t(0.99, 8) = 2.89647

Date	Samples	Mean	Interval	Significant
9/29/2023	1	0.17	[0, 0.226746]	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
	3/5/2020	ND<0.2
	6/4/2020	0.179
	9/23/2020	0.2
	12/23/2020	0.181
	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

From 9 baseline samples
Baseline mean = 0.192
Baseline std Dev = 0.0165982

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 = 9 (background observations) - 1
t(0.99, 8) = 2.89647

Date	Samples	Mean	Interval	Significant
9/18/2023	1	0.213	[0, 0.242677]	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
	3/12/2020	5.75
	5/29/2020	7.37
	9/8/2020	7.3
	12/11/2020	8.59
	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

From 9 baseline samples
Baseline mean = 7.18556
Baseline std Dev = 1.51667

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 = 9 (background observations) - 1
t(0.99, 8) = 2.89647

Date	Samples	Mean	Interval	Significant
9/29/2023	1	6.38	[0, 11.8162]	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
	3/3/2020	ND<5
	6/13/2020	ND<5
	10/2/2020	24.9
	12/29/2020	21.6
	3/8/2021	23.5
	10/5/2021	48.3
	4/8/2022	60.4
	9/26/2022	61.4
	5/9/2023	136

From 9 baseline samples
Baseline mean = 42.9
Baseline std Dev = 40.8842

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 = 9 (background observations) - 1
$t(0.99, 8) = 2.89647$

Date	Samples	Mean	Interval	Significant
9/1/2023	1	107	[0, 167.725]	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
	3/11/2020	0.884
	6/1/2020	0.71
	9/16/2020	0.504
	12/18/2020	0.64
	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

From 9 baseline samples
Baseline mean = 0.676333
Baseline std Dev = 0.17507

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 = 9 (background observations) - 1
t(0.99, 8) = 2.89647

Date	Samples	Mean	Interval	Significant
9/25/2023	1	1	[0, 1.21085]	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
	3/5/2020	0.677
	6/4/2020	0.675
	9/23/2020	0.63
	12/23/2020	0.647
	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

From 9 baseline samples
Baseline mean = 0.755556
Baseline std Dev = 0.298753

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 = 9 (background observations) - 1
t(0.99, 8) = 2.89647

Date	Samples	Mean	Interval	Significant
9/18/2023	1	1	[0, 1.66769]	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
	3/12/2020	0.0699
	5/29/2020	0.0713
	9/8/2020	0.0685
	12/11/2020	0.073
	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

From 9 baseline samples
Baseline mean = 0.0744222
Baseline std Dev = 0.0079732

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 = 9 (background observations) - 1
t(0.99, 8) = 2.89647

Date	Samples	Mean	Interval	Significant
9/29/2023	1	0.0753	[0, 0.0987656]	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
	3/11/2020	0.383
	6/1/2020	0.563
	9/16/2020	0.0139
	12/18/2020	0.0636
	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

From 9 baseline samples
Baseline mean = 0.194622
Baseline std Dev = 0.195619

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 = 9 (background observations) - 1
t(0.99, 8) = 2.89647

Date	Samples	Mean	Interval	Significant
9/25/2023	1	0.0237	[0, 0.791875]	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
	3/5/2020	0.0759
	6/4/2020	0.0706
	9/23/2020	0.164
	12/23/2020	0.113
	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

From 9 baseline samples
Baseline mean = 0.0862778
Baseline std Dev = 0.0377796

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 = 9 (background observations) - 1
t(0.99, 8) = 2.89647

Date	Samples	Mean	Interval	Significant
9/18/2023	1	0.0806	[0, 0.201625]	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
	3/11/2020	0.00478
	6/1/2020	0.00435
	9/16/2020	0.00215
	12/18/2020	0.0033
	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

From 9 baseline samples
Baseline mean = 0.00332889
Baseline std Dev = 0.00100204

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 = 9 (background observations) - 1
t(0.99, 8) = 2.89647

Date	Samples	Mean	Interval	Significant
9/25/2023	1	0.00225	[0, 0.00638827]	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
	3/3/2020	ND<0.002
	6/13/2020	ND<0.002
	10/2/2020	0.00364
	12/29/2020	0.00407
	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

From 9 baseline samples
Baseline mean = 0.00338222
Baseline std Dev = 0.00111094

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 = 9 (background observations) - 1
t(0.99, 8) = 2.89647

Date	Samples	Mean	Interval	Significant
9/1/2023	1	0.0035	[0, 0.00677409]	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
	3/12/2020	811
	5/29/2020	880
	9/8/2020	796
	12/11/2020	885
	2/26/2021	828
	9/17/2021	903
	3/11/2022	976
	9/12/2022	928
	4/11/2023	924

From 9 baseline samples
Baseline mean = 881.222
Baseline std Dev = 59.7051

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 = 9 (background observations) - 1
t(0.99, 8) = 2.89647

Date	Samples	Mean	Interval	Significant
9/29/2023	1	927	[0, 1063.51]	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
	3/11/2020	18.2
	6/1/2020	20
	9/16/2020	13.2
	12/18/2020	21.9
	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

From 9 baseline samples
Baseline mean = 17.4667
Baseline std Dev = 3.14802

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 = 9 (background observations) - 1
t(0.99, 8) = 2.89647

Date	Samples	Mean	Interval	Significant
9/25/2023	1	14.3	[0, 27.078]	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
	3/3/2020	7.08
	6/13/2020	ND<5
	10/2/2020	29.6
	12/29/2020	27
	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

From 9 baseline samples
Baseline mean = 26.6089
Baseline std Dev = 13.5186

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 = 9 (background observations) - 1
t(0.99, 8) = 2.89647

Date	Samples	Mean	Interval	Significant
9/1/2023	1	34.7	[0, 67.883]	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
	3/6/2020	119
	5/26/2020	136
	9/4/2020	136
	12/15/2020	183
	3/4/2021	143
	9/27/2021	143
	3/25/2022	158
	9/21/2022	161
	4/17/2023	174

From 9 baseline samples
Baseline mean = 150.333
Baseline std Dev = 20.3101

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 = 9 (background observations) - 1
t(0.99, 8) = 2.89647

Date	Samples	Mean	Interval	Significant
9/11/2023	1	160	[0, 212.343]	FALSE

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
	3/5/2020	16
	6/4/2020	19.1
	9/23/2020	14.9
	12/23/2020	17.2
	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

From 9 baseline samples
Baseline mean = 18.7111
Baseline std Dev = 2.82376

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 = 9 (background observations) - 1
t(0.99, 8) = 2.89647

Date	Samples	Mean	Interval	Significant
9/18/2023	1	20.8	[0, 27.3325]	FALSE

APPENDIX F

Laboratory Analytical Reports

EB Solutions, Inc.

ANALYTICAL REPORT

PREPARED FOR

Attn: Edward Bertch
EB Solutions, Inc
5060 4th St. SW
Cedar Rapids, Iowa 52404
Generated 5/4/2023 10:45:16 AM

JOB DESCRIPTION

Crawford Project

JOB NUMBER

310-253469-1

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, Project Manager I
Zach.Bindert@et.eurofinsus.com
(319)277-2401

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Eurofins Cedar Falls
5/4/2023

Job ID: 310-253469-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-253469-1

Receipt
The sample was received on 4/13/2023 9:15 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 2.3°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 (310-253469-1). Elevated reporting limits (RLs) are provided for chloride.

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 (310-253469-1).

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-253469-1	MW1	Water	04/11/23 09:15	04/13/23 09:15

Client Sample ID: MW1　　　　　　　　　　　　　　　　　　　　**Lab Sample ID: 310-253469-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	924		20.0		mg/L	20		9056A	Total/NA
Barium	0.0233		0.00200		mg/L	1		6020B	Total/NA
Manganese	0.0900		0.0100		mg/L	1		6020B	Total/NA
Boron	0.117		0.100		mg/L	1		6020B	Dissolved
Manganese	0.0821		0.0100		mg/L	1		6020B	Dissolved
Molybdenum	0.00203		0.00200		mg/L	1		6020B	Dissolved
Total Suspended Solids	9.38		1.88		mg/L	1		I-3765-85	Total/NA
Chemical Oxygen Demand	403		250		mg/L	50		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

Client Sample ID: MW1
Date Collected: 04/11/23 09:15
Date Received: 04/13/23 09:15

Lab Sample ID: 310-253469-1
Matrix: Water

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			04/14/23 14:19	1

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		80 - 120					04/14/23 14:19	1
Dibromofluoromethane (Surr)	104		80 - 128					04/14/23 14:19	1
Toluene-d8 (Surr)	97		80 - 120					04/14/23 14:19	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			04/19/23 15:41	5
Fluoride	<1.00		1.00		mg/L			04/19/23 15:41	5
Sulfate	**924**		20.0		mg/L			04/19/23 15:57	20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		04/14/23 08:45	04/22/23 00:28	1
Barium	**0.0233**		0.00200		mg/L		04/14/23 08:45	04/22/23 00:28	1
Cadmium	<0.000200		0.000200		mg/L		04/14/23 08:45	04/22/23 00:28	1
Manganese	**0.0900**		0.0100		mg/L		04/14/23 08:45	04/22/23 00:28	1
Zinc	<0.0200		0.0200		mg/L		04/14/23 08:45	04/22/23 00:28	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		04/17/23 09:40	04/17/23 19:31	1
Arsenic	<0.00200		0.00200		mg/L		04/17/23 09:40	04/17/23 19:31	1
Boron	**0.117**		0.100		mg/L		04/17/23 09:40	04/20/23 18:38	1
Cobalt	<0.000500		0.000500		mg/L		04/17/23 09:40	04/17/23 19:31	1
Iron	<0.100		0.100		mg/L		04/17/23 09:40	04/17/23 19:31	1
Manganese	**0.0821**		0.0100		mg/L		04/17/23 09:40	04/17/23 19:31	1
Molybdenum	**0.00203**		0.00200		mg/L		04/17/23 09:40	04/17/23 19:31	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		04/22/23 08:57	04/24/23 23:06	1
Halogens, Total Organic (SW846 9020B)	<40.0		40.0		ug/L		04/26/23 10:00	04/26/23 14:44	1
Phenols, Total (SW846 9066)	<0.0204		0.0204		mg/L		04/14/23 08:10	04/14/23 17:40	1
Total Suspended Solids (USGS I-3765-85)	**9.38**		1.88		mg/L			04/14/23 13:18	1
Chemical Oxygen Demand (SM 5220D)	**403**		250		mg/L			04/24/23 08:59	50

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

Eurofins Cedar Falls

Client: EB Solutions, Inc
Job ID: 310-253469-1
Project/Site: Crawford Project

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

Matrix: Water
Prep Type: Total/NA

| | | Percent Surrogate Recovery (Acceptance Limits) | | | | | | |
| | | BFB | DBFM | TOL | | | | |
Lab Sample ID	Client Sample ID	(80-120)	(80-128)	(80-120)				
310-253469-1	MW1	101	104	97				
LCS 310-384346/6	Lab Control Sample	101	99	99				
MB 310-384346/5	Method Blank	101	109	96				

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

Eurofins Cedar Falls

Client: EB Solutions, Inc

Project/Site: Crawford Project

Job ID: 310-253469-1

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

Lab Sample ID: MB 310-384346/5
Matrix: Water
Analysis Batch: 384346

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			04/14/23 12:17	1

Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		80 - 120					04/14/23 12:17	1
Dibromofluoromethane (Surr)	109		80 - 128					04/14/23 12:17	1
Toluene-d8 (Surr)	96		80 - 120					04/14/23 12:17	1

Lab Sample ID: LCS 310-384346/6
Matrix: Water
Analysis Batch: 384346

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	40.84		ug/L		102	50 - 150		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	99		80 - 128
Toluene-d8 (Surr)	99		80 - 120

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-384939/3
Matrix: Water
Analysis Batch: 384939

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			04/19/23 09:58	1
Fluoride	<0.200		0.200		mg/L			04/19/23 09:58	1
Sulfate	<1.00		1.00		mg/L			04/19/23 09:58	1

Lab Sample ID: LCS 310-384939/4
Matrix: Water
Analysis Batch: 384939

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	9.776		mg/L		98	90 - 110		
Fluoride	2.00	2.031		mg/L		102	90 - 110		
Sulfate	10.0	9.761		mg/L		98	90 - 110		

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-384266/1-A
Matrix: Water
Analysis Batch: 385211

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 384266

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		04/14/23 08:45	04/21/23 22:54	1
Barium	<0.00200		0.00200		mg/L		04/14/23 08:45	04/21/23 22:54	1
Cadmium	<0.000200		0.000200		mg/L		04/14/23 08:45	04/21/23 22:54	1

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

Lab Sample ID: MB 310-384266/1-A
Matrix: Water
Analysis Batch: 385211

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 384266

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	<0.0100		0.0100		mg/L		04/14/23 08:45	04/21/23 22:54	1
Zinc	<0.0200		0.0200		mg/L		04/14/23 08:45	04/21/23 22:54	1

Lab Sample ID: LCS 310-384266/2-A
Matrix: Water
Analysis Batch: 385211

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 384266

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Aluminum	0.200	0.2262		mg/L		113	80 - 120	
Barium	0.100	0.1048		mg/L		105	80 - 120	
Cadmium	0.100	0.09915		mg/L		99	80 - 120	
Manganese	0.100	0.09869		mg/L		99	80 - 120	
Zinc	0.200	0.1984		mg/L		99	80 - 120	

Lab Sample ID: MB 310-384259/1-B
Matrix: Water
Analysis Batch: 384623

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 384387

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		04/17/23 09:40	04/17/23 19:14	1
Arsenic	<0.00200		0.00200		mg/L		04/17/23 09:40	04/17/23 19:14	1
Cobalt	<0.000500		0.000500		mg/L		04/17/23 09:40	04/17/23 19:14	1
Iron	<0.100		0.100		mg/L		04/17/23 09:40	04/17/23 19:14	1
Manganese	<0.0100		0.0100		mg/L		04/17/23 09:40	04/17/23 19:14	1
Molybdenum	<0.00200		0.00200		mg/L		04/17/23 09:40	04/17/23 19:14	1

Lab Sample ID: MB 310-384259/1-B
Matrix: Water
Analysis Batch: 385075

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 384387

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.100		0.100		mg/L		04/17/23 09:40	04/20/23 18:33	1

Lab Sample ID: LCS 310-384259/2-B
Matrix: Water
Analysis Batch: 384623

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 384387

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Antimony	0.200	0.1955		mg/L		98	80 - 120	
Arsenic	0.200	0.1928		mg/L		96	80 - 120	
Cobalt	0.100	0.09710		mg/L		97	80 - 120	
Iron	0.200	0.1918		mg/L		96	80 - 120	
Manganese	0.100	0.09738		mg/L		97	80 - 120	
Molybdenum	0.200	0.1949		mg/L		97	80 - 120	

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

Lab Sample ID: LCS 310-384259/2-B
Matrix: Water
Analysis Batch: 385075

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 384387

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Boron	0.200	0.1941		mg/L		97	80 - 120		

Lab Sample ID: 310-253469-1 MS
Matrix: Water
Analysis Batch: 384623

Client Sample ID: MW1
Prep Type: Dissolved
Prep Batch: 384387

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Antimony	<0.00200		0.200	0.2142		mg/L		107	75 - 125		
Arsenic	<0.00200		0.200	0.1990		mg/L		99	75 - 125		
Cobalt	<0.000500		0.100	0.09736		mg/L		97	75 - 125		
Iron	<0.100		0.200	0.1922		mg/L		96	75 - 125		
Manganese	0.0821		0.100	0.1813		mg/L		99	75 - 125		
Molybdenum	0.00203		0.200	0.2058		mg/L		102	75 - 125		

Lab Sample ID: 310-253469-1 MS
Matrix: Water
Analysis Batch: 385075

Client Sample ID: MW1
Prep Type: Dissolved
Prep Batch: 384387

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Boron	0.117		0.200	0.3124		mg/L		98	75 - 125		

Lab Sample ID: 310-253469-1 MSD
Matrix: Water
Analysis Batch: 384623

Client Sample ID: MW1
Prep Type: Dissolved
Prep Batch: 384387

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	<0.00200		0.200	0.2134		mg/L		107	75 - 125	0	20
Arsenic	<0.00200		0.200	0.1956		mg/L		98	75 - 125	2	20
Cobalt	<0.000500		0.100	0.09637		mg/L		96	75 - 125	1	20
Iron	<0.100		0.200	0.1986		mg/L		99	75 - 125	3	20
Manganese	0.0821		0.100	0.1818		mg/L		100	75 - 125	0	20
Molybdenum	0.00203		0.200	0.2075		mg/L		103	75 - 125	1	20

Lab Sample ID: 310-253469-1 MSD
Matrix: Water
Analysis Batch: 385075

Client Sample ID: MW1
Prep Type: Dissolved
Prep Batch: 384387

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Boron	0.117		0.200	0.3105		mg/L		97	75 - 125	1	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-385196/1-A
Matrix: Water
Analysis Batch: 385352

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 385196

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	<0.500		0.500		mg/L		04/22/23 08:57	04/24/23 22:47	1

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: LCS 310-385196/2-A
Matrix: Water
Analysis Batch: 385352

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 385196

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	4.00	3.716		mg/L		93	90 - 110

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

Lab Sample ID: MB 680-775722/1-A
Matrix: Water
Analysis Batch: 775766

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 775722

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	<40.0		40.0		ug/L		04/26/23 10:00	04/26/23 13:48	1

Lab Sample ID: LCS 680-775722/2-A
Matrix: Water
Analysis Batch: 775766

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 775722

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	400	380.0		ug/L		95	60 - 140

Lab Sample ID: 310-253469-1 MS
Matrix: Water
Analysis Batch: 775766

Client Sample ID: MW1
Prep Type: Total/NA
Prep Batch: 775722

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	<40.0		400	365.7		ug/L		86	60 - 140

Lab Sample ID: 310-253469-1 MSD
Matrix: Water
Analysis Batch: 775766

Client Sample ID: MW1
Prep Type: Total/NA
Prep Batch: 775722

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	418.0		ug/L		99	60 - 140	13	40

Method: 9066 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-384304/10-A
Matrix: Water
Analysis Batch: 384403

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 384304

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0200		0.0200		mg/L		04/14/23 08:10	04/14/23 17:39	1

Lab Sample ID: MB 310-384304/1-A
Matrix: Water
Analysis Batch: 384403

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 384304

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0196		0.0196		mg/L		04/14/23 08:10	04/14/23 17:24	1

Method: 9066 - Phenolics, Total Recoverable (Continued)

Lab Sample ID: LCS 310-384304/2-A
Matrix: Water
Analysis Batch: 384403

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 384304

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Phenols, Total			0.100	0.09847		mg/L		98	90 - 110		

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

Lab Sample ID: MB 310-384363/1
Matrix: Water
Analysis Batch: 384363

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			04/14/23 13:18	1

Lab Sample ID: LCS 310-384363/2
Matrix: Water
Analysis Batch: 384363

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	101.0		mg/L		101	75 - 116		

Method: SM 5220D - COD

Lab Sample ID: MB 310-385235/32
Matrix: Water
Analysis Batch: 385235

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			04/24/23 08:59	1

Lab Sample ID: MB 310-385235/60
Matrix: Water
Analysis Batch: 385235

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			04/24/23 08:59	1

Lab Sample ID: LCS 310-385235/33
Matrix: Water
Analysis Batch: 385235

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	127.9		mg/L		102	85 - 115		

Lab Sample ID: LCS 310-385235/63
Matrix: Water
Analysis Batch: 385235

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	124.0		mg/L		99	85 - 115		

QC Association Summary

GC/MS VOA

Analysis Batch: 384346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253469-1	MW1	Total/NA	Water	8260D	
MB 310-384346/5	Method Blank	Total/NA	Water	8260D	
LCS 310-384346/6	Lab Control Sample	Total/NA	Water	8260D	

HPLC/IC

Analysis Batch: 384939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253469-1	MW1	Total/NA	Water	9056A	
310-253469-1	MW1	Total/NA	Water	9056A	
MB 310-384939/3	Method Blank	Total/NA	Water	9056A	
LCS 310-384939/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Filtration Batch: 384259

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253469-1	MW1	Dissolved	Water	Filtration	
MB 310-384259/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-384259/2-B	Lab Control Sample	Dissolved	Water	Filtration	
310-253469-1 MS	MW1	Dissolved	Water	Filtration	
310-253469-1 MSD	MW1	Dissolved	Water	Filtration	

Prep Batch: 384266

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253469-1	MW1	Total/NA	Water	3005A	
MB 310-384266/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-384266/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 384387

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253469-1	MW1	Dissolved	Water	3005A	384259
MB 310-384259/1-B	Method Blank	Dissolved	Water	3005A	384259
LCS 310-384259/2-B	Lab Control Sample	Dissolved	Water	3005A	384259
310-253469-1 MS	MW1	Dissolved	Water	3005A	384259
310-253469-1 MSD	MW1	Dissolved	Water	3005A	384259

Analysis Batch: 384623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253469-1	MW1	Dissolved	Water	6020B	384387
MB 310-384259/1-B	Method Blank	Dissolved	Water	6020B	384387
LCS 310-384259/2-B	Lab Control Sample	Dissolved	Water	6020B	384387
310-253469-1 MS	MW1	Dissolved	Water	6020B	384387
310-253469-1 MSD	MW1	Dissolved	Water	6020B	384387

Analysis Batch: 385075

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253469-1	MW1	Dissolved	Water	6020B	384387
MB 310-384259/1-B	Method Blank	Dissolved	Water	6020B	384387
LCS 310-384259/2-B	Lab Control Sample	Dissolved	Water	6020B	384387
310-253469-1 MS	MW1	Dissolved	Water	6020B	384387
310-253469-1 MSD	MW1	Dissolved	Water	6020B	384387

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Metals

Analysis Batch: 385211

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253469-1	MW1	Total/NA	Water	6020B	384266
MB 310-384266/1-A	Method Blank	Total/NA	Water	6020B	384266
LCS 310-384266/2-A	Lab Control Sample	Total/NA	Water	6020B	384266

General Chemistry

Prep Batch: 384304

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253469-1	MW1	Total/NA	Water	Distill/Phenol	
MB 310-384304/10-A	Method Blank	Total/NA	Water	Distill/Phenol	
MB 310-384304/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-384304/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	

Analysis Batch: 384363

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253469-1	MW1	Total/NA	Water	I-3765-85	
MB 310-384363/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-384363/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 384403

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253469-1	MW1	Total/NA	Water	9066	384304
MB 310-384304/10-A	Method Blank	Total/NA	Water	9066	384304
MB 310-384304/1-A	Method Blank	Total/NA	Water	9066	384304
LCS 310-384304/2-A	Lab Control Sample	Total/NA	Water	9066	384304

Prep Batch: 385196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253469-1	MW1	Total/NA	Water	Distill/Ammonia	
MB 310-385196/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-385196/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 385235

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253469-1	MW1	Total/NA	Water	SM 5220D	
MB 310-385235/32	Method Blank	Total/NA	Water	SM 5220D	
MB 310-385235/60	Method Blank	Total/NA	Water	SM 5220D	
LCS 310-385235/33	Lab Control Sample	Total/NA	Water	SM 5220D	
LCS 310-385235/63	Lab Control Sample	Total/NA	Water	SM 5220D	

Analysis Batch: 385352

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253469-1	MW1	Total/NA	Water	350.1	385196
MB 310-385196/1-A	Method Blank	Total/NA	Water	350.1	385196
LCS 310-385196/2-A	Lab Control Sample	Total/NA	Water	350.1	385196

Prep Batch: 775722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253469-1	MW1	Total/NA	Water	Carbon Trap	
MB 680-775722/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 680-775722/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	

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General Chemistry (Continued)

Prep Batch: 775722 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253469-1 MS	MW1	Total/NA	Water	Carbon Trap	
310-253469-1 MSD	MW1	Total/NA	Water	Carbon Trap	

Analysis Batch: 775766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253469-1	MW1	Total/NA	Water	9020B	775722
MB 680-775722/1-A	Method Blank	Total/NA	Water	9020B	775722
LCS 680-775722/2-A	Lab Control Sample	Total/NA	Water	9020B	775722
310-253469-1 MS	MW1	Total/NA	Water	9020B	775722
310-253469-1 MSD	MW1	Total/NA	Water	9020B	775722

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Client Sample ID: MW1
Date Collected: 04/11/23 09:15
Date Received: 04/13/23 09:15

Lab Sample ID: 310-253469-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	384346	FE5V	EET CF	04/14/23 14:19
Total/NA	Analysis	9056A		5	384939	QTZ5	EET CF	04/19/23 15:41
Total/NA	Analysis	9056A		20	384939	QTZ5	EET CF	04/19/23 15:57
Dissolved	Filtration	Filtration			384259	DHM5	EET CF	04/14/23 14:00
Dissolved	Prep	3005A			384387	DHM5	EET CF	04/17/23 09:40
Dissolved	Analysis	6020B		1	384623	ZRI4	EET CF	04/17/23 19:31
Dissolved	Filtration	Filtration			384259	DHM5	EET CF	04/14/23 14:00
Dissolved	Prep	3005A			384387	DHM5	EET CF	04/17/23 09:40
Dissolved	Analysis	6020B		1	385075	ZRI4	EET CF	04/20/23 18:38
Total/NA	Prep	3005A			384266	DHM5	EET CF	04/14/23 08:45
Total/NA	Analysis	6020B		1	385211	ZRI4	EET CF	04/22/23 00:28
Total/NA	Prep	Distill/Ammonia			385196	V7KD	EET CF	04/22/23 08:57
Total/NA	Analysis	350.1		1	385352	ZJX4	EET CF	04/24/23 23:06
Total/NA	Prep	Carbon Trap			775722	CLJ	EET SAV	04/26/23 10:00
Total/NA	Analysis	9020B		1	775766	CLJ	EET SAV	04/26/23 14:44
Total/NA	Prep	Distill/Phenol			384304	WZC8	EET CF	04/14/23 08:10
Total/NA	Analysis	9066		1	384403	ZJX4	EET CF	04/14/23 17:40
Total/NA	Analysis	I-3765-85		1	384363	D7CP	EET CF	04/14/23 13:18
Total/NA	Analysis	SM 5220D		50	385235	D7CP	EET CF	04/24/23 08:59

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

Eurofins Cedar Falls

Accreditation/Certification Summary

Laboratory: Eurofins Cedar Falls

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

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

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	06-30-23
ANAB	Dept. of Defense ELAP	L2463	09-22-24
Arkansas DEQ	State	19-015-0	02-01-24
California	State	2939	06-30-23
Florida	NELAP	E87052	06-30-23
Georgia	State	E87052	06-30-23
Georgia (DW)	State	803	06-30-23
Guam	State	19-007R	04-17-24
Hawaii	State	<cert No.>	06-30-23
Illinois	NELAP	200022	11-30-23
Indiana	State	C-GA-02	06-30-23
Iowa	State	353	07-01-23
Kentucky (UST)	State	NA	06-30-23
Louisiana	NELAP	30690	06-30-23
Louisiana (All)	NELAP	30690	06-30-23
Louisiana (DW)	State	LA009	12-31-23
Maine	State	GA00006	09-25-24
Maryland	State	250	12-31-23
Massachusetts	State	M-GA006	06-30-23
Michigan	State	9925	06-30-23
Mississippi	State	<cert No.>	06-30-23
Nebraska	State	NE-OS-7-04	06-30-23
New Jersey	NELAP	GA769	06-30-23
New Mexico	State	GA00006	06-30-23
North Carolina (DW)	State	13701	07-31-23
North Carolina (WW/SW)	State	269	12-31-23
Pennsylvania	NELAP	68-00474	06-30-23
Puerto Rico	State	GA00006	01-01-24
South Carolina	State	98001	06-30-23
Tennessee	State	TN02961	06-30-23
Texas	NELAP	T1047004185-19-14	11-30-23
Texas	TCEQ Water Supply	T104704185	06-30-23
USDA	US Federal Programs	P330-18-00313	09-03-24
Virginia	NELAP	460161	06-14-23
Wyoming	State	8TMS-L	06-30-23

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

Eurofins Cedar Falls

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310-253469 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information	
Client: EB Solutions	
City/State: CITY ___ STATE IA	Project:

Receipt Information

Date/Time Received:	DATE 4/13/23 TIME 0915	Received By: ✓

Delivery Type: ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes ☐ No	If yes: Cooler ID:
Multiple Coolers?	☐ Yes ☒ No	If yes: Cooler # _____ of _____
Cooler Custody Seals Present?	☒ Yes ☐ No	If yes: Cooler custody seals intact? ☒ Yes ☐ No
Sample Custody Seals Present?	☐ Yes ☒ No	If yes: Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes ☒ No	If yes: Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: T	Correction Factor (°C): +0.1

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 2.2	Corrected Temp (°C): 2.3

• 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? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: *If yes, contact PM before proceeding   If no, proceed with login*

Additional Comments

Document. CED-P-SAM-FRM45521
Revision 26
Date· 27 Jan 2022

Eurofins Cedar Falls

General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C

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5/4/2023

Chain of Custody Record

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277 2425

Client Information

Sampler: _El Bertch_

Client Contact	Phone
Edward Bertch	

Lab PM: Bindert, Zach T
E Mail: zach.bindert@testamericainc.com

COC No: 310-36804-12214 1
Page: Page 1 of 1
Job #:

Company
EB Solutions Inc

Address
5060 4th St SW

City
Cedar Rapids

State, Zip
IA, 52404

Phone:

Email:
edbertch@ebsolutionsinc-web.com

Due Date Requested:

TAT Requested (days):

PO #:

WO #:

Project #: 31007226

SSOW#:

Project Name
Crawford Project

Site:

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	Z other (specify)
Other	

Analysis Requested

Sample Identification	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)	8270D - 2,4 Dinitrotoluene Pyridine Pentachlor (N)	Ammonia - 350 1, COD 5220D (S)	9056A_ORGFM_28D - Chloride Fluoride Sulfate (N)	6020A - Dissolved Metals (N)	Total Metals 6020A 7470A (D)	9066 Total Recoverable Phenolics (S)	8260C Benzene and Methyl Ethyl Ketone (A)	L_3765_85 Residue, Non filterable (TSS) (N)	9020B Total Organic Halides (TOX) (S)	Total Number of containers	Special Instructions/Note:
MW1	4/11/23	5:45	G	Water			X	X	X	X	X	X	X	X	X	12	
				Water			X	X	X	X	X	X	X	X	X	12	
				Water			X	X	X	X	X	X	X	X	X	12	
				Water			X	X	X	X	X	X	X	X	X	12	
				Water			X	X	X	X	X	X	X	X	X	12	
				Water			X	X	X	X	X	X	X	X	X	12	
				Water			X	X	X	X	X	X	X	X	X	12	
				Water			X	X	X	X	X	X	X	X	X	12	
				Water			X	X	X	X	X	X	X	X	X	12	
				Water			X	X	X	X	X	X	X	X	X	12	
Trip Blank				Water									X	X	X	3	

Preservation Code:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Deliverable Requested I II III IV Other (specify)

Empty Kit Relinquished by

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements

Carrier Tracking No(s):

Method of Shipment:

Relinquished by	Date/Time	Received by	Date/Time
[signature]	4/12/23 9:45		
Relinquished by	Date/Time	Received by	Date/Time
Relinquished by	Date/Time	Received by	Date/Time
		[signature]	4/13/23 0515

Company	Company

Cooler Temperature(s) °C and Other Remarks

Custody Seals Intact ☐ Yes ☐ No **Custody Seal No**

Chain of Custody Record

eurofins | Environment Testing

COC No:	310-60261 1
Carrier Tracking No(s):	
Page:	Page 1 of 1
State of Origin:	Iowa
Job #:	310-253469-1

Sampler	Lab PM:
	Bindert, Zach T

Client Information (Sub Contract Lab)

Client Contact:	Phone:
Shipping/Receiving	
	E-Mail: Zach.Bindert@et.eurofinsus.com
Company	Accreditations Required (See note):
Eurofins Environment Testing Southeast,	State Program - Iowa

Address: 5102 LaRoche Avenue,

City: Savannah

State, Zip: GA, 31404

Phone: 912-354-7858(Tel)   912-352-0165(Fax)

Email:

Project Name: Crawford Project

Site:

Due Date Requested:	5/3/2023
TAT Requested (days):	
PO #:	
WO #:	
Project #:	31007226
SSOW#:	

Analysis Requested

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

M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Y - Trizma
Z - other (specify)

Other

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)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9020B/Carbon_Trap	Total Number of containers	Special Instructions/Note:
MW1 (310-253469-1)	4/11/23	09:15 Central		Water				X	1	

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

Unconfirmed

Deliverable Requested I, II, III, IV, Other (specify)   Primary Deliverable Rank: 2

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client   ☐ Disposal By Lab   ☐ Archive For _____ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:
Relinquished by:	Date/Time: 4/11/23 1406	Company	Received by:		Date/Time: 4/14/23 1637	Company
Relinquished by:	Date/Time:	Company	Received by:		Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:		Date/Time:	Company

Custody Seals Intact: △ Yes △ No	Custody Seal No.	Cooler Temperature(s) °C and Other Remarks: 5.1

Ver 06/08/2021

Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-253469-1

SDG Number:

Login Number: 253469

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: 310-253469-1

SDG Number:

Login Number: 253469

List Number: 2

Creator: Harley, Tynisha

List Source: Eurofins Savannah

List Creation: 04/14/23 01:23 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	

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Environment Testing

I   # ANALYTICAL REPORT

PREPARED FOR

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

Generated 5/9/2023 4:18:51 PM

JOB DESCRIPTION

Crawford Project

JOB NUMBER

310-253840-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

Page 1 of 25

my EOL

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
5/9/2023 4:18:51 PM

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

Table of Contents

Eurofins Cedar Falls
5/9/2023

Job ID: 310-253840-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-253840-1

Receipt
The samples were received on 4/19/2023 9:10 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 1.7°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 (310-253840-1). 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
Method 6020B: The laboratory control sample (LCS) for preparation batch 310-384845 and 310-385015 and analytical batch 310-385266 recovered outside control limits for the following analytes: Iron and Antimony. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

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

General Chemistry
Method 9020B: Breakthrough exceeded 10% for the following sample:MW4 (310-253840-1).

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-253840-1	MW4	Water	04/17/23 09:30	04/19/23 09:10
310-253840-2	Trip Blank	Water	04/17/23 00:00	04/19/23 09:10

Detection Summary

Client Sample ID: MW4 — Lab Sample ID: 310-253840-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	174		5.00		mg/L	5		9056A	Total/NA
Barium	0.125		0.00200		mg/L	1		6020B	Total/NA
Manganese	0.0739		0.0100		mg/L	1		6020B	Total/NA
Manganese	0.0760		0.0100		mg/L	1		6020B	Dissolved
Molybdenum	0.00291		0.00200		mg/L	1		6020B	Dissolved
Chemical Oxygen Demand	42.0		25.0		mg/L	5		SM 5220D	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 310-253840-2

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: 310-253840-1

Client Sample ID: MW4
Date Collected: 04/17/23 09:30
Date Received: 04/19/23 09:10

Lab Sample ID: 310-253840-1
Matrix: Water

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			04/21/23 20:11	1

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		80 - 120					04/21/23 20:11	1
Dibromofluoromethane (Surr)	123		80 - 128					04/21/23 20:11	1
Toluene-d8 (Surr)	94		80 - 120					04/21/23 20:11	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			05/06/23 11:59	5
Fluoride	<1.00		1.00		mg/L			05/06/23 11:59	5
Sulfate	**174**		5.00		mg/L			05/06/23 11:59	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		04/20/23 09:10	04/30/23 20:38	1
Barium	**0.125**		0.00200		mg/L		04/20/23 09:10	04/30/23 20:38	1
Cadmium	<0.000200		0.000200		mg/L		04/20/23 09:10	04/30/23 20:38	1
Manganese	**0.0739**		0.0100		mg/L		04/20/23 09:10	04/30/23 20:38	1
Zinc	<0.0200		0.0200		mg/L		04/20/23 09:10	04/30/23 20:38	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200	*+ F1	0.00200		mg/L		04/21/23 08:40	04/23/23 16:04	1
Arsenic	<0.00200		0.00200		mg/L		04/21/23 08:40	04/23/23 16:04	1
Boron	<0.100	F1	0.100		mg/L		04/21/23 08:40	04/23/23 16:04	1
Cobalt	<0.000500		0.000500		mg/L		04/21/23 08:40	04/23/23 16:04	1
Iron	<0.100	*+	0.100		mg/L		04/21/23 08:40	04/23/23 16:04	1
Manganese	**0.0760**		0.0100		mg/L		04/21/23 08:40	04/23/23 16:04	1
Molybdenum	**0.00291**		0.00200		mg/L		04/21/23 08:40	04/23/23 16:04	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		04/28/23 09:09	04/28/23 20:15	1
Halogens, Total Organic (SW846 9020B)	<40.0		40.0		ug/L		05/02/23 07:00	05/02/23 13:05	1
Phenols, Total (SW846 9066)	<0.0200		0.0200		mg/L		04/26/23 08:49	04/26/23 23:29	1
Total Suspended Solids (USGS I-3765-85)	<1.88		1.88		mg/L			04/20/23 14:10	1
Chemical Oxygen Demand (SM 5220D)	**42.0**		25.0		mg/L			04/26/23 08:32	5

Eurofins Cedar Falls

5/9/2023

Client Sample ID: Trip Blank

Date Collected: 04/17/23 00:00

Date Received: 04/19/23 09:10

Lab Sample ID: 310-253840-2

Matrix: Water

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			04/21/23 13:01	1

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		80 - 120					04/21/23 13:01	1
Dibromofluoromethane (Surr)	121		80 - 128					04/21/23 13:01	1
Toluene-d8 (Surr)	94		80 - 120					04/21/23 13:01	1

Eurofins Cedar Falls

5/9/2023

Definitions/Glossary

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
*+	LCS and/or LCSD is outside acceptance limits, high biased.
F1	MS and/or MSD recovery exceeds control limits.

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

Eurofins Cedar Falls

Method: 8260D - Volatile Organic Compounds by GC/MS
Matrix: Water   **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		BFB	**DBFM**	**TOL**					
Lab Sample ID	**Client Sample ID**	**(80-120)**	**(80-128)**	**(80-120)**					
310-253840-1	MW4	100	123	94					
310-253840-2	Trip Blank	101	121	94					
LCS 310-385103/6	Lab Control Sample	98	104	95					
MB 310-385103/5	Method Blank	100	122	93					

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

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

Lab Sample ID: MB 310-385103/5
Matrix: Water
Analysis Batch: 385103

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			04/21/23 11:53	1

Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		80 - 120					04/21/23 11:53	1
Dibromofluoromethane (Surr)	122		80 - 128					04/21/23 11:53	1
Toluene-d8 (Surr)	93		80 - 120					04/21/23 11:53	1

Lab Sample ID: LCS 310-385103/6
Matrix: Water
Analysis Batch: 385103

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	36.84		ug/L		92	50 - 150		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		80 - 120
Dibromofluoromethane (Surr)	104		80 - 128
Toluene-d8 (Surr)	95		80 - 120

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-386940/3
Matrix: Water
Analysis Batch: 386940

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			05/06/23 11:28	1
Fluoride	<0.200		0.200		mg/L			05/06/23 11:28	1
Sulfate	<1.00		1.00		mg/L			05/06/23 11:28	1

Lab Sample ID: LCS 310-386940/4
Matrix: Water
Analysis Batch: 386940

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	9.565		mg/L		96	90 - 110		
Fluoride	2.00	2.048		mg/L		102	90 - 110		
Sulfate	10.0	10.48		mg/L		105	90 - 110		

Lab Sample ID: 310-253840-1 MS
Matrix: Water
Analysis Batch: 386940

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	25.90		mg/L		84	80 - 120	
Fluoride	<1.00		5.00	5.175		mg/L		104	80 - 120	
Sulfate	174		25.0	190.3	4	mg/L		66	80 - 120	

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

Lab Sample ID: 310-253840-1 MSD
Matrix: Water
Analysis Batch: 386940

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
Chloride	<5.00		25.0	25.53		mg/L		82	80 - 120	1	15
Fluoride	<1.00		5.00	5.140		mg/L		103	80 - 120	1	15
Sulfate	174		25.0	191.5	4	mg/L		70	80 - 120	1	15

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-384861/1-A
Matrix: Water
Analysis Batch: 385980

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 384861

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		04/20/23 09:10	04/30/23 19:01	1
Barium	<0.00200		0.00200		mg/L		04/20/23 09:10	04/30/23 19:01	1
Cadmium	<0.000200		0.000200		mg/L		04/20/23 09:10	04/30/23 19:01	1
Manganese	<0.0100		0.0100		mg/L		04/20/23 09:10	04/30/23 19:01	1
Zinc	<0.0200		0.0200		mg/L		04/20/23 09:10	04/30/23 19:01	1

Lab Sample ID: LCS 310-384861/2-A
Matrix: Water
Analysis Batch: 385980

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 384861

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	0.200	0.2271		mg/L		114	80 - 120
Barium	0.100	0.1021		mg/L		102	80 - 120
Cadmium	0.100	0.1030		mg/L		103	80 - 120
Manganese	0.100	0.09895		mg/L		99	80 - 120
Zinc	0.200	0.1995		mg/L		100	80 - 120

Lab Sample ID: MB 310-384845/1-B
Matrix: Water
Analysis Batch: 385266

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 385015

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		04/21/23 08:40	04/23/23 15:59	1
Arsenic	<0.00200		0.00200		mg/L		04/21/23 08:40	04/23/23 15:59	1
Boron	<0.100		0.100		mg/L		04/21/23 08:40	04/23/23 15:59	1
Cobalt	<0.000500		0.000500		mg/L		04/21/23 08:40	04/23/23 15:59	1
Iron	<0.100		0.100		mg/L		04/21/23 08:40	04/23/23 15:59	1
Manganese	<0.0100		0.0100		mg/L		04/21/23 08:40	04/23/23 15:59	1
Molybdenum	<0.00200		0.00200		mg/L		04/21/23 08:40	04/23/23 15:59	1

Lab Sample ID: LCS 310-384845/2-B
Matrix: Water
Analysis Batch: 385266

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 385015

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.2511	*+	mg/L		126	80 - 120
Arsenic	0.200	0.2162		mg/L		108	80 - 120
Boron	0.200	0.2094		mg/L		105	80 - 120
Cobalt	0.100	0.1136		mg/L		114	80 - 120

QC Sample Results

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

Lab Sample ID: LCS 310-384845/2-B
Matrix: Water
Analysis Batch: 385266

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 385015

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	0.200	0.2454	*+	mg/L		123	80 - 120
Manganese	0.100	0.1058		mg/L		106	80 - 120
Molybdenum	0.200	0.2191		mg/L		110	80 - 120

Lab Sample ID: 310-253840-1 MS
Matrix: Water
Analysis Batch: 385266

Client Sample ID: MW4
Prep Type: Dissolved
Prep Batch: 385015

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	<0.00200	*+ F1	0.200	0.2562	F1	mg/L		128	75 - 125
Arsenic	<0.00200		0.200	0.2150		mg/L		107	75 - 125
Boron	<0.100	F1	0.200	0.2659	F1	mg/L		133	75 - 125
Cobalt	<0.000500		0.100	0.1104		mg/L		110	75 - 125
Iron	<0.100	*+	0.200	0.2381		mg/L		119	75 - 125
Manganese	0.0760		0.100	0.1811		mg/L		105	75 - 125
Molybdenum	0.00291		0.200	0.2187		mg/L		108	75 - 125

Lab Sample ID: 310-253840-1 MSD
Matrix: Water
Analysis Batch: 385266

Client Sample ID: MW4
Prep Type: Dissolved
Prep Batch: 385015

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	<0.00200	*+ F1	0.200	0.2474		mg/L		124	75 - 125	3	20
Arsenic	<0.00200		0.200	0.2079		mg/L		104	75 - 125	3	20
Boron	<0.100	F1	0.200	0.2595	F1	mg/L		130	75 - 125	2	20
Cobalt	<0.000500		0.100	0.1037		mg/L		103	75 - 125	6	20
Iron	<0.100	*+	0.200	0.2312		mg/L		116	75 - 125	3	20
Manganese	0.0760		0.100	0.1781		mg/L		102	75 - 125	2	20
Molybdenum	0.00291		0.200	0.2137		mg/L		105	75 - 125	2	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-385789/1-A
Matrix: Water
Analysis Batch: 385887

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 385789

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	<0.500		0.500		mg/L		04/28/23 09:09	04/28/23 20:11	1

Lab Sample ID: LCS 310-385789/2-A
Matrix: Water
Analysis Batch: 385887

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 385789

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	4.00	3.761		mg/L		94	90 - 110

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

Lab Sample ID: MB 680-776657/1-A
Matrix: Water
Analysis Batch: 776696

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 776657

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	<40.0		40.0		ug/L		05/02/23 07:00	05/02/23 11:12	1

Lab Sample ID: LCS 680-776657/2-A
Matrix: Water
Analysis Batch: 776696

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 776657

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Halogens, Total Organic	400	395.2		ug/L		99	60 - 140		

Lab Sample ID: LCSD 680-776657/14-A
Matrix: Water
Analysis Batch: 776696

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 776657

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Halogens, Total Organic	400	395.1		ug/L		99	60 - 140	0	40

Lab Sample ID: 310-253840-1 MS
Matrix: Water
Analysis Batch: 776696

Client Sample ID: MW4
Prep Type: Total/NA
Prep Batch: 776657

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Halogens, Total Organic	<40.0		400	416.0		ug/L		99	60 - 140		

Lab Sample ID: 310-253840-1 MSD
Matrix: Water
Analysis Batch: 776696

Client Sample ID: MW4
Prep Type: Total/NA
Prep Batch: 776657

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	414.4		ug/L		98	60 - 140	0	40

Method: 9066 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-385533/1-A
Matrix: Water
Analysis Batch: 385633

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 385533

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0200		0.0200		mg/L		04/26/23 08:49	04/26/23 23:23	1

Lab Sample ID: LCS 310-385533/2-A
Matrix: Water
Analysis Batch: 385633

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 385533

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Phenols, Total	0.100	0.09900		mg/L		99	90 - 110		

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

Lab Sample ID: MB 310-384990/1
Matrix: Water
Analysis Batch: 384990

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			04/20/23 14:10	1

Lab Sample ID: LCS 310-384990/2
Matrix: Water
Analysis Batch: 384990

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 310-385528/5
Matrix: Water
Analysis Batch: 385528

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			04/26/23 08:32	1

Lab Sample ID: LCS 310-385528/3
Matrix: Water
Analysis Batch: 385528

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	124.0		mg/L		99	85 - 115		

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GC/MS VOA

Analysis Batch: 385103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253840-1	MW4	Total/NA	Water	8260D	
310-253840-2	Trip Blank	Total/NA	Water	8260D	
MB 310-385103/5	Method Blank	Total/NA	Water	8260D	
LCS 310-385103/6	Lab Control Sample	Total/NA	Water	8260D	

HPLC/IC

Analysis Batch: 386940

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253840-1	MW4	Total/NA	Water	9056A	
MB 310-386940/3	Method Blank	Total/NA	Water	9056A	
LCS 310-386940/4	Lab Control Sample	Total/NA	Water	9056A	
310-253840-1 MS	MW4	Total/NA	Water	9056A	
310-253840-1 MSD	MW4	Total/NA	Water	9056A	

Metals

Filtration Batch: 384845

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253840-1	MW4	Dissolved	Water	Filtration	
MB 310-384845/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-384845/2-B	Lab Control Sample	Dissolved	Water	Filtration	
310-253840-1 MS	MW4	Dissolved	Water	Filtration	
310-253840-1 MSD	MW4	Dissolved	Water	Filtration	

Prep Batch: 384861

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253840-1	MW4	Total/NA	Water	3005A	
MB 310-384861/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-384861/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 385015

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253840-1	MW4	Dissolved	Water	3005A	384845
MB 310-384845/1-B	Method Blank	Dissolved	Water	3005A	384845
LCS 310-384845/2-B	Lab Control Sample	Dissolved	Water	3005A	384845
310-253840-1 MS	MW4	Dissolved	Water	3005A	384845
310-253840-1 MSD	MW4	Dissolved	Water	3005A	384845

Analysis Batch: 385266

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253840-1	MW4	Dissolved	Water	6020B	385015
MB 310-384845/1-B	Method Blank	Dissolved	Water	6020B	385015
LCS 310-384845/2-B	Lab Control Sample	Dissolved	Water	6020B	385015
310-253840-1 MS	MW4	Dissolved	Water	6020B	385015
310-253840-1 MSD	MW4	Dissolved	Water	6020B	385015

Analysis Batch: 385980

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253840-1	MW4	Total/NA	Water	6020B	384861
MB 310-384861/1-A	Method Blank	Total/NA	Water	6020B	384861
LCS 310-384861/2-A	Lab Control Sample	Total/NA	Water	6020B	384861

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QC Association Summary

General Chemistry

Analysis Batch: 384990

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253840-1	MW4	Total/NA	Water	I-3765-85	
MB 310-384990/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-384990/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 385528

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253840-1	MW4	Total/NA	Water	SM 5220D	
MB 310-385528/5	Method Blank	Total/NA	Water	SM 5220D	
LCS 310-385528/3	Lab Control Sample	Total/NA	Water	SM 5220D	

Prep Batch: 385533

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253840-1	MW4	Total/NA	Water	Distill/Phenol	
MB 310-385533/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-385533/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	

Analysis Batch: 385633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253840-1	MW4	Total/NA	Water	9066	385533
MB 310-385533/1-A	Method Blank	Total/NA	Water	9066	385533
LCS 310-385533/2-A	Lab Control Sample	Total/NA	Water	9066	385533

Prep Batch: 385789

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253840-1	MW4	Total/NA	Water	Distill/Ammonia	
MB 310-385789/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-385789/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 385887

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253840-1	MW4	Total/NA	Water	350.1	385789
MB 310-385789/1-A	Method Blank	Total/NA	Water	350.1	385789
LCS 310-385789/2-A	Lab Control Sample	Total/NA	Water	350.1	385789

Prep Batch: 776657

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253840-1	MW4	Total/NA	Water	Carbon Trap	
MB 680-776657/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 680-776657/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	
LCSD 680-776657/14-A	Lab Control Sample Dup	Total/NA	Water	Carbon Trap	
310-253840-1 MS	MW4	Total/NA	Water	Carbon Trap	
310-253840-1 MSD	MW4	Total/NA	Water	Carbon Trap	

Analysis Batch: 776696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-253840-1	MW4	Total/NA	Water	9020B	776657
MB 680-776657/1-A	Method Blank	Total/NA	Water	9020B	776657
LCS 680-776657/2-A	Lab Control Sample	Total/NA	Water	9020B	776657
LCSD 680-776657/14-A	Lab Control Sample Dup	Total/NA	Water	9020B	776657
310-253840-1 MS	MW4	Total/NA	Water	9020B	776657
310-253840-1 MSD	MW4	Total/NA	Water	9020B	776657

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Lab Chronicle

Client Sample ID: MW4
Date Collected: 04/17/23 09:30
Date Received: 04/19/23 09:10

Lab Sample ID: 310-253840-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	385103	FE5V	EET CF	04/21/23 20:11
Total/NA	Analysis	9056A		5	386940	QTZ5	EET CF	05/06/23 11:59
Dissolved	Filtration	Filtration			384845	DHM5	EET CF	04/19/23 17:10
Dissolved	Prep	3005A			385015	DHM5	EET CF	04/21/23 08:40
Dissolved	Analysis	6020B		1	385266	ZRI4	EET CF	04/23/23 16:04
Total/NA	Prep	3005A			384861	QTZ5	EET CF	04/20/23 09:10
Total/NA	Analysis	6020B		1	385980	ZRI4	EET CF	04/30/23 20:38
Total/NA	Prep	Distill/Ammonia			385789	ENB7	EET CF	04/28/23 09:09
Total/NA	Analysis	350.1		1	385887	ZJX4	EET CF	04/28/23 20:15
Total/NA	Prep	Carbon Trap			776657	CLJ	EET SAV	05/02/23 07:00
Total/NA	Analysis	9020B		1	776696	CLJ	EET SAV	05/02/23 13:05
Total/NA	Prep	Distill/Phenol			385533	ENB7	EET CF	04/26/23 08:49
Total/NA	Analysis	9066		1	385633	ZJX4	EET CF	04/26/23 23:29
Total/NA	Analysis	I-3765-85		1	384990	D7CP	EET CF	04/20/23 14:10
Total/NA	Analysis	SM 5220D		5	385528	D7CP	EET CF	04/26/23 08:32

Client Sample ID: Trip Blank
Date Collected: 04/17/23 00:00
Date Received: 04/19/23 09:10

Lab Sample ID: 310-253840-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	385103	FE5V	EET CF	04/21/23 13:01

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

Eurofins Cedar Falls

Accreditation/Certification Summary

Laboratory: Eurofins Cedar Falls

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

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

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	06-30-23
ANAB	Dept. of Defense ELAP	L2463	09-22-24
Arkansas DEQ	State	19-015-0	02-01-24
California	State	2939	06-30-23
Florida	NELAP	E87052	06-30-23
Georgia	State	E87052	06-30-23
Georgia (DW)	State	803	06-30-23
Guam	State	19-007R	04-17-24
Hawaii	State	<cert No.>	06-30-23
Illinois	NELAP	200022	11-30-23
Indiana	State	C-GA-02	06-30-23
Iowa	State	353	07-01-23
Kentucky (UST)	State	NA	06-30-23
Louisiana	NELAP	30690	06-30-23
Louisiana (All)	NELAP	30690	06-30-23
Louisiana (DW)	State	LA009	12-31-23
Maine	State	GA00006	09-25-24
Maryland	State	250	12-31-23
Massachusetts	State	M-GA006	06-30-23
Michigan	State	9925	06-30-23
Mississippi	State	<cert No.>	06-30-23
Nebraska	State	NE-OS-7-04	06-30-23
New Jersey	NELAP	GA769	06-30-23
New Mexico	State	GA00006	06-30-23
North Carolina (DW)	State	13701	07-31-23
North Carolina (WW/SW)	State	269	12-31-23
Pennsylvania	NELAP	68-00474	06-30-23
Puerto Rico	State	GA00006	01-01-24
South Carolina	State	98001	06-30-23
Tennessee	State	TN02961	06-30-23
Texas	NELAP	T1047004185-19-14	11-30-23
Texas	TCEQ Water Supply	T104704185	06-30-23
USDA	US Federal Programs	P330-18-00313	09-03-24
Virginia	NELAP	460161	06-14-23
Wyoming	State	8TMS-L	06-30-23

Eurofins Cedar Falls

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

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

Eurofins Cedar Falls

5/9/2023

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: EB Solutions

City/State:	CITY	STATE IA	Project:

Receipt Information

Date/Time Received:	DATE 4/19/23	TIME 0910	Received By: M

Delivery Type: ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes	☐ No	If yes: Cooler ID:
Multiple Coolers?	☐ Yes	☒ No	If yes: Cooler # ____ of ____
Cooler Custody Seals Present?	☒ Yes	☐ No	If yes: Cooler custody seals intact? ☒ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☒ No	If yes: Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☐ No	If yes: Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: T	Correction Factor (°C): +0 1

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 1.6	Corrected Temp (°C): 1.7

• **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? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Document: CED-P-SAM-FRM45521
Revision: 26
Date: 27 Jan 2022

Eurofins Cedar Falls

General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C

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5/9/2023

Chain of Custody Record

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls IA 50613
Phone (319) 277-2401 Fax (319) 277 2425

COC No 310-36804-122141 1
Page Page 1 of 1
Job #

Sampler: *Ed Bertch*
Carrier Tracking Nos

Lab PM B ndert Zach T
E Ma:l zach.bndert@testamericainc.com

Client Information

Client Contact Edward Bertch
Phone:

Company EB Solutions, Inc
Address 5060 4th St. SW
City Cedar Rapids
State, Zip IA, 52404
Phone
PO #:
Email edbertch@ebsolutionsinc-web com
WO #
Project # 31007226
Project Name Crawford Project
SSOW#
Site

Due Date Requested
TAT Requested (days):

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		
J Ice	U Acetone		
K EDTA	V MCAA		
L EDA	W pH 4-5		
Other	Z other (specify)		

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix	Perform MS/MSD	8270D - 24 Dinitrotoluene Pyridine Pentachlor	Ammonia 350 1, 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	L_3765_85 - Residue Non-filterable (TSS)	9020B - Total Organic Halides (TOX)	Total Number of containers
Preservation Code:						N	S	N	N	D	S	A	N	S	
MW 4	4/7/23	9:30	G	Water		X	X	X	X	X	X	X	X	X	12
Trip Blank	4/7/23			Water		X	X	X	X	X	X	X	X	X	12
				Water		X	X	X	X	X	X	X	X	X	12
				Water		X	X	X	X	X	X	X	X	X	12
				Water		X	X	X	X	X	X	X	X	X	12
				Water		X	X	X	X	X	X	X	X	X	12
				Water		X	X	X	X	X	X	X	X	X	12
				Water		X	X	X	X	X	X	X	X	X	12
				Water		X	X	X	X	X	X	X	X	X	12
				Water		X	X	X	X	X	X	X	X	X	12
Trip Blank				Water								X	X	X	3

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological
Deliverable Requested I II III IV Other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Special Instructions/QC Requirements.

Empty Kit Relinquished by		Date.	Time	Method of Shipment	
Relinquished by	Date/Time 4/18/23 5:10	Company	Received by		Date/Time
Relinquished by	Date/Time	Company	Received by		Date/Time
Relinquished by	Date/Time	Company	Received by		Date/Time 4/18/23 0910

Custody Seals Intact. ☐ Yes ☐ No
Custody Seal No
Cooler Temperature(s) °C and Other Remarks

Chain of Custody Record

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

:: eurofins | Environment Testing

Client Information (Sub Contract Lab)

Client Contact	Shipping/Receiving
Company	Eurofins Environment Testing Southeast,
Address:	5102 LaRoche Avenue, ,
City	Savannah
State, Zip:	GA, 31404
Phone:	912-354-7858(Tel) 912-352-0165(Fax)
Email:	
Project Name:	Crawford Project
Site:	

Sampler

Phone:

Due Date Requested: 5/9/2023

TAT Requested (days):

PO #:

WO #:

Project #: 31007226

SSOW#:

Lab PM: Bindert, Zach T

E-Mail: Zach.Bindert@et.eurofinsus.com

Accreditations Required (See note): State Program - Iowa

COC No: 310-60483.1

Carrier Tracking No(s):

State of Origin: Iowa

Page: Page 1 of 1

Job #: 310-253840-1

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	

Analysis Requested

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)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9020B/Carbon_Trap	Total Number of containers	Special Instructions/Note:
MW4 (310-253840-1)	4/17/23	09:30 Central		Water				X	1	

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

Unconfirmed ☐ Return To Client ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested. I, II, III, IV, Other (specify)

Primary Deliverable Rank: 2

Special Instructions/QC Requirements:

Method of Shipment:

Empty Kit Relinquished by:

	Date:	Time:

Relinquished by:	Date/Time: 4/9 23 1250	Company	Received by:	Date/Time: 4-20-23	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 10:30	Company
Relinquished by:	Date/Time:	Company	Received by	Date/Time:	Company

Custody Seals Intact: △ Yes △ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.1 - 0.5

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-253840-1

SDG Number:

Login Number: 253840
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: 310-253840-1

SDG Number:

Login Number: 253840
List Number: 2
Creator: Harley, Tynisha

List Source: Eurofins Savannah
List Creation: 04/20/23 12:05 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	

Eurofins Cedar Falls

5/9/2023

eurofins

Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Edward Bertch
EB Solutions, Inc
5060 4th St. SW
Cedar Rapids, Iowa 52404
Generated 5/23/2023 11:22:45 AM

JOB DESCRIPTION

Crawford Project

JOB NUMBER

310-254501-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

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my EOL

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
5/23/2023 11:22:45 AM

_____

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

Table of Contents

Eurofins Cedar Falls
5/23/2023

Case Narrative

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

Job ID: 310-254501-1

Job ID: 310-254501-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-254501-1

Receipt
The sample was received on 4/27/2023 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 1.4°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: MW2 (310-254501-1). 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
Method 6020B: The continuing calibration verification (CCV) associated with batch 310-388161 recovered above the upper control limit for Aluminum. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

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

General Chemistry
Method 9020B: Breakthrough exceeded 10% for the following sample:MW2 (310-254501-1).

Method 9020B: Breakthrough exceeded 10% for the following sample:MW2 (310-254501-1).

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-254501-1	MW2	Water	04/25/23 11:45	04/27/23 09:20

Client Sample ID: MW2   **Lab Sample ID: 310-254501-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	16.5		5.00		mg/L	5		9056A	Total/NA
Barium	0.0727		0.00200		mg/L	1		6020B	Total/NA
Manganese	0.200		0.0100		mg/L	1		6020B	Total/NA
Cobalt	0.00109		0.000500		mg/L	1		6020B	Dissolved
Manganese	0.0880		0.0100		mg/L	1		6020B	Dissolved
Molybdenum	0.00458		0.00200		mg/L	1		6020B	Dissolved
Total Suspended Solids	5.63		1.88		mg/L	1		I-3765-85	Total/NA
Chemical Oxygen Demand	33.3		25.0		mg/L	5		SM 5220D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample ID: MW2
Date Collected: 04/25/23 11:45
Date Received: 04/27/23 09:20

Lab Sample ID: 310-254501-1
Matrix: Water

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			05/03/23 07:02	1

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		80 - 120					05/03/23 07:02	1
Dibromofluoromethane (Surr)	100		80 - 128					05/03/23 07:02	1
Toluene-d8 (Surr)	100		80 - 120					05/03/23 07:02	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			05/08/23 19:05	5
Fluoride	<1.00		1.00		mg/L			05/08/23 19:05	5
Sulfate	**16.5**		5.00		mg/L			05/08/23 19:05	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		04/28/23 09:15	05/20/23 22:03	1
Barium	**0.0727**		0.00200		mg/L		04/28/23 09:15	05/20/23 22:03	1
Cadmium	<0.000200		0.000200		mg/L		04/28/23 09:15	05/20/23 22:03	1
Manganese	**0.200**		0.0100		mg/L		04/28/23 09:15	05/20/23 22:03	1
Zinc	<0.0200		0.0200		mg/L		04/28/23 09:15	05/20/23 22:03	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		05/01/23 08:40	05/08/23 11:53	1
Arsenic	<0.00200		0.00200		mg/L		05/01/23 08:40	05/08/23 11:53	1
Boron	<0.100		0.100		mg/L		05/01/23 08:40	05/08/23 11:53	1
Cobalt	**0.00109**		0.000500		mg/L		05/01/23 08:40	05/08/23 11:53	1
Iron	<0.100		0.100		mg/L		05/01/23 08:40	05/08/23 11:53	1
Manganese	**0.0880**		0.0100		mg/L		05/01/23 08:40	05/08/23 11:53	1
Molybdenum	**0.00458**		0.00200		mg/L		05/01/23 08:40	05/08/23 11:53	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		05/04/23 12:05	05/05/23 09:46	1
Halogens, Total Organic (SW846 9020B)	<40.0		40.0		ug/L		05/10/23 08:30	05/10/23 15:29	1
Phenols, Total (SW846 9066)	<0.0200		0.0200		mg/L		05/05/23 05:13	05/05/23 21:34	1
Total Suspended Solids (USGS I-3765-85)	**5.63**		1.88		mg/L			04/28/23 08:59	1
Chemical Oxygen Demand (SM 5220D)	**33.3**		25.0		mg/L			05/01/23 08:39	5

Eurofins Cedar Falls

Definitions/Glossary

Qualifiers

Metals

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.

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

Eurofins Cedar Falls

Surrogate Summary

Method: 8260D - Volatile Organic Compounds by GC/MS
Matrix: Water
Prep Type: Total/NA

| | | Percent Surrogate Recovery (Acceptance Limits) | | |
| | | BFB | DBFM | TOL |
Lab Sample ID	Client Sample ID	(80-120)	(80-128)	(80-120)
310-254501-1	MW2	103	100	100
LCS 310-386122/6	Lab Control Sample	101	104	102
MB 310-386122/5	Method Blank	102	101	101

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

Eurofins Cedar Falls

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

Lab Sample ID: MB 310-386122/5
Matrix: Water
Analysis Batch: 386122

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			05/03/23 02:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		80 - 120					05/03/23 02:45	1
Dibromofluoromethane (Surr)	101		80 - 128					05/03/23 02:45	1
Toluene-d8 (Surr)	101		80 - 120					05/03/23 02:45	1

Lab Sample ID: LCS 310-386122/6
Matrix: Water
Analysis Batch: 386122

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	45.35		ug/L		113	50 - 150		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	104		80 - 128
Toluene-d8 (Surr)	102		80 - 120

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-386937/3
Matrix: Water
Analysis Batch: 386937

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			05/08/23 18:13	1
Fluoride	<0.200		0.200		mg/L			05/08/23 18:13	1
Sulfate	<1.00		1.00		mg/L			05/08/23 18:13	1

Lab Sample ID: LCS 310-386937/33
Matrix: Water
Analysis Batch: 386937

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	9.782		mg/L		98	90 - 110		
Fluoride	2.00	2.206		mg/L		110	90 - 110		
Sulfate	10.0	10.20		mg/L		102	90 - 110		

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-385749/1-A
Matrix: Water
Analysis Batch: 388196

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 385749

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		04/28/23 09:15	05/21/23 23:10	1
Barium	<0.00200		0.00200		mg/L		04/28/23 09:15	05/21/23 23:10	1
Cadmium	<0.000200		0.000200		mg/L		04/28/23 09:15	05/21/23 23:10	1

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

Lab Sample ID: MB 310-385749/1-A
Matrix: Water
Analysis Batch: 388196

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 385749

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	<0.0100		0.0100		mg/L		04/28/23 09:15	05/21/23 23:10	1
Zinc	<0.0200		0.0200		mg/L		04/28/23 09:15	05/21/23 23:10	1

Lab Sample ID: LCS 310-385749/2-A
Matrix: Water
Analysis Batch: 388161

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 385749

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Barium	0.100	0.1090		mg/L		109	80 - 120
Cadmium	0.100	0.1086		mg/L		109	80 - 120
Manganese	0.100	0.1014		mg/L		101	80 - 120

Lab Sample ID: LCS 310-385749/2-A
Matrix: Water
Analysis Batch: 388293

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 385749

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	0.200	0.2119		mg/L		106	80 - 120
Zinc	0.200	0.1878		mg/L		94	80 - 120

Lab Sample ID: MB 310-385734/1-B
Matrix: Water
Analysis Batch: 386877

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 385909

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		05/01/23 08:40	05/08/23 11:06	1
Arsenic	<0.00200		0.00200		mg/L		05/01/23 08:40	05/08/23 11:06	1
Boron	<0.100		0.100		mg/L		05/01/23 08:40	05/08/23 11:06	1
Cobalt	<0.000500		0.000500		mg/L		05/01/23 08:40	05/08/23 11:06	1
Iron	<0.100		0.100		mg/L		05/01/23 08:40	05/08/23 11:06	1
Manganese	<0.0100		0.0100		mg/L		05/01/23 08:40	05/08/23 11:06	1
Molybdenum	<0.00200		0.00200		mg/L		05/01/23 08:40	05/08/23 11:06	1

Lab Sample ID: LCS 310-385734/2-B
Matrix: Water
Analysis Batch: 386877

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 385909

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.2185		mg/L		109	80 - 120
Arsenic	0.200	0.2028		mg/L		101	80 - 120
Boron	0.200	0.2082		mg/L		104	80 - 120
Cobalt	0.100	0.1047		mg/L		105	80 - 120
Iron	0.200	0.2127		mg/L		106	80 - 120
Manganese	0.100	0.1028		mg/L		103	80 - 120
Molybdenum	0.200	0.2085		mg/L		104	80 - 120

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Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-386425/1-A
Matrix: Water
Analysis Batch: 386556

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 386425

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	<0.500		0.500		mg/L		05/04/23 12:05	05/05/23 09:34	1

Lab Sample ID: LCS 310-386425/2-A
Matrix: Water
Analysis Batch: 386556

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 386425

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Ammonia as N			4.00	4.056		mg/L		101	90 - 110	

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

Lab Sample ID: MB 680-778004/1-A
Matrix: Water
Analysis Batch: 778020

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 778004

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	<40.0		40.0		ug/L		05/09/23 10:45	05/09/23 14:02	1

Lab Sample ID: LCS 680-778004/2-A
Matrix: Water
Analysis Batch: 778020

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 778004

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Halogens, Total Organic			400	371.6		ug/L		93	60 - 140	

Lab Sample ID: LCSD 680-778004/26-A
Matrix: Water
Analysis Batch: 778020

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 778004

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Halogens, Total Organic			400	345.4		ug/L		86	60 - 140	7	40

Lab Sample ID: 310-254501-1 MS
Matrix: Water
Analysis Batch: 778020

Client Sample ID: MW2
Prep Type: Total/NA
Prep Batch: 778004

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	
Halogens, Total Organic	56.2		400	340.0		ug/L		71	60 - 140	

Lab Sample ID: 310-254501-1 MSD
Matrix: Water
Analysis Batch: 778020

Client Sample ID: MW2
Prep Type: Total/NA
Prep Batch: 778004

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Halogens, Total Organic	56.2		400	330.3		ug/L		69	60 - 140	3	40

Client: EB Solutions, Inc

Project/Site: Crawford Project

Job ID: 310-254501-1

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

Lab Sample ID: MB 680-778262/1-A
Matrix: Water
Analysis Batch: 778281

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 778262

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	<40.0		40.0		ug/L		05/10/23 08:30	05/10/23 13:38	1

Lab Sample ID: LCS 680-778262/2-A
Matrix: Water
Analysis Batch: 778281

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 778262

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Halogens, Total Organic			400	417.6		ug/L		104	60 - 140	

Lab Sample ID: LCSD 680-778262/14-A
Matrix: Water
Analysis Batch: 778281

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 778262

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Halogens, Total Organic			400	400.1		ug/L		100	60 - 140	4	40

Lab Sample ID: 310-254501-1 MS
Matrix: Water
Analysis Batch: 778281

Client Sample ID: MW2
Prep Type: Total/NA
Prep Batch: 778262

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	
Halogens, Total Organic	<40.0		400	388.4		ug/L		89	60 - 140	

Lab Sample ID: 310-254501-1 MSD
Matrix: Water
Analysis Batch: 778281

Client Sample ID: MW2
Prep Type: Total/NA
Prep Batch: 778262

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	397.1		ug/L		91	60 - 140	2	40

Method: 9066 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-386492/1-A
Matrix: Water
Analysis Batch: 386651

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 386492

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0200		0.0200		mg/L		05/05/23 05:13	05/05/23 21:27	1

Lab Sample ID: LCS 310-386492/2-A
Matrix: Water
Analysis Batch: 386651

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 386492

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Phenols, Total			0.100	0.09430		mg/L		94	90 - 110	

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

Lab Sample ID: MB 310-385787/1
Matrix: Water
Analysis Batch: 385787

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			04/28/23 08:59	1

Method: SM 5220D - COD

Lab Sample ID: MB 310-385954/32
Matrix: Water
Analysis Batch: 385954

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			05/01/23 08:39	1

Lab Sample ID: MB 310-385954/5
Matrix: Water
Analysis Batch: 385954

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			05/01/23 08:39	1

Lab Sample ID: LCS 310-385954/3
Matrix: Water
Analysis Batch: 385954

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	125.9		mg/L		100	85 - 115	

Lab Sample ID: LCS 310-385954/33
Matrix: Water
Analysis Batch: 385954

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	124.2		mg/L		99	85 - 115	

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GC/MS VOA

Analysis Batch: 386122

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254501-1	MW2	Total/NA	Water	8260D	
MB 310-386122/5	Method Blank	Total/NA	Water	8260D	
LCS 310-386122/6	Lab Control Sample	Total/NA	Water	8260D	

HPLC/IC

Analysis Batch: 386937

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254501-1	MW2	Total/NA	Water	9056A	
MB 310-386937/3	Method Blank	Total/NA	Water	9056A	
LCS 310-386937/33	Lab Control Sample	Total/NA	Water	9056A	

Metals

Filtration Batch: 385734

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254501-1	MW2	Dissolved	Water	Filtration	
MB 310-385734/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-385734/2-B	Lab Control Sample	Dissolved	Water	Filtration	

Prep Batch: 385749

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254501-1	MW2	Total/NA	Water	3005A	
MB 310-385749/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-385749/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 385909

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254501-1	MW2	Dissolved	Water	3005A	385734
MB 310-385734/1-B	Method Blank	Dissolved	Water	3005A	385734
LCS 310-385734/2-B	Lab Control Sample	Dissolved	Water	3005A	385734

Analysis Batch: 386877

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254501-1	MW2	Dissolved	Water	6020B	385909
MB 310-385734/1-B	Method Blank	Dissolved	Water	6020B	385909
LCS 310-385734/2-B	Lab Control Sample	Dissolved	Water	6020B	385909

Analysis Batch: 388161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254501-1	MW2	Total/NA	Water	6020B	385749
LCS 310-385749/2-A	Lab Control Sample	Total/NA	Water	6020B	385749

Analysis Batch: 388196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-385749/1-A	Method Blank	Total/NA	Water	6020B	385749

Analysis Batch: 388293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-385749/2-A	Lab Control Sample	Total/NA	Water	6020B	385749

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General Chemistry

Analysis Batch: 385787

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254501-1	MW2	Total/NA	Water	I-3765-85	
MB 310-385787/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-385787/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 385954

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254501-1	MW2	Total/NA	Water	SM 5220D	
MB 310-385954/32	Method Blank	Total/NA	Water	SM 5220D	
MB 310-385954/5	Method Blank	Total/NA	Water	SM 5220D	
LCS 310-385954/3	Lab Control Sample	Total/NA	Water	SM 5220D	
LCS 310-385954/33	Lab Control Sample	Total/NA	Water	SM 5220D	

Prep Batch: 386425

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254501-1	MW2	Total/NA	Water	Distill/Ammonia	
MB 310-386425/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-386425/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Prep Batch: 386492

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254501-1	MW2	Total/NA	Water	Distill/Phenol	
MB 310-386492/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-386492/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	

Analysis Batch: 386556

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254501-1	MW2	Total/NA	Water	350.1	386425
MB 310-386425/1-A	Method Blank	Total/NA	Water	350.1	386425
LCS 310-386425/2-A	Lab Control Sample	Total/NA	Water	350.1	386425

Analysis Batch: 386651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254501-1	MW2	Total/NA	Water	9066	386492
MB 310-386492/1-A	Method Blank	Total/NA	Water	9066	386492
LCS 310-386492/2-A	Lab Control Sample	Total/NA	Water	9066	386492

Prep Batch: 778004

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 680-778004/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 680-778004/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	
LCSD 680-778004/26-A	Lab Control Sample Dup	Total/NA	Water	Carbon Trap	
310-254501-1 MS	MW2	Total/NA	Water	Carbon Trap	
310-254501-1 MSD	MW2	Total/NA	Water	Carbon Trap	

Analysis Batch: 778020

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 680-778004/1-A	Method Blank	Total/NA	Water	9020B	778004
LCS 680-778004/2-A	Lab Control Sample	Total/NA	Water	9020B	778004
LCSD 680-778004/26-A	Lab Control Sample Dup	Total/NA	Water	9020B	778004
310-254501-1 MS	MW2	Total/NA	Water	9020B	778004
310-254501-1 MSD	MW2	Total/NA	Water	9020B	778004

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General Chemistry

Prep Batch: 778262

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254501-1	MW2	Total/NA	Water	Carbon Trap	
MB 680-778262/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 680-778262/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	
LCSD 680-778262/14-A	Lab Control Sample Dup	Total/NA	Water	Carbon Trap	
310-254501-1 MS	MW2	Total/NA	Water	Carbon Trap	
310-254501-1 MSD	MW2	Total/NA	Water	Carbon Trap	

Analysis Batch: 778281

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-254501-1	MW2	Total/NA	Water	9020B	778262
MB 680-778262/1-A	Method Blank	Total/NA	Water	9020B	778262
LCS 680-778262/2-A	Lab Control Sample	Total/NA	Water	9020B	778262
LCSD 680-778262/14-A	Lab Control Sample Dup	Total/NA	Water	9020B	778262
310-254501-1 MS	MW2	Total/NA	Water	9020B	778262
310-254501-1 MSD	MW2	Total/NA	Water	9020B	778262

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Client: EB Solutions, Inc

Project/Site: Crawford Project

Client Sample ID: MW2

Date Collected: 04/25/23 11:45

Date Received: 04/27/23 09:20

Lab Sample ID: 310-254501-1

Matrix: Water

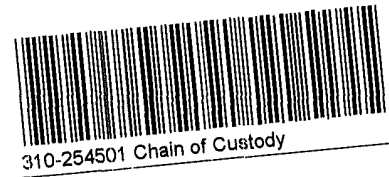| Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	386122	WSE8	EET CF	05/03/23 07:02
Total/NA	Analysis	9056A		5	386937	QTZ5	EET CF	05/08/23 19:05
Dissolved	Filtration	Filtration			385734	DHM5	EET CF	04/27/23 14:38
Dissolved	Prep	3005A			385909	DHM5	EET CF	05/01/23 08:40
Dissolved	Analysis	6020B		1	386877	ZRI4	EET CF	05/08/23 11:53
Total/NA	Prep	3005A			385749	DHM5	EET CF	04/28/23 09:15
Total/NA	Analysis	6020B		1	388161	A6US	EET CF	05/20/23 22:03
Total/NA	Prep	Distill/Ammonia			386425	MQ8M	EET CF	05/04/23 12:05
Total/NA	Analysis	350.1		1	386556	WZC8	EET CF	05/05/23 09:46
Total/NA	Prep	Carbon Trap			778262	CLJ	EET SAV	05/10/23 08:30
Total/NA	Analysis	9020B		1	778281	CLJ	EET SAV	05/10/23 15:29
Total/NA	Prep	Distill/Phenol			386492	WZC8	EET CF	05/05/23 05:13
Total/NA	Analysis	9066		1	386651	ZJX4	EET CF	05/05/23 21:34
Total/NA	Analysis	I-3765-85		1	385787	DGU1	EET CF	04/28/23 08:59
Total/NA	Analysis	SM 5220D		5	385954	D7CP	EET CF	05/01/23 08:39

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

Eurofins Cedar Falls

5/23/2023

Accreditation/Certification Summary

Laboratory: Eurofins Cedar Falls

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

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

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	06-30-23
ANAB	Dept. of Defense ELAP	L2463	09-22-24
Arkansas DEQ	State	19-015-0	02-01-24
California	State	2939	06-30-23
Florida	NELAP	E87052	06-30-23
Georgia	State	E87052	06-30-23
Georgia (DW)	State	803	06-30-23
Guam	State	19-007R	04-17-24
Hawaii	State	<cert No.>	06-30-23
Illinois	NELAP	200022	11-30-23
Indiana	State	C-GA-02	06-30-23
Iowa	State	353	07-01-23
Kentucky (UST)	State	NA	06-30-23
Louisiana	NELAP	30690	06-30-23
Louisiana (All)	NELAP	30690	06-30-23
Louisiana (DW)	State	LA009	12-31-23
Maine	State	GA00006	09-25-24
Maryland	State	250	12-31-23
Massachusetts	State	M-GA006	06-30-23
Michigan	State	9925	06-30-23
Mississippi	State	<cert No.>	06-30-23
Nebraska	State	NE-OS-7-04	06-30-23
New Jersey	NELAP	GA769	06-30-23
New Mexico	State	GA00006	06-30-23
North Carolina (DW)	State	13701	07-31-23
North Carolina (WW/SW)	State	269	12-31-23
Pennsylvania	NELAP	68-00474	06-30-23
Puerto Rico	State	GA00006	01-01-24
South Carolina	State	98001	06-30-23
Tennessee	State	TN02961	06-30-23
Texas	NELAP	T1047004185-19-14	11-30-23
Texas	TCEQ Water Supply	T104704185	06-30-23
USDA	US Federal Programs	P330-18-00313	09-03-24
Virginia	NELAP	460161	06-14-23
Wyoming	State	8TMS-L	06-30-23

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

eurofins | Environment Testing America

Client Information					
Client:	EB Solutions				
City/State:	CITY CR	STATE IA	Project:		

Receipt Information

	DATE 4-27-23	TIME 0920	Received By: CC
Date/Time Received:			

Delivery Type: ☐ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☑ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☐ Yes	☑ No	*If yes:* Cooler # _____ of _____
Cooler Custody Seals Present?	☑ Yes	☐ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☑ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☐ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: T   Correction Factor (°C): 0.1

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 1.3	Corrected Temp (°C): 1.4

• 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? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE. If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Document CED-P-SAM-FRM45521
Revision 26
Date 27 Jan 2022

Eurofins Cedar Falls
Page 21 of 26

General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C

5/23/2023

Chain of Custody Record

COC No 310-36804-12214 1

Page: Page 1 of 1
Job #

Client Information

Client Contact: Edward Bertch
Sampler: Ed Bertch
Phone: 319-247-3253

Lab PM: Bindert, Zach T
E-Mail: zach bindert@testamericainc.com

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
Project #: 31007226
Site:

Due Date Requested
TAT Requested (days):
PO #
WO #
SSOW#

Carrier Tracking No(s)

Preservation Codes.

A HCL	F MeOH	M Hexane
B NaOH	G Amchlor	N None
C Zn Acetate	H Ascorbic Acid	O AsNaO2
D Nitric Acid	I Ice	P Na2O4S
E NaHSO4	J DI Water	Q Na2SO3
	K EDTA	R Na2S2O3
	L EDA	S H2SO4
		T TSP Dodecahydrate
		U Acetone
		V MCAA
		W pH 4-5
		Z other (specify)

Other

Analysis Requested

Sample Identification	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)	8270D - 2,4 Dinitrotoluene Pyridine Pentachlor (N)	Ammonia 350.1, COD - 5220D (S)	9056A_ORGFM_28D - Chloride Fluoride, Sulfate (N)	6020A Dissolved Metals (N)	Total Metals 6020A, 7470A (D)	9066 - Total Recoverable Phenolics (S)	8260C - Benzene and Methyl Ethyl Ketone (A)	L_3765_85 - Residue, Non filterable (TSS) (N)	9020B - Total Organic Halides (TOX) (S)		Total Number of containers	Special Instructions/Note:
Preservation Code.			G	Water			N	S	N	N	D	S	A	N	S			
MW2	4/25/23	11:45		Water			X	X	X	X	X	X	X	X	X		12	
				Water			X	X	X	X	X	X	X	X	X		12	
				Water			X	X	X	X	X	X	X	X	X		12	
				Water			X	X	X	X	X	X	X	X	X		12	
				Water			X	X	X	X	X	X	X	X	X		12	
				Water			X	X	X	X	X	X	X	X	X		12	
				Water			X	X	X	X	X	X	X	X	X		12	
				Water			X	X	X	X	X	X	X	X	X		12	
				Water			X	X	X	X	X	X	X	X	X		12	
Trip Blank				Water									X	X	X		3	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Deliverable Requested I II III IV Other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements.

Empty Kit Relinquished by   Date.   Time

Relinquished by	Date/Time 3/26/23/10:45	Company EB Solutions	Received by	Date/Time 4-27-23 920	Company
Relinquished by	Date Time	Company	Received by	Date/Time	Company
Relinquished by	Date/Time	Company	Received by	Date/Time	Company

Custody Seals Intact ☐ Yes ☐ No
Custody Seal No
Cooler Temperature(s) °C and Other Remarks

Method of Shipment

Ver 08 03 206

Chain of Custody Record

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

⬡ eurofins | Environment Testing

COC No: 310-60782 1
Page Page 1 of 1
Job #: 310-254501-1

Client Information (Sub Contract Lab)

Sampler	
Lab PM: Bindert, Zach T	
Client Contact: Shipping/Receiving	Phone	E-Mail: Zach.Bindert@et.eurofinsus.com
Company: Eurofins Environment Testing Southeast,		Carrier Tracking No(s).	State of Origin: Iowa
Address. 5102 LaRoche Avenue,	Due Date Requested 5/17/2023	Accreditations Required (See note)* State Program - Iowa
City Savannah	TAT Requested (days)*	
State Zip: GA, 31404		
Phone: 912-354-7858(Tel) 912-352-0165(Fax)	PO #:	
Email	WO #:	
Project Name: Crawford Project	Project #: 31007226	
Site:	SSOW#:	

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:	

Analysis Requested

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:
			Preservation Code:						
MW2 (310-254501-1)	4/25/23	1145 Central		Water			X	1	

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

Unconfirmed

Deliverable Requested I, II, III, IV, Other (specify) Primary Deliverable Rank. 2

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by:	Date/Time: 4/7 23 1:33	Company	Received by:	Date/Time: 4/25/23 10:00	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No		Cooler Temperature(s) °C and Other Remarks 04.1.0

Ver 06/08/2021 5/23/2023

Chain of Custody Record

Eurofins Chicago
2417 Bond Street
University Park, IL 60484
Phone 708-534-5200 Fax 708-534-5211

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COC No:	500-173335 2
Page:	Page 2 of 2
Job #:	500-232897-1

Client Information (Sub Contract Lab)

Client Contact:	Shipping/Receiving
Company	Eurofins Environment Testing Southeast,
Address	5102 LaRoche Avenue, ,
City	Savannah
State Zip:	GA, 31404
Phone:	912-354-7858(Tel) 912-352-0165(Fax)
Email:	
Project Name	WCERT
Site	
Project #:	50015171
SSOW#:	
PO #:	
WO #:	

Sampler:	
Phone	

Lab PM McCutcheon, Carlene
E-Mail: Carlene McCutcheon@et eurofinsus com

Accreditations Required (See note)
NELAP - Illinois

Carrier Tracking No(s):	
State of Origin	Illinois

Due Date Requested 5/10/2023
TAT Requested (days)

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
Other:	Z - other (specify)

Analysis Requested

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)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	200.8_CWA/FIELD_FLTRD (MOD) Single Element	Total Number of containers	Special Instructions/Note:
FB-042723 (500-232897-10)	4/27/23	10 50 Central		Water				X	1	

Possible Hazard Identification

Unconfirmed			

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client   ☐ Disposal By Lab   ☐ Archive For _____ Months

Deliverable Requested I, II, III, IV, Other (specify)
Primary Deliverable Rank 2

Special Instructions/QC Requirements:

Note Since laboratory accreditations are subject to change, Eurofins Chicago 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 Chicago laboratory or other instructions will be provided Any changes to accreditation status should be brought to Eurofins Chicago attention immediately If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Chicago.

Empty Kit Relinquished by:

	Date	Time	Method of Shipment

Relinquished by:	Date/Time: 4/27/23 16/5	Company	Received by: 4/28/25 10:06	Company
Relinquished by:	Date/Time:	Company	Received by:	Company
Relinquished by:	Date/Time:	Company	Received by:	Company

Custody Seals Intact △ Yes △ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks 17.2 17.8

5/23/2023

Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-254501-1

Login Number: 254501

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: 310-254501-1

Login Number: 254501
List Number: 2
Creator: Johnson, Corey M

List Source: Eurofins Savannah
List Creation: 04/28/23 02:44 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	

Eurofins Cedar Falls

5/23/2023

eurofins
Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Edward Bertch
EB Solutions, Inc
5060 4th St. SW
Cedar Rapids, Iowa 52404
Generated 5/30/2023 10:13:06 AM

JOB DESCRIPTION

Crawford Project

JOB NUMBER

310-255039-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

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my EOL

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
5/30/2023 10:13:06 AM

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

Eurofins Cedar Falls is a laboratory within Eurofins Environment Testing North Central, LLC, a company within Eurofins Environment Testing Group of Companies

Table of Contents

Eurofins Cedar Falls
5/30/2023

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

Job ID: 310-255039-1

Job ID: 310-255039-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-255039-1

Receipt
The sample was received on 5/4/2023 2:37 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.9°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 (310-255039-1). 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 (310-255039-1).

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

Eurofins Cedar Falls
5/30/2023

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-255039-1	MW5	Water	05/02/23 10:45	05/04/23 14:37

Client Sample ID: MW5　　　　　　　　　　　　　　　　　　**Lab Sample ID: 310-255039-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	24.7		5.00		mg/L	5		9056A	Total/NA
Barium	0.0775		0.00200		mg/L	1		6020B	Total/NA
Manganese	0.0566		0.0100		mg/L	1		6020B	Total/NA
Boron	0.188		0.100		mg/L	1		6020B	Dissolved
Manganese	0.0538		0.0100		mg/L	1		6020B	Dissolved
Molybdenum	0.00266		0.00200		mg/L	1		6020B	Dissolved
Chemical Oxygen Demand	43.7		25.0		mg/L	5		SM 5220D	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client: EB Solutions, Inc

Project/Site: Crawford Project

Job ID: 310-255039-1

Client Sample ID: MW5

Date Collected: 05/02/23 10:45

Date Received: 05/04/23 14:37

Lab Sample ID: 310-255039-1

Matrix: Water

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			05/08/23 13:41	1

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		80 - 120					05/08/23 13:41	1
Dibromofluoromethane (Surr)	102		80 - 128					05/08/23 13:41	1
Toluene-d8 (Surr)	98		80 - 120					05/08/23 13:41	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			05/25/23 19:17	5
Fluoride	<1.00		1.00		mg/L			05/25/23 19:17	5
Sulfate	**24.7**		5.00		mg/L			05/25/23 19:17	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		05/08/23 10:25	05/27/23 20:57	1
Barium	**0.0775**		0.00200		mg/L		05/08/23 10:25	05/27/23 20:57	1
Cadmium	<0.000200		0.000200		mg/L		05/08/23 10:25	05/27/23 20:57	1
Manganese	**0.0566**		0.0100		mg/L		05/08/23 10:25	05/27/23 20:57	1
Zinc	<0.0200		0.0200		mg/L		05/08/23 10:25	05/27/23 20:57	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		05/08/23 10:25	05/19/23 18:07	1
Arsenic	<0.00200		0.00200		mg/L		05/08/23 10:25	05/19/23 18:07	1
Boron	**0.188**		0.100		mg/L		05/08/23 10:25	05/19/23 18:07	1
Cobalt	<0.000500		0.000500		mg/L		05/08/23 10:25	05/19/23 18:07	1
Iron	<0.100	*+	0.100		mg/L		05/08/23 10:25	05/19/23 18:07	1
Manganese	**0.0538**		0.0100		mg/L		05/08/23 10:25	05/19/23 18:07	1
Molybdenum	**0.00266**		0.00200		mg/L		05/08/23 10:25	05/19/23 18:07	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		05/11/23 09:38	05/11/23 17:55	1
Halogens, Total Organic (SW846 9020B)	<40.0		40.0		ug/L		05/22/23 12:45	05/23/23 07:45	1
Phenols, Total (SW846 9066)	<0.0200		0.0200		mg/L		05/05/23 05:13	05/05/23 21:28	1
Total Suspended Solids (USGS I-3765-85)	<1.88		1.88		mg/L			05/05/23 13:15	1
Chemical Oxygen Demand (SM 5220D)	**43.7**		25.0		mg/L			05/08/23 08:45	5

Eurofins Cedar Falls

Qualifiers

Metals

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL, and the absolute difference between results is < the upper reporting limits for both.

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

Eurofins Cedar Falls

Surrogate Summary

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

Matrix: Water   **Prep Type: Total/NA**

| | | Percent Surrogate Recovery (Acceptance Limits) | | |
| | | BFB | DBFM | TOL |
Lab Sample ID	Client Sample ID	(80-120)	(80-128)	(80-120)
310-255039-1	MW5	98	102	98
LCS 310-386729/6	Lab Control Sample	102	101	100
MB 310-386729/5	Method Blank	99	98	99

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: EB Solutions, Inc

Job ID: 310-255039-1

Project/Site: Crawford Project

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

Lab Sample ID: MB 310-386729/5　　　　　　　　**Client Sample ID: Method Blank**
Matrix: Water　　　　　　　　**Prep Type: Total/NA**
Analysis Batch: 386729

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			05/08/23 10:29	1

Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		80 - 120					05/08/23 10:29	1
Dibromofluoromethane (Surr)	98		80 - 128					05/08/23 10:29	1
Toluene-d8 (Surr)	99		80 - 120					05/08/23 10:29	1

Lab Sample ID: LCS 310-386729/6　　　　　　　　**Client Sample ID: Lab Control Sample**
Matrix: Water　　　　　　　　**Prep Type: Total/NA**
Analysis Batch: 386729

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
2-Butanone (MEK)	40.0	48.30		ug/L		121	50 - 150		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		80 - 120
Dibromofluoromethane (Surr)	101		80 - 128
Toluene-d8 (Surr)	100		80 - 120

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-388852/3　　　　　　　　**Client Sample ID: Method Blank**
Matrix: Water　　　　　　　　**Prep Type: Total/NA**
Analysis Batch: 388852

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			05/25/23 17:11	1
Fluoride	<0.200		0.200		mg/L			05/25/23 17:11	1
Sulfate	<1.00		1.00		mg/L			05/25/23 17:11	1

Lab Sample ID: LCS 310-388852/4　　　　　　　　**Client Sample ID: Lab Control Sample**
Matrix: Water　　　　　　　　**Prep Type: Total/NA**
Analysis Batch: 388852

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	10.0	10.20		mg/L		102	90 - 110		
Fluoride	2.00	2.169		mg/L		108	90 - 110		
Sulfate	10.0	10.68		mg/L		107	90 - 110		

Lab Sample ID: 310-255039-1 MS　　　　　　　　**Client Sample ID: MW5**
Matrix: Water　　　　　　　　**Prep Type: Total/NA**
Analysis Batch: 388852

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	<5.00		25.0	25.92		mg/L		104	80 - 120		
Fluoride	<1.00		5.00	5.967		mg/L		104	80 - 120		
Sulfate	24.7		25.0	51.54		mg/L		107	80 - 120		

Eurofins Cedar Falls

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

Job ID: 310-255039-1

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

Lab Sample ID: 310-255039-1 MSD
Matrix: Water
Analysis Batch: 388852

Client Sample ID: MW5
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	<5.00		25.0	26.08		mg/L		104	80 - 120	1	15
Fluoride	<1.00		5.00	5.988		mg/L		105	80 - 120	0	15
Sulfate	24.7		25.0	51.79		mg/L		108	80 - 120	0	15

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-386635/1-A
Matrix: Water
Analysis Batch: 388196

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 386635

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		05/08/23 10:25	05/22/23 00:36	1
Barium	<0.00200		0.00200		mg/L		05/08/23 10:25	05/22/23 00:36	1
Cadmium	<0.000200		0.000200		mg/L		05/08/23 10:25	05/22/23 00:36	1
Manganese	<0.0100		0.0100		mg/L		05/08/23 10:25	05/22/23 00:36	1
Zinc	<0.0200		0.0200		mg/L		05/08/23 10:25	05/22/23 00:36	1

Lab Sample ID: LCS 310-386635/2-A
Matrix: Water
Analysis Batch: 388342

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 386635

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	0.200	0.2127		mg/L		106	80 - 120
Barium	0.100	0.1032		mg/L		103	80 - 120
Cadmium	0.100	0.1007		mg/L		101	80 - 120
Manganese	0.100	0.1021		mg/L		102	80 - 120
Zinc	0.200	0.1932		mg/L		97	80 - 120

Lab Sample ID: MB 310-386453/1-B
Matrix: Water
Analysis Batch: 388159

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 386811

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		05/08/23 10:25	05/19/23 17:22	1
Arsenic	<0.00200		0.00200		mg/L		05/08/23 10:25	05/19/23 17:22	1
Boron	<0.100		0.100		mg/L		05/08/23 10:25	05/19/23 17:22	1
Cobalt	<0.000500		0.000500		mg/L		05/08/23 10:25	05/19/23 17:22	1
Iron	<0.100		0.100		mg/L		05/08/23 10:25	05/19/23 17:22	1
Manganese	<0.0100		0.0100		mg/L		05/08/23 10:25	05/19/23 17:22	1
Molybdenum	<0.00200		0.00200		mg/L		05/08/23 10:25	05/19/23 17:22	1

Lab Sample ID: LCS 310-386453/2-B
Matrix: Water
Analysis Batch: 388159

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 386811

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.2315		mg/L		116	80 - 120
Arsenic	0.200	0.2157		mg/L		108	80 - 120
Boron	0.200	0.2046		mg/L		102	80 - 120
Cobalt	0.100	0.1140		mg/L		114	80 - 120

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5/30/2023

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

Lab Sample ID: LCS 310-386453/2-B
Matrix: Water
Analysis Batch: 388159

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 386811

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Manganese	0.100	0.09981		mg/L		100	80 - 120
Molybdenum	0.200	0.1968		mg/L		98	80 - 120

Lab Sample ID: 310-255039-1 DU
Matrix: Water
Analysis Batch: 388159

Client Sample ID: MW5
Prep Type: Dissolved
Prep Batch: 386811

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	<0.00200		<0.00200		mg/L		NC	20
Arsenic	<0.00200		<0.00200		mg/L		NC	20
Boron	0.188		0.1734		mg/L		8	20
Cobalt	<0.000500		<0.000500		mg/L		NC	20
Iron	<0.100	*+	<0.100	*+	mg/L		NC	20
Manganese	0.0538		0.05209		mg/L		3	20
Molybdenum	0.00266		0.002029	F5	mg/L		27	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-387174/1-A
Matrix: Water
Analysis Batch: 387251

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 387174

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	<0.500		0.500		mg/L		05/11/23 09:38	05/11/23 17:35	1

Lab Sample ID: LCS 310-387174/2-A
Matrix: Water
Analysis Batch: 387251

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 387174

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	4.00	3.731		mg/L		93	90 - 110

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

Lab Sample ID: MB 680-780071/1-A
Matrix: Water
Analysis Batch: 780082

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 780071

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	<40.0		40.0		ug/L		05/22/23 12:45	05/22/23 16:43	1

Lab Sample ID: LCS 680-780071/2-A
Matrix: Water
Analysis Batch: 780082

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 780071

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	400	386.0		ug/L		97	60 - 140

Eurofins Cedar Falls

Client: EB Solutions, Inc

Project/Site: Crawford Project

Job ID: 310-255039-1

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

Lab Sample ID: 310-255039-1 MS
Matrix: Water
Analysis Batch: 780082

Client Sample ID: MW5
Prep Type: Total/NA
Prep Batch: 780071

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Halogens, Total Organic	<40.0		400	417.3		ug/L		104	60 - 140		

Lab Sample ID: 310-255039-1 MSD
Matrix: Water
Analysis Batch: 780082

Client Sample ID: MW5
Prep Type: Total/NA
Prep Batch: 780071

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	382.6		ug/L		96	60 - 140	9	40

Method: 9066 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-386492/1-A
Matrix: Water
Analysis Batch: 386651

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 386492

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0200		0.0200		mg/L		05/05/23 05:13	05/05/23 21:27	1

Lab Sample ID: LCS 310-386492/2-A
Matrix: Water
Analysis Batch: 386651

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 386492

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total			0.100	0.09430		mg/L		94	90 - 110

Lab Sample ID: 310-255039-1 MS
Matrix: Water
Analysis Batch: 386651

Client Sample ID: MW5
Prep Type: Total/NA
Prep Batch: 386492

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total	<0.0200		0.100	0.09530		mg/L		95	76 - 124

Lab Sample ID: 310-255039-1 MSD
Matrix: Water
Analysis Batch: 386651

Client Sample ID: MW5
Prep Type: Total/NA
Prep Batch: 386492

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	0.09630		mg/L		96	76 - 124	1	14

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

Lab Sample ID: MB 310-386578/1
Matrix: Water
Analysis Batch: 386578

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			05/05/23 13:15	1

QC Sample Results

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

Lab Sample ID: LCS 310-386578/2
Matrix: Water
Analysis Batch: 386578

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	106.0		mg/L		106	75 - 116		

Method: SM 5220D - COD

Lab Sample ID: MB 310-386728/32
Matrix: Water
Analysis Batch: 386728

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			05/08/23 08:45	1

Lab Sample ID: MB 310-386728/5
Matrix: Water
Analysis Batch: 386728

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			05/08/23 08:45	1

Lab Sample ID: LCS 310-386728/3
Matrix: Water
Analysis Batch: 386728

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	126.2		mg/L		101	85 - 115		

Lab Sample ID: LCS 310-386728/33
Matrix: Water
Analysis Batch: 386728

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	124.5		mg/L		99	85 - 115		

GC/MS VOA

Analysis Batch: 386729

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255039-1	MW5	Total/NA	Water	8260D	
MB 310-386729/5	Method Blank	Total/NA	Water	8260D	
LCS 310-386729/6	Lab Control Sample	Total/NA	Water	8260D	

HPLC/IC

Analysis Batch: 388852

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255039-1	MW5	Total/NA	Water	9056A	
MB 310-388852/3	Method Blank	Total/NA	Water	9056A	
LCS 310-388852/4	Lab Control Sample	Total/NA	Water	9056A	
310-255039-1 MS	MW5	Total/NA	Water	9056A	
310-255039-1 MSD	MW5	Total/NA	Water	9056A	

Metals

Filtration Batch: 386453

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255039-1	MW5	Dissolved	Water	Filtration	
MB 310-386453/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-386453/2-B	Lab Control Sample	Dissolved	Water	Filtration	
310-255039-1 DU	MW5	Dissolved	Water	Filtration	

Prep Batch: 386635

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255039-1	MW5	Total/NA	Water	3005A	
MB 310-386635/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-386635/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 386811

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255039-1	MW5	Dissolved	Water	3005A	386453
MB 310-386453/1-B	Method Blank	Dissolved	Water	3005A	386453
LCS 310-386453/2-B	Lab Control Sample	Dissolved	Water	3005A	386453
310-255039-1 DU	MW5	Dissolved	Water	3005A	386453

Analysis Batch: 388159

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255039-1	MW5	Dissolved	Water	6020B	386811
MB 310-386453/1-B	Method Blank	Dissolved	Water	6020B	386811
LCS 310-386453/2-B	Lab Control Sample	Dissolved	Water	6020B	386811
310-255039-1 DU	MW5	Dissolved	Water	6020B	386811

Analysis Batch: 388196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-386635/1-A	Method Blank	Total/NA	Water	6020B	386635

Analysis Batch: 388342

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-386635/2-A	Lab Control Sample	Total/NA	Water	6020B	386635

Eurofins Cedar Falls

QC Association Summary

Metals

Analysis Batch: 388931

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255039-1	MW5	Total/NA	Water	6020B	386635

General Chemistry

Prep Batch: 386492

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255039-1	MW5	Total/NA	Water	Distill/Phenol	
MB 310-386492/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-386492/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	
310-255039-1 MS	MW5	Total/NA	Water	Distill/Phenol	
310-255039-1 MSD	MW5	Total/NA	Water	Distill/Phenol	

Analysis Batch: 386578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255039-1	MW5	Total/NA	Water	I-3765-85	
MB 310-386578/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-386578/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 386651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255039-1	MW5	Total/NA	Water	9066	386492
MB 310-386492/1-A	Method Blank	Total/NA	Water	9066	386492
LCS 310-386492/2-A	Lab Control Sample	Total/NA	Water	9066	386492
310-255039-1 MS	MW5	Total/NA	Water	9066	386492
310-255039-1 MSD	MW5	Total/NA	Water	9066	386492

Analysis Batch: 386728

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255039-1	MW5	Total/NA	Water	SM 5220D	
MB 310-386728/32	Method Blank	Total/NA	Water	SM 5220D	
MB 310-386728/5	Method Blank	Total/NA	Water	SM 5220D	
LCS 310-386728/3	Lab Control Sample	Total/NA	Water	SM 5220D	
LCS 310-386728/33	Lab Control Sample	Total/NA	Water	SM 5220D	

Prep Batch: 387174

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255039-1	MW5	Total/NA	Water	Distill/Ammonia	
MB 310-387174/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-387174/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 387251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255039-1	MW5	Total/NA	Water	350.1	387174
MB 310-387174/1-A	Method Blank	Total/NA	Water	350.1	387174
LCS 310-387174/2-A	Lab Control Sample	Total/NA	Water	350.1	387174

Prep Batch: 780071

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255039-1	MW5	Total/NA	Water	Carbon Trap	
MB 680-780071/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 680-780071/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	

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General Chemistry (Continued)

Prep Batch: 780071 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255039-1 MS	MW5	Total/NA	Water	Carbon Trap	
310-255039-1 MSD	MW5	Total/NA	Water	Carbon Trap	

Analysis Batch: 780082

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255039-1	MW5	Total/NA	Water	9020B	780071
MB 680-780071/1-A	Method Blank	Total/NA	Water	9020B	780071
LCS 680-780071/2-A	Lab Control Sample	Total/NA	Water	9020B	780071
310-255039-1 MS	MW5	Total/NA	Water	9020B	780071
310-255039-1 MSD	MW5	Total/NA	Water	9020B	780071

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Lab Chronicle

Project/Site: Crawford Project

Client Sample ID: MW5

Lab Sample ID: 310-255039-1

Date Collected: 05/02/23 10:45

Matrix: Water

Date Received: 05/04/23 14:37

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	386729	WSE8	EET CF	05/08/23 13:41
Total/NA	Analysis	9056A		5	388852	QTZ5	EET CF	05/25/23 19:17
Dissolved	Filtration	Filtration			386453	DHM5	EET CF	05/05/23 13:35
Dissolved	Prep	3005A			386811	KCK5	EET CF	05/08/23 10:25
Dissolved	Analysis	6020B		1	388159	A6US	EET CF	05/19/23 18:07
Total/NA	Prep	3005A			386635	QTZ5	EET CF	05/08/23 10:25
Total/NA	Analysis	6020B		1	388931	A6US	EET CF	05/27/23 20:57
Total/NA	Prep	Distill/Ammonia			387174	MQ8M	EET CF	05/11/23 09:38
Total/NA	Analysis	350.1		1	387251	ZJX4	EET CF	05/11/23 17:55
Total/NA	Prep	Carbon Trap			780071	CLJ	EET SAV	05/22/23 12:45
Total/NA	Analysis	9020B		1	780082	CLJ	EET SAV	05/23/23 07:45
Total/NA	Prep	Distill/Phenol			386492	WZC8	EET CF	05/05/23 05:13
Total/NA	Analysis	9066		1	386651	ZJX4	EET CF	05/05/23 21:28
Total/NA	Analysis	I-3765-85		1	386578	DGU1	EET CF	05/05/23 13:15
Total/NA	Analysis	SM 5220D		5	386728	D7CP	EET CF	05/08/23 08:45

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

Laboratory: Eurofins Cedar Falls

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

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

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	06-30-23
ANAB	Dept. of Defense ELAP	L2463	09-22-24
Arkansas DEQ	State	19-015-0	02-01-24
California	State	2939	06-30-23
Florida	NELAP	E87052	06-30-23
Georgia	State	E87052	06-30-23
Georgia (DW)	State	803	06-30-23
Guam	State	19-007R	04-17-24
Hawaii	State	<cert No.>	06-30-23
Illinois	NELAP	200022	11-30-23
Indiana	State	C-GA-02	06-30-23
Iowa	State	353	06-30-23
Kentucky (UST)	State	NA	06-30-23
Louisiana	NELAP	30690	06-30-23
Louisiana (All)	NELAP	30690	06-30-23
Louisiana (DW)	State	LA009	12-31-23
Maine	State	GA00006	09-25-24
Maryland	State	250	12-31-23
Massachusetts	State	M-GA006	06-30-23
Michigan	State	9925	06-30-23
Mississippi	State	<cert No.>	06-30-23
Nebraska	State	NE-OS-7-04	06-30-23
New Jersey	NELAP	GA769	06-30-23
New Mexico	State	GA00006	06-30-23
North Carolina (DW)	State	13701	07-31-23
North Carolina (WW/SW)	State	269	12-31-23
Pennsylvania	NELAP	68-00474	06-30-23
Puerto Rico	State	GA00006	01-01-24
South Carolina	State	98001	06-30-23
Tennessee	State	TN02961	06-30-23
Texas	NELAP	T1047004185-19-14	11-30-23
Texas	TCEQ Water Supply	T104704185	06-30-23
USDA	US Federal Programs	P330-18-00313	09-03-24
Virginia	NELAP	460161	06-14-23
Wyoming	State	8TMS-L	06-30-23

Eurofins Cedar Falls

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

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Cooler/Sample Receipt and Temperature Log Form

Client Information

Client.	GBSolutions

City/State.	CITY Cedar Rapids	STATE A	Project:

Receipt Information

Date/Time Received:	DATE 5/4/23	TIME 0920	Received By: J

Delivery Type: ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee

☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☒ Yes ☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☐ Yes ☒ No	*If yes:* Cooler # _____ of _____
Cooler Custody Seals Present?	☒ Yes ☐ No	*If yes:* Cooler custody seals intact? ☒ Yes ☐ No
Sample Custody Seals Present?	☐ Yes ☒ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes ☒ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: 7	Correction Factor (°C): +0.1

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 4.8	Corrected Temp (°C): 4.9

• 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? ☐ Yes ☐ No

   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE. If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Document CED-P-SAM-FRM45521
Revision 26
Date. 27 Jan 2022

Eurofins Cedar Falls

General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C

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5/30/2023

Chain of Custody Record

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls   IA 50613
Phone (319) 277-2401 Fax (319) 277 2425

Sampler: *Ed Bertch* (signature)

Lab PM: Bindert Zach T
Phone:
E Mail: zach.bindert@testamericainc.com

COC No: 310-36804-12214 1
Page: Page 1 of 1
Job #:

Carrier Tracking No(s):

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:

Due Date Requested:
TAT Requested (days):
PO #:
WO #:
Project #: 31007226
SSOW#:

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

M Hexane
N None
O AsNaO2
O Na2O4S
O Na2SO3
R Na2S2O3
S H2SO4
T TSP Dodecahydrate
U Acetone
V MCAA
W pH 4-5
Z other (specify)

Other:

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Preservation Code	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D - 2,4-Dinitrotoluene Pyridine Pentachlor · N	Ammonia - 350 1, COD 5220D · S	9056A - ORGFM_28D Chloride Fluoride, Sulfate · N	6020A Dissolved Metals · N	Total Metals 6020A 7470A · D	9066 - Total Recoverable Phenolics · S	8260C - Benzene and Methyl Ethyl Ketone · A	L 3765 85 - Residue, Non-filterable (TSS) · N	9020B - Total Organic Halides (TOX) · S	Total Number of containers
Mw5	5/2/23	10:45	G		Wate			X	X	X	X	X	X	X	X	X	12
					Water			X	X	X	X	X	X	X	X	X	12
					Water			X	X	X	X	X	X	X	X	X	12
					Water			X	X	X	X	X	X	X	X	X	12
					Water			X	X	X	X	X	X	X	X	X	12
					Water			X	X	X	X	X	X	X	X	X	12
					Water			X	X	X	X	X	X	X	X	X	12
					Water			X	X	X	X	X	X	X	X	X	12
					Water			X	X	X	X	X	X	X	X	X	12
					Water			X	X	X	X	X	X	X	X	X	12
Trip Blank					Water									X			3

Special Instructions/Note:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Deliverable Requested I II III IV Other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements:

	Date/Time		Received by	Date/Time
Empty Kit Relinquished by		Method of Shipment:		
Relinquished by (signature)	5/3/23 10:00	Company	Received by: EB Solutions	5/4/23
Relinquished by (signature)	5/3/23 10:00	Company EB Solutions	Received by	55
Relinquished by,		Company	Received by	Date/Time

Cooler Temperature(s) °C and Other Remarks:

Custody Seals Intact.   Custody Seal No

Eurofins Cedar Falls

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

Chain of Custody Record

⬛ QR Code

⋮∴ eurofins | Environment Testing

Sampler	Lab PM Bindert, Zach T	Carrier Tracking No(s):	COC No: 310-61027 1

Client Information   (Sub Contract Lab)

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 #: 310-255039-1

Address. 5102 LaRoche Avenue,   ,

Due Date Requested 5/24/2023	**Analysis Requested**	**Preservation Codes:**

City: Savannah — TAT Requested (days)

State Zip: GA, 31404

Phone: 912-354-7858(Tel)   912-352-0165(Fax) — PO #:

Email — WO #:

Project Name. Crawford Project — Project #: 31007226

Site. — SSOW#:

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

M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Y - Trizma
Z - other (specify)

Other:

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:
				Preservation Code.					
MW5 (310-255039-1)	5/2/23	10 45 Central		Water			X	1	

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	☐ Return To Client ☐ Disposal By Lab ☐ 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 5/4/23 /1535	Company	Received by	Date/Time 5/5/73 10.30	Company Eurofns
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by	Date/Time:	Company	Received by	Date/Time:	Company

Custody Seals Intact. △ Yes △ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks. 3.6 /3.4

Ver: 06/08/2021   5/30/2023

Login Sample Receipt Checklist

Client: EB Solutions, Inc   Job Number: 310-255039-1

Login Number: 255039   **List Source: Eurofins Cedar Falls**
List Number: 1
Creator: Tucker, Sarah L

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

Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-255039-1

Login Number: 255039
List Number: 2
Creator: Drake, Victoria

List Source: Eurofins Savannah
List Creation: 05/05/23 02:44 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.	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").	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 5/30/2023 4:00:44 PM

JOB DESCRIPTION

Crawford Project

JOB NUMBER

310-255595-1

Eurofins Cedar Falls

Job Notes

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

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

Authorization

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5/30/2023 4:00:44 PM

_____

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

Eurofins Cedar Falls is a laboratory within Eurofins Environment Testing North Central, LLC, a company within Eurofins Environment Testing Group of Companies

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Eurofins Cedar Falls
5/30/2023

Case Narrative

Job ID: 310-255595-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-255595-1

Receipt
The sample was received on 5/11/2023 9:30 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 5.9°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:MW3 (310-255595-1).

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-255595-1	MW3	Water	05/09/23 10:35	05/11/23 09:30

Detection Summary

Client Sample ID: MW3   **Lab Sample ID: 310-255595-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	136		5.00		mg/L	5		9056A	Total/NA
Sulfate	32.6		5.00		mg/L	5		9056A	Total/NA
Barium	0.320		0.00200		mg/L	1		6020B	Total/NA
Manganese	0.0303		0.0100		mg/L	1		6020B	Total/NA
Cobalt	0.000731		0.000500		mg/L	1		6020B	Dissolved
Manganese	0.0480		0.0100		mg/L	1		6020B	Dissolved
Molybdenum	0.00557		0.00200		mg/L	1		6020B	Dissolved
Total Suspended Solids	8.13		1.88		mg/L	1		I-3765-85	Total/NA
Chemical Oxygen Demand	29.1		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: 310-255595-1

Client Sample ID: MW3
Date Collected: 05/09/23 10:35
Date Received: 05/11/23 09:30

Lab Sample ID: 310-255595-1
Matrix: Water

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			05/12/23 13:25	1

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		80 - 120					05/12/23 13:25	1
Dibromofluoromethane (Surr)	104		80 - 128					05/12/23 13:25	1
Toluene-d8 (Surr)	98		80 - 120					05/12/23 13:25	1

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**136**		5.00		mg/L			05/26/23 18:39	5
Fluoride	<1.00		1.00		mg/L			05/26/23 18:39	5
Sulfate	**32.6**		5.00		mg/L			05/26/23 18:39	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		05/12/23 08:40	05/24/23 14:49	1
Barium	**0.320**		0.00200		mg/L		05/12/23 08:40	05/24/23 14:49	1
Cadmium	<0.000200		0.000200		mg/L		05/12/23 08:40	05/24/23 14:49	1
Manganese	**0.0303**		0.0100		mg/L		05/12/23 08:40	05/24/23 14:49	1
Zinc	<0.0200		0.0200		mg/L		05/12/23 08:40	05/24/23 14:49	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		05/15/23 09:40	05/25/23 16:37	1
Arsenic	<0.00200		0.00200		mg/L		05/15/23 09:40	05/25/23 16:37	1
Boron	<0.100	F1	0.100		mg/L		05/15/23 09:40	05/25/23 16:37	1
Cobalt	**0.000731**		0.000500		mg/L		05/15/23 09:40	05/25/23 16:37	1
Iron	<0.100		0.100		mg/L		05/15/23 09:40	05/25/23 16:37	1
Manganese	**0.0480**		0.0100		mg/L		05/15/23 09:40	05/25/23 16:37	1
Molybdenum	**0.00557**		0.00200		mg/L		05/15/23 09:40	05/25/23 16:37	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		05/23/23 08:09	05/24/23 01:30	1
Halogens, Total Organic (SW846 9020B)	<40.0		40.0		ug/L		05/27/23 08:15	05/27/23 12:33	1
Phenols, Total (SW846 9066)	<0.0184		0.0184		mg/L		05/17/23 08:50	05/18/23 00:37	1
Total Suspended Solids (USGS I-3765-85)	**8.13**		1.88		mg/L			05/12/23 07:13	1
Chemical Oxygen Demand (SM 5220D)	**29.1**		25.0		mg/L			05/15/23 08:41	5

Eurofins Cedar Falls

5/30/2023

Definitions/Glossary

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.
¤	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

Eurofins Cedar Falls

Surrogate Summary

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

Matrix: Water   **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		BFB	**DBFM**	**TOL**					
Lab Sample ID	**Client Sample ID**	**(80-120)**	**(80-128)**	**(80-120)**					
310-255595-1	MW3	106	104	98					
310-255595-1 MS	MW3	104	100	101					
310-255595-1 MSD	MW3	101	98	100					
LCS 310-387339/6	Lab Control Sample	99	98	100					
MB 310-387339/5	Method Blank	104	104	98					

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

Client: EB Solutions, Inc

Project/Site: Crawford Project

Job ID: 310-255595-1

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

Lab Sample ID: MB 310-387339/5　　　　　　　　**Client Sample ID: Method Blank**
Matrix: Water　　　　　　　　**Prep Type: Total/NA**
Analysis Batch: 387339

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	<10.0		10.0		ug/L			05/12/23 11:49	1

Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		80 - 120					05/12/23 11:49	1
Dibromofluoromethane (Surr)	104		80 - 128					05/12/23 11:49	1
Toluene-d8 (Surr)	98		80 - 120					05/12/23 11:49	1

Lab Sample ID: LCS 310-387339/6　　　　　　　　**Client Sample ID: Lab Control Sample**
Matrix: Water　　　　　　　　**Prep Type: Total/NA**
Analysis Batch: 387339

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
2-Butanone (MEK)	40.0	41.39		ug/L		103	50 - 150		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		80 - 120
Dibromofluoromethane (Surr)	98		80 - 128
Toluene-d8 (Surr)	100		80 - 120

Lab Sample ID: 310-255595-1 MS　　　　　　　　**Client Sample ID: MW3**
Matrix: Water　　　　　　　　**Prep Type: Total/NA**
Analysis Batch: 387339

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
2-Butanone (MEK)	<10.0		40.0	33.21		ug/L		83	47 - 150		

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		80 - 120
Dibromofluoromethane (Surr)	100		80 - 128
Toluene-d8 (Surr)	101		80 - 120

Lab Sample ID: 310-255595-1 MSD　　　　　　　　**Client Sample ID: MW3**
Matrix: Water　　　　　　　　**Prep Type: Total/NA**
Analysis Batch: 387339

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2-Butanone (MEK)	<10.0		40.0	33.42		ug/L		84	47 - 150	1	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	98		80 - 128
Toluene-d8 (Surr)	100		80 - 120

Eurofins Cedar Falls

5/30/2023

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-389027/3
Matrix: Water
Analysis Batch: 389027

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			05/26/23 16:50	1
Fluoride	<0.200		0.200		mg/L			05/26/23 16:50	1
Sulfate	<1.00		1.00		mg/L			05/26/23 16:50	1

Lab Sample ID: LCS 310-389027/4
Matrix: Water
Analysis Batch: 389027

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	9.217		mg/L		92	90 - 110
Fluoride	2.00	1.847		mg/L		92	90 - 110
Sulfate	10.0	9.862		mg/L		99	90 - 110

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-387250/1-A
Matrix: Water
Analysis Batch: 388579

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 387250

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		05/12/23 08:40	05/24/23 13:17	1
Barium	<0.00200		0.00200		mg/L		05/12/23 08:40	05/24/23 13:17	1
Cadmium	<0.000200		0.000200		mg/L		05/12/23 08:40	05/24/23 13:17	1
Manganese	<0.0100		0.0100		mg/L		05/12/23 08:40	05/24/23 13:17	1
Zinc	<0.0200		0.0200		mg/L		05/12/23 08:40	05/24/23 13:17	1

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

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	0.200	0.2199		mg/L		110	80 - 120
Barium	0.100	0.1053		mg/L		105	80 - 120
Cadmium	0.100	0.1039		mg/L		104	80 - 120
Manganese	0.100	0.1053		mg/L		105	80 - 120
Zinc	0.200	0.2106		mg/L		105	80 - 120

Lab Sample ID: MB 310-387333/1-B
Matrix: Water
Analysis Batch: 388821

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 387487

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		05/15/23 09:40	05/25/23 16:32	1
Arsenic	<0.00200		0.00200		mg/L		05/15/23 09:40	05/25/23 16:32	1
Boron	<0.100		0.100		mg/L		05/15/23 09:40	05/25/23 16:32	1
Cobalt	<0.000500		0.000500		mg/L		05/15/23 09:40	05/25/23 16:32	1
Iron	<0.100		0.100		mg/L		05/15/23 09:40	05/25/23 16:32	1
Manganese	<0.0100		0.0100		mg/L		05/15/23 09:40	05/25/23 16:32	1
Molybdenum	<0.00200		0.00200		mg/L		05/15/23 09:40	05/25/23 16:32	1

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

Lab Sample ID: LCS 310-387333/2-B
Matrix: Water
Analysis Batch: 388821

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 387487

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.2142		mg/L		107	80 - 120
Arsenic	0.200	0.2007		mg/L		100	80 - 120
Boron	0.200	0.2172		mg/L		109	80 - 120
Cobalt	0.100	0.09838		mg/L		98	80 - 120
Iron	0.200	0.2147		mg/L		107	80 - 120
Manganese	0.100	0.1018		mg/L		102	80 - 120
Molybdenum	0.200	0.2114		mg/L		106	80 - 120

Lab Sample ID: 310-255595-1 MS
Matrix: Water
Analysis Batch: 388821

Client Sample ID: MW3
Prep Type: Dissolved
Prep Batch: 387487

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	<0.00200		0.200	0.2431		mg/L		122	75 - 125
Arsenic	<0.00200		0.200	0.2265		mg/L		113	75 - 125
Boron	<0.100	F1	0.200	0.2775	F1	mg/L		139	75 - 125
Cobalt	0.000731		0.100	0.1078		mg/L		107	75 - 125
Iron	<0.100		0.200	0.2413		mg/L		121	75 - 125
Manganese	0.0480		0.100	0.1627		mg/L		115	75 - 125
Molybdenum	0.00557		0.200	0.2391		mg/L		117	75 - 125

Lab Sample ID: 310-255595-1 MSD
Matrix: Water
Analysis Batch: 388821

Client Sample ID: MW3
Prep Type: Dissolved
Prep Batch: 387487

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	<0.00200		0.200	0.2352		mg/L		118	75 - 125	3	20
Arsenic	<0.00200		0.200	0.2246		mg/L		112	75 - 125	1	20
Boron	<0.100	F1	0.200	0.2639	F1	mg/L		132	75 - 125	5	20
Cobalt	0.000731		0.100	0.1067		mg/L		106	75 - 125	1	20
Iron	<0.100		0.200	0.2321		mg/L		116	75 - 125	4	20
Manganese	0.0480		0.100	0.1555		mg/L		107	75 - 125	5	20
Molybdenum	0.00557		0.200	0.2357		mg/L		115	75 - 125	1	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-388328/1-A
Matrix: Water
Analysis Batch: 388467

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 388328

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	<0.500		0.500		mg/L		05/23/23 08:09	05/24/23 01:11	1

Lab Sample ID: LCS 310-388328/2-A
Matrix: Water
Analysis Batch: 388467

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 388328

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	4.00	3.869		mg/L		97	90 - 110

Eurofins Cedar Falls

Client: EB Solutions, Inc
Job ID: 310-255595-1
Project/Site: Crawford Project

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

Lab Sample ID: MB 680-781005/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 781017
Prep Batch: 781005

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	<40.0		40.0		ug/L		05/27/23 08:15	05/27/23 11:25	1

Lab Sample ID: LCS 680-781005/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 781017
Prep Batch: 781005

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Halogens, Total Organic			400	400.4		ug/L		100	60 - 140		

Lab Sample ID: LCSD 680-781005/14-A
Client Sample ID: Lab Control Sample Dup
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 781017
Prep Batch: 781005

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Halogens, Total Organic			400	392.8		ug/L		98	60 - 140	2	40

Lab Sample ID: 310-255595-1 MS
Client Sample ID: MW3
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 781017
Prep Batch: 781005

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Halogens, Total Organic	<40.0		400	371.6		ug/L		89	60 - 140		

Lab Sample ID: 310-255595-1 MSD
Client Sample ID: MW3
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 781017
Prep Batch: 781005

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	343.8		ug/L		82	60 - 140	8	40

Method: 9066 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-387779/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 387865
Prep Batch: 387779

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0200		0.0200		mg/L		05/17/23 08:50	05/18/23 00:28	1

Lab Sample ID: LCS 310-387779/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 387865
Prep Batch: 387779

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Phenols, Total			0.100	0.09710		mg/L		97	90 - 110		

Eurofins Cedar Falls

Client: EB Solutions, Inc

Project/Site: Crawford Project

Job ID: 310-255595-1

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

Lab Sample ID: MB 310-387269/1
Matrix: Water
Analysis Batch: 387269

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			05/12/23 07:13	1

Lab Sample ID: LCS 310-387269/2
Matrix: Water
Analysis Batch: 387269

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 310-387473/32
Matrix: Water
Analysis Batch: 387473

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			05/15/23 08:41	1

Lab Sample ID: MB 310-387473/5
Matrix: Water
Analysis Batch: 387473

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			05/15/23 08:41	1

Lab Sample ID: LCS 310-387473/3
Matrix: Water
Analysis Batch: 387473

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	124.2		mg/L		99	85 - 115		

Lab Sample ID: LCS 310-387473/33
Matrix: Water
Analysis Batch: 387473

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	122.1		mg/L		97	85 - 115		

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5/30/2023

GC/MS VOA

Analysis Batch: 387339

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255595-1	MW3	Total/NA	Water	8260D	
MB 310-387339/5	Method Blank	Total/NA	Water	8260D	
LCS 310-387339/6	Lab Control Sample	Total/NA	Water	8260D	
310-255595-1 MS	MW3	Total/NA	Water	8260D	
310-255595-1 MSD	MW3	Total/NA	Water	8260D	

HPLC/IC

Analysis Batch: 389027

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255595-1	MW3	Total/NA	Water	9056A	
MB 310-389027/3	Method Blank	Total/NA	Water	9056A	
LCS 310-389027/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 387250

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255595-1	MW3	Total/NA	Water	3005A	
MB 310-387250/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-387250/2-A	Lab Control Sample	Total/NA	Water	3005A	

Filtration Batch: 387333

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255595-1	MW3	Dissolved	Water	Filtration	
MB 310-387333/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-387333/2-B	Lab Control Sample	Dissolved	Water	Filtration	
310-255595-1 MS	MW3	Dissolved	Water	Filtration	
310-255595-1 MSD	MW3	Dissolved	Water	Filtration	

Prep Batch: 387487

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255595-1	MW3	Dissolved	Water	3005A	387333
MB 310-387333/1-B	Method Blank	Dissolved	Water	3005A	387333
LCS 310-387333/2-B	Lab Control Sample	Dissolved	Water	3005A	387333
310-255595-1 MS	MW3	Dissolved	Water	3005A	387333
310-255595-1 MSD	MW3	Dissolved	Water	3005A	387333

Analysis Batch: 388579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255595-1	MW3	Total/NA	Water	6020B	387250
MB 310-387250/1-A	Method Blank	Total/NA	Water	6020B	387250
LCS 310-387250/2-A	Lab Control Sample	Total/NA	Water	6020B	387250

Analysis Batch: 388821

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255595-1	MW3	Dissolved	Water	6020B	387487
MB 310-387333/1-B	Method Blank	Dissolved	Water	6020B	387487
LCS 310-387333/2-B	Lab Control Sample	Dissolved	Water	6020B	387487
310-255595-1 MS	MW3	Dissolved	Water	6020B	387487
310-255595-1 MSD	MW3	Dissolved	Water	6020B	387487

Eurofins Cedar Falls

General Chemistry

Analysis Batch: 387269

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255595-1	MW3	Total/NA	Water	I-3765-85	
MB 310-387269/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-387269/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 387473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255595-1	MW3	Total/NA	Water	SM 5220D	
MB 310-387473/32	Method Blank	Total/NA	Water	SM 5220D	
MB 310-387473/5	Method Blank	Total/NA	Water	SM 5220D	
LCS 310-387473/3	Lab Control Sample	Total/NA	Water	SM 5220D	
LCS 310-387473/33	Lab Control Sample	Total/NA	Water	SM 5220D	

Prep Batch: 387779

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255595-1	MW3	Total/NA	Water	Distill/Phenol	
MB 310-387779/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-387779/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	

Analysis Batch: 387865

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255595-1	MW3	Total/NA	Water	9066	387779
MB 310-387779/1-A	Method Blank	Total/NA	Water	9066	387779
LCS 310-387779/2-A	Lab Control Sample	Total/NA	Water	9066	387779

Prep Batch: 388328

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255595-1	MW3	Total/NA	Water	Distill/Ammonia	
MB 310-388328/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-388328/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 388467

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255595-1	MW3	Total/NA	Water	350.1	388328
MB 310-388328/1-A	Method Blank	Total/NA	Water	350.1	388328
LCS 310-388328/2-A	Lab Control Sample	Total/NA	Water	350.1	388328

Prep Batch: 781005

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255595-1	MW3	Total/NA	Water	Carbon Trap	
MB 680-781005/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 680-781005/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	
LCSD 680-781005/14-A	Lab Control Sample Dup	Total/NA	Water	Carbon Trap	
310-255595-1 MS	MW3	Total/NA	Water	Carbon Trap	
310-255595-1 MSD	MW3	Total/NA	Water	Carbon Trap	

Analysis Batch: 781017

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255595-1	MW3	Total/NA	Water	9020B	781005
MB 680-781005/1-A	Method Blank	Total/NA	Water	9020B	781005
LCS 680-781005/2-A	Lab Control Sample	Total/NA	Water	9020B	781005
LCSD 680-781005/14-A	Lab Control Sample Dup	Total/NA	Water	9020B	781005

Eurofins Cedar Falls

General Chemistry (Continued)

Analysis Batch: 781017 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-255595-1 MS	MW3	Total/NA	Water	9020B	781005
310-255595-1 MSD	MW3	Total/NA	Water	9020B	781005

Lab Chronicle

Client Sample ID: MW3

Date Collected: 05/09/23 10:35

Date Received: 05/11/23 09:30

Lab Sample ID: 310-255595-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	387339	FE5V	EET CF	05/12/23 13:25
Total/NA	Analysis	9056A		5	389027	QTZ5	EET CF	05/26/23 18:39
Dissolved	Filtration	Filtration			387333	DHM5	EET CF	05/12/23 10:27
Dissolved	Prep	3005A			387487	KCK5	EET CF	05/15/23 09:40
Dissolved	Analysis	6020B		1	388821	A6US	EET CF	05/25/23 16:37
Total/NA	Prep	3005A			387250	QTZ5	EET CF	05/12/23 08:40
Total/NA	Analysis	6020B		1	388579	A6US	EET CF	05/24/23 14:49
Total/NA	Prep	Distill/Ammonia			388328	MQ8M	EET CF	05/23/23 08:09
Total/NA	Analysis	350.1		1	388467	ZJX4	EET CF	05/24/23 01:30
Total/NA	Prep	Carbon Trap			781005	CLJ	EET SAV	05/27/23 08:15
Total/NA	Analysis	9020B		1	781017	CLJ	EET SAV	05/27/23 12:33
Total/NA	Prep	Distill/Phenol			387779	ENB7	EET CF	05/17/23 08:50
Total/NA	Analysis	9066		1	387865	ZJX4	EET CF	05/18/23 00:37
Total/NA	Analysis	I-3765-85		1	387269	DGU1	EET CF	05/12/23 07:13
Total/NA	Analysis	SM 5220D		5	387473	D7CP	EET CF	05/15/23 08:41

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

Eurofins Cedar Falls

Laboratory: Eurofins Cedar Falls

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

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

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	06-30-23
ANAB	Dept. of Defense ELAP	L2463	09-22-24
Arkansas DEQ	State	19-015-0	02-01-24
California	State	2939	06-30-23
Florida	NELAP	E87052	06-30-23
Georgia	State	E87052	06-30-23
Georgia (DW)	State	803	06-30-23
Guam	State	19-007R	04-17-24
Hawaii	State	<cert No.>	06-30-23
Illinois	NELAP	200022	11-30-23
Indiana	State	C-GA-02	06-30-23
Iowa	State	353	06-30-23
Kentucky (UST)	State	NA	06-30-23
Louisiana	NELAP	30690	06-30-23
Louisiana (All)	NELAP	30690	06-30-23
Louisiana (DW)	State	LA009	12-31-23
Maine	State	GA00006	09-25-24
Maryland	State	250	12-31-23
Massachusetts	State	M-GA006	06-30-23
Michigan	State	9925	06-30-23
Mississippi	State	<cert No.>	06-30-23
Nebraska	State	NE-OS-7-04	06-30-23
New Jersey	NELAP	GA769	06-30-23
New Mexico	State	GA00006	06-30-23
North Carolina (DW)	State	13701	07-31-23
North Carolina (WW/SW)	State	269	12-31-23
Pennsylvania	NELAP	68-00474	06-30-23
Puerto Rico	State	GA00006	01-01-24
South Carolina	State	98001	06-30-23
Tennessee	State	TN02961	06-30-23
Texas	NELAP	T1047004185-19-14	11-30-23
Texas	TCEQ Water Supply	T104704185	06-30-23
USDA	US Federal Programs	P330-18-00313	09-03-24
Virginia	NELAP	460161	06-14-23
Wyoming	State	8TMS-L	06-30-23

Eurofins Cedar Falls

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.

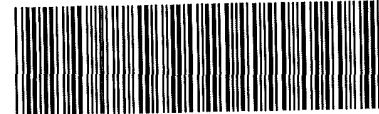USGS = "Methods For Analysis Of Water And Fluvial Sediments", USGS, 1989

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

Eurofins Cedar Falls

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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 5-11-23	TIME 930	Received By: M

Delivery Type: ☐ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☑ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☐ Yes	☑ No	*If yes:* Cooler # _____ of _____
Cooler Custody Seals Present?	☑ Yes	☐ No	*If yes:* Cooler custody seals intact? ☑ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☑ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☑ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID:	W	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 1	CONTAINER 2
Container(s) used:	P1 250 mL	
Uncorrected Temp (°C):	5.9	
Corrected Temp (°C):	5.9	

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Document CED-P-SAM-FRM45521
Revision: 26
Date: 27 Jan 2022
Eurofins Cedar Falls
Page 21 of 25
General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C
5/30/2023

TestAmerica Cedar Falls

704 Enterprise Drive
Cedar Falls IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

COC No: 310-36804-12214 1
Page: Page 1 of 1
Job #:

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

Project #: 31007226

Sampler: Ed Bertch

Lab PM: Bindert, Zach T

E-Mail: zach.bindert@testamericainc.com

Due Date Requested.

TAT Requested (days):

PO #:

WO #:

SSOW#:

Carrier Tracking No(s):

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   Z - other (specify)
Other

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix	Field Filtered Sample (Yes or No) N	Perform MS/MSD (Yes or No)	8270D - 2,4-Dinitrotoluene, Pyridine, Pentachlor N	Ammonia - 350 1, COD - 5220D S	9056A - ORGFM_28D - Chloride, Fluoride, Sulfate N	6020A - Dissolved Metals N	Total Metals 6020A, 7470A D	9066 - Total Recoverable Phenolics S	8260C - Benzene and Methyl Ethyl Ketone A	L_3765_85 - Residue, Non-filterable (TSS) N	9020B - Total Organic Halides (TOX) S	Total Number of containers	Special Instructions/Note:
MW3	5-9-23	10:35	G	Water	X	X	X	X	X	X	X	X	X	X	X	12	
				Water			X	X	X	X	X	X	X	X	X	12	
				Water			X	X	X	X	X	X	X	X	X	12	
				Water			X	X	X	X	X	X	X	X	X	12	
				Water			X	X	X	X	X	X	X	X	X	12	
				Water			X	X	X	X	X	X	X	X	X	12	
				Water			X	X	X	X	X	X	X	X	X	12	
				Water			X	X	X	X	X	X	X	X	X	12	
				Water			X	X	X	X	X	X	X	X	X	12	
Trip Blank				Water									X			3	

Preservation Code: G

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Deliverable Requested. I, II, III, IV, Other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by: Date: Time: Method of Shipment:

Relinquished by:	Date/Time: 5-10-23 / 10:00am	Company: EB Solutions	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time: 5/11/23 0930	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No
Custody Seal No.

Cooler Temperature(s) °C and Other Remarks:

Ver 08/04/2016

Chain of Custody Record

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

eurofins | Environment Testing

COC No: 310-61297 1

Page: Page 1 of 1

Job #: 310-255595-1

Client Information (Sub Contract Lab)

Client Contact:	Shipping/Receiving
Company:	Eurofins Environment Testing Southeast,
Address:	5102 LaRoche Avenue, ,
City	Savannah
State, Zip:	GA, 31404
Phone:	912-354-7858(Tel) 912-352-0165(Fax)
Email:	
Project Name:	Crawford Project
Site:	

Sampler:

Phone:

Lab PM: Bindert, Zach T

E-Mail: Zach.Bindert@et.eurofinsus.com

Carrier Tracking No(s):

State of Origin: Iowa

Due Date Requested: 6/1/2023

TAT Requested (days):

PO #:

WO #:

Project #: 31007226

SSOW #:

Accreditations Required (See note): State Program - Iowa

Analysis Requested

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
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Y - Trizma
Z - other (specify)
Other

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)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9020B/Carbon_Trap	Total Number of containers	Special Instructions/Note:
MW3 (310-255595-1)	5/9/23	10:35 Central		Water				X	1	

Possible Hazard Identification
Unconfirmed

Deliverable Requested I, II, III, IV, Other (specify)
Primary Deliverable Rank: 2

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Return To Client   Disposal By Lab   Archive For ___ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by:			Date:		Time:		Method of Shipment:
Relinquished by:	Date/Time: 5/1/23 1545	Company	Received by:	Date/Time: 5-10-03	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 10/15	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 5-21-3-0	Company

Custody Seals Intact: △ Yes △ No

Custody Seal No.

Cooler Temperature(s) °C and Other Remarks:

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.

Ver 06/08/2021

Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-255595-1

SDG Number:

Login Number: 255595

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: 310-255595-1

SDG Number:

Login Number: 255595
List Number: 2
Creator: Harley, Tynisha

List Source: Eurofins Savannah
List Creation: 05/12/23 12:47 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 9/21/2023 9:52:18 AM

JOB DESCRIPTION

Crawford Project

JOB NUMBER

310-264109-1

See page two for job notes and contact information.

my EOL

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
9/21/2023 9:52:18 AM

_____

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

9/21/2023

Table of Contents

Case Narrative

Job ID: 310-264109-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-264109-1

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 9/6/2023 9:10 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice.

Receipt Exceptions
The following sample was received at the laboratory outside the required temperature criteria: MW3 (310-264109-1). This does not meet regulatory requirements. The client was contacted regarding this issue, and the laboratory was instructed to <CHOOSE_ONE> proceed with/cancel analysis.

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 (310-264109-1). 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
Method 6020B: The continuing calibration verification (CCV) associated with batch 310-399677 recovered above the upper control limit for Manganese. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: MW3 (310-264109-1).

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:MW3 (310-264109-1).

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-264109-1	MW3	Water	09/01/23 09:15	09/06/23 09:10

Detection Summary

Client Sample ID: MW3   **Lab Sample ID: 310-264109-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	107		5.00		mg/L	5		9056A	Total/NA
Sulfate	34.7		5.00		mg/L	5		9056A	Total/NA
Barium	0.325		0.00200		mg/L	1		6020B	Total/NA
Molybdenum	0.00350		0.00200		mg/L	1		6020B	Dissolved
Halogens, Total Organic	86.1		40.0		ug/L	1		9020B	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample ID: MW3

Date Collected: 09/01/23 09:15

Date Received: 09/06/23 09:10

Lab Sample ID: 310-264109-1

Matrix: Water

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			09/08/23 04:23	1

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		80 - 120					09/08/23 04:23	1
Dibromofluoromethane (Surr)	97		80 - 128					09/08/23 04:23	1
Toluene-d8 (Surr)	97		80 - 120					09/08/23 04:23	1

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**107**		5.00		mg/L			09/11/23 12:01	5
Fluoride	<1.00		1.00		mg/L			09/11/23 12:01	5
Sulfate	**34.7**		5.00		mg/L			09/11/23 12:01	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		09/07/23 08:40	09/14/23 23:30	1
Barium	**0.325**		0.00200		mg/L		09/07/23 08:40	09/14/23 23:30	1
Cadmium	<0.000200		0.000200		mg/L		09/07/23 08:40	09/14/23 23:30	1
Manganese	<0.0100	^+	0.0100		mg/L		09/07/23 08:40	09/14/23 23:30	1
Zinc	<0.0200		0.0200		mg/L		09/07/23 08:40	09/14/23 23:30	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		09/11/23 10:20	09/20/23 13:31	1
Arsenic	<0.00200		0.00200		mg/L		09/11/23 10:20	09/16/23 01:15	1
Boron	<0.100		0.100		mg/L		09/11/23 10:20	09/16/23 01:15	1
Cobalt	<0.000500		0.000500		mg/L		09/11/23 10:20	09/16/23 01:15	1
Iron	<0.100		0.100		mg/L		09/11/23 10:20	09/16/23 01:15	1
Manganese	<0.0100		0.0100		mg/L		09/11/23 10:20	09/16/23 01:15	1
Molybdenum	**0.00350**		0.00200		mg/L		09/11/23 10:20	09/16/23 01:15	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		09/14/23 08:52	09/14/23 19:00	1
Halogens, Total Organic (SW846 9020B)	**86.1**		40.0		ug/L		09/14/23 07:50	09/14/23 13:02	1
Phenols, Total (SW846 9066)	<0.0204		0.0204		mg/L		09/20/23 08:48	09/20/23 18:40	1
Total Suspended Solids (USGS I-3765-85)	<1.88		1.88		mg/L			09/06/23 10:26	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0		mg/L			09/13/23 08:36	5

Definitions/Glossary

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
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.

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

Eurofins Cedar Falls

Client: EB Solutions, Inc

Project/Site: Crawford Project

Job ID: 310-264109-1

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

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)							
		BFB	**DBFM**	**TOL**					
Lab Sample ID	**Client Sample ID**	**(80-120)**	**(80-128)**	**(80-120)**					
310-264109-1	MW3	105	97	97					
LCS 310-398873/6	Lab Control Sample	99	99	100					
MB 310-398873/5	Method Blank	106	99	96					

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

Eurofins Cedar Falls

9/21/2023

Client: EB Solutions, Inc

Job ID: 310-264109-1

Project/Site: Crawford Project

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

Lab Sample ID: MB 310-398873/5
Matrix: Water
Analysis Batch: 398873

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			09/07/23 22:46	1

Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		80 - 120					09/07/23 22:46	1
Dibromofluoromethane (Surr)	99		80 - 128					09/07/23 22:46	1
Toluene-d8 (Surr)	96		80 - 120					09/07/23 22:46	1

Lab Sample ID: LCS 310-398873/6
Matrix: Water
Analysis Batch: 398873

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	27.95		ug/L		70	50 - 150

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		80 - 120
Dibromofluoromethane (Surr)	99		80 - 128
Toluene-d8 (Surr)	100		80 - 120

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-399322/3
Matrix: Water
Analysis Batch: 399322

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			09/11/23 09:36	1
Fluoride	<0.200		0.200		mg/L			09/11/23 09:36	1
Sulfate	<1.00		1.00		mg/L			09/11/23 09:36	1

Lab Sample ID: LCS 310-399322/4
Matrix: Water
Analysis Batch: 399322

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	9.603		mg/L		96	90 - 110
Fluoride	2.00	1.956		mg/L		98	90 - 110
Sulfate	10.0	10.48		mg/L		105	90 - 110

Lab Sample ID: 310-264109-1 MS
Matrix: Water
Analysis Batch: 399322

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	107		25.0	128.7	4	mg/L		86	80 - 120
Fluoride	<1.00		5.00	4.688		mg/L		94	80 - 120
Sulfate	34.7		25.0	59.27		mg/L		98	80 - 120

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

Lab Sample ID: 310-264109-1 MSD
Matrix: Water
Analysis Batch: 399322

Client Sample ID: MW3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	107		25.0	128.2	4	mg/L		83	80 - 120	0	15
Fluoride	<1.00		5.00	4.712		mg/L		94	80 - 120	1	15
Sulfate	34.7		25.0	57.87		mg/L		93	80 - 120	2	15

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-398778/1-A
Matrix: Water
Analysis Batch: 399677

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 398778

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		09/07/23 08:40	09/14/23 17:54	1
Barium	<0.00200		0.00200		mg/L		09/07/23 08:40	09/14/23 17:54	1
Cadmium	<0.000200		0.000200		mg/L		09/07/23 08:40	09/14/23 17:54	1
Manganese	<0.0100		0.0100		mg/L		09/07/23 08:40	09/14/23 17:54	1
Zinc	<0.0200		0.0200		mg/L		09/07/23 08:40	09/14/23 17:54	1

Lab Sample ID: LCS 310-398778/2-A
Matrix: Water
Analysis Batch: 399677

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 398778

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	0.200	0.2358		mg/L		118	80 - 120
Barium	0.100	0.1020		mg/L		102	80 - 120
Cadmium	0.100	0.1007		mg/L		101	80 - 120
Manganese	0.100	0.09653		mg/L		97	80 - 120
Zinc	0.200	0.2073		mg/L		104	80 - 120

Lab Sample ID: MB 310-398613/1-B
Matrix: Water
Analysis Batch: 399799

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 399124

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		09/11/23 10:20	09/16/23 01:10	1
Boron	<0.100		0.100		mg/L		09/11/23 10:20	09/16/23 01:10	1
Cobalt	<0.000500		0.000500		mg/L		09/11/23 10:20	09/16/23 01:10	1
Iron	<0.100		0.100		mg/L		09/11/23 10:20	09/16/23 01:10	1
Manganese	<0.0100		0.0100		mg/L		09/11/23 10:20	09/16/23 01:10	1
Molybdenum	<0.00200		0.00200		mg/L		09/11/23 10:20	09/16/23 01:10	1

Lab Sample ID: MB 310-398613/1-B
Matrix: Water
Analysis Batch: 400141

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 399124

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/11/23 10:20	09/20/23 13:13	1

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

Lab Sample ID: LCS 310-398613/2-B
Matrix: Water
Analysis Batch: 399799

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 399124

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.200	0.2098		mg/L		105	80 - 120
Boron	0.200	0.2107		mg/L		105	80 - 120
Cobalt	0.100	0.09924		mg/L		99	80 - 120
Iron	0.200	0.1986		mg/L		99	80 - 120
Manganese	0.100	0.09797		mg/L		98	80 - 120
Molybdenum	0.200	0.2095		mg/L		105	80 - 120

Lab Sample ID: LCS 310-398613/2-B
Matrix: Water
Analysis Batch: 400141

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 399124

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.2292		mg/L		115	80 - 120

Lab Sample ID: 310-264109-1 MS
Matrix: Water
Analysis Batch: 399799

Client Sample ID: MW3
Prep Type: Dissolved
Prep Batch: 399124

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	<0.00200		0.200	0.2055		mg/L		102	75 - 125
Boron	<0.100		0.200	0.2067		mg/L		103	75 - 125
Cobalt	<0.000500		0.100	0.09338		mg/L		93	75 - 125
Iron	<0.100		0.200	0.2043		mg/L		102	75 - 125
Manganese	<0.0100		0.100	0.09754		mg/L		98	75 - 125
Molybdenum	0.00350		0.200	0.2072		mg/L		102	75 - 125

Lab Sample ID: 310-264109-1 MS
Matrix: Water
Analysis Batch: 400141

Client Sample ID: MW3
Prep Type: Dissolved
Prep Batch: 399124

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	<0.00200		0.200	0.2282		mg/L		114	75 - 125

Lab Sample ID: 310-264109-1 MSD
Matrix: Water
Analysis Batch: 399799

Client Sample ID: MW3
Prep Type: Dissolved
Prep Batch: 399124

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	<0.00200		0.200	0.2079		mg/L		104	75 - 125	1	20
Boron	<0.100		0.200	0.2129		mg/L		106	75 - 125	3	20
Cobalt	<0.000500		0.100	0.09555		mg/L		96	75 - 125	2	20
Iron	<0.100		0.200	0.1927		mg/L		96	75 - 125	6	20
Manganese	<0.0100		0.100	0.09870		mg/L		99	75 - 125	1	20
Molybdenum	0.00350		0.200	0.2115		mg/L		104	75 - 125	2	20

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

Lab Sample ID: 310-264109-1 MSD
Matrix: Water
Analysis Batch: 400141

Client Sample ID: MW3
Prep Type: Dissolved
Prep Batch: 399124

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	<0.00200		0.200	0.2355		mg/L		118	75 - 125	3	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-399518/1-A
Matrix: Water
Analysis Batch: 399614

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 399518

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	<0.500		0.500		mg/L		09/14/23 08:52	09/14/23 18:48	1

Lab Sample ID: LCS 310-399518/2-A
Matrix: Water
Analysis Batch: 399614

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 399518

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Ammonia as N			4.00	3.821		mg/L		95	90 - 110		

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

Lab Sample ID: MB 680-798282/1-A
Matrix: Water
Analysis Batch: 798317

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 798282

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	<40.0		40.0		ug/L		09/14/23 07:50	09/14/23 11:47	1

Lab Sample ID: LCS 680-798282/2-A
Matrix: Water
Analysis Batch: 798317

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 798282

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Halogens, Total Organic			400	405.6		ug/L		101	60 - 140		

Lab Sample ID: LCSD 680-798282/14-A
Matrix: Water
Analysis Batch: 798317

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 798282

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Halogens, Total Organic			400	436.4		ug/L		109	60 - 140	7	40

Lab Sample ID: 310-264109-1 MS
Matrix: Water
Analysis Batch: 798317

Client Sample ID: MW3
Prep Type: Total/NA
Prep Batch: 798282

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Halogens, Total Organic	86.1		400	476.8		ug/L		98	60 - 140		

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

Job ID: 310-264109-1

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

Lab Sample ID: 310-264109-1 MSD
Matrix: Water
Analysis Batch: 798317

Client Sample ID: MW3
Prep Type: Total/NA
Prep Batch: 798282

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Halogens, Total Organic	86.1		400	557.3		ug/L		118	60 - 140	16	40

Method: 9066 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-400051/1-A
Matrix: Water
Analysis Batch: 400151

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 400051

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0200		0.0200		mg/L		09/20/23 08:48	09/20/23 18:31	1

Lab Sample ID: LCS 310-400051/2-A
Matrix: Water
Analysis Batch: 400151

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 400051

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Phenols, Total	0.100	0.09016		mg/L		90	90 - 110

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

Lab Sample ID: MB 310-398717/1
Matrix: Water
Analysis Batch: 398717

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			09/06/23 10:26	1

Lab Sample ID: LCS 310-398717/2
Matrix: Water
Analysis Batch: 398717

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	96.00		mg/L		96	75 - 116

Method: SM 5220D - COD

Lab Sample ID: MB 310-399392/5
Matrix: Water
Analysis Batch: 399392

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			09/13/23 08:36	1

Lab Sample ID: MB 310-399392/60
Matrix: Water
Analysis Batch: 399392

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			09/13/23 08:36	1

Method: SM 5220D - COD (Continued)

Lab Sample ID: LCS 310-399392/3
Matrix: Water
Analysis Batch: 399392

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	127.1		mg/L		101	85 - 115		

Lab Sample ID: LCS 310-399392/63
Matrix: Water
Analysis Batch: 399392

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	125.4		mg/L		100	85 - 115		

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QC Association Summary

GC/MS VOA

Analysis Batch: 398873

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264109-1	MW3	Total/NA	Water	8260D	
MB 310-398873/5	Method Blank	Total/NA	Water	8260D	
LCS 310-398873/6	Lab Control Sample	Total/NA	Water	8260D	

HPLC/IC

Analysis Batch: 399322

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264109-1	MW3	Total/NA	Water	9056A	
MB 310-399322/3	Method Blank	Total/NA	Water	9056A	
LCS 310-399322/4	Lab Control Sample	Total/NA	Water	9056A	
310-264109-1 MS	MW3	Total/NA	Water	9056A	
310-264109-1 MSD	MW3	Total/NA	Water	9056A	

Metals

Filtration Batch: 398613

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264109-1	MW3	Dissolved	Water	Filtration	
MB 310-398613/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-398613/2-B	Lab Control Sample	Dissolved	Water	Filtration	
310-264109-1 MS	MW3	Dissolved	Water	Filtration	
310-264109-1 MSD	MW3	Dissolved	Water	Filtration	

Prep Batch: 398778

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264109-1	MW3	Total/NA	Water	3005A	
MB 310-398778/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-398778/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 399124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264109-1	MW3	Dissolved	Water	3005A	398613
MB 310-398613/1-B	Method Blank	Dissolved	Water	3005A	398613
LCS 310-398613/2-B	Lab Control Sample	Dissolved	Water	3005A	398613
310-264109-1 MS	MW3	Dissolved	Water	3005A	398613
310-264109-1 MSD	MW3	Dissolved	Water	3005A	398613

Analysis Batch: 399677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264109-1	MW3	Total/NA	Water	6020B	398778
MB 310-398778/1-A	Method Blank	Total/NA	Water	6020B	398778
LCS 310-398778/2-A	Lab Control Sample	Total/NA	Water	6020B	398778

Analysis Batch: 399799

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264109-1	MW3	Dissolved	Water	6020B	399124
MB 310-398613/1-B	Method Blank	Dissolved	Water	6020B	399124
LCS 310-398613/2-B	Lab Control Sample	Dissolved	Water	6020B	399124
310-264109-1 MS	MW3	Dissolved	Water	6020B	399124
310-264109-1 MSD	MW3	Dissolved	Water	6020B	399124

Eurofins Cedar Falls

Client: EB Solutions, Inc

Job ID: 310-264109-1

Project/Site: Crawford Project

Metals

Analysis Batch: 400141

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264109-1	MW3	Dissolved	Water	6020B	399124
MB 310-398613/1-B	Method Blank	Dissolved	Water	6020B	399124
LCS 310-398613/2-B	Lab Control Sample	Dissolved	Water	6020B	399124
310-264109-1 MS	MW3	Dissolved	Water	6020B	399124
310-264109-1 MSD	MW3	Dissolved	Water	6020B	399124

General Chemistry

Analysis Batch: 398717

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264109-1	MW3	Total/NA	Water	I-3765-85	
MB 310-398717/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-398717/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 399392

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264109-1	MW3	Total/NA	Water	SM 5220D	
MB 310-399392/5	Method Blank	Total/NA	Water	SM 5220D	
MB 310-399392/60	Method Blank	Total/NA	Water	SM 5220D	
LCS 310-399392/3	Lab Control Sample	Total/NA	Water	SM 5220D	
LCS 310-399392/63	Lab Control Sample	Total/NA	Water	SM 5220D	

Prep Batch: 399518

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264109-1	MW3	Total/NA	Water	Distill/Ammonia	
MB 310-399518/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-399518/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 399614

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264109-1	MW3	Total/NA	Water	350.1	399518
MB 310-399518/1-A	Method Blank	Total/NA	Water	350.1	399518
LCS 310-399518/2-A	Lab Control Sample	Total/NA	Water	350.1	399518

Prep Batch: 400051

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264109-1	MW3	Total/NA	Water	Distill/Phenol	
MB 310-400051/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-400051/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	

Analysis Batch: 400151

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264109-1	MW3	Total/NA	Water	9066	400051
MB 310-400051/1-A	Method Blank	Total/NA	Water	9066	400051
LCS 310-400051/2-A	Lab Control Sample	Total/NA	Water	9066	400051

Prep Batch: 798282

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264109-1	MW3	Total/NA	Water	Carbon Trap	
MB 680-798282/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 680-798282/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	

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General Chemistry (Continued)

Prep Batch: 798282 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 680-798282/14-A	Lab Control Sample Dup	Total/NA	Water	Carbon Trap	
310-264109-1 MS	MW3	Total/NA	Water	Carbon Trap	
310-264109-1 MSD	MW3	Total/NA	Water	Carbon Trap	

Analysis Batch: 798317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264109-1	MW3	Total/NA	Water	9020B	798282
MB 680-798282/1-A	Method Blank	Total/NA	Water	9020B	798282
LCS 680-798282/2-A	Lab Control Sample	Total/NA	Water	9020B	798282
LCSD 680-798282/14-A	Lab Control Sample Dup	Total/NA	Water	9020B	798282
310-264109-1 MS	MW3	Total/NA	Water	9020B	798282
310-264109-1 MSD	MW3	Total/NA	Water	9020B	798282

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9/21/2023

Lab Chronicle

Client Sample ID: MW3
Lab Sample ID: 310-264109-1
Date Collected: 09/01/23 09:15
Matrix: Water
Date Received: 09/06/23 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	398873	FE5V	EET CF	09/08/23 04:23
Total/NA	Analysis	9056A		5	399322	QTZ5	EET CF	09/11/23 12:01
Dissolved	Filtration	Filtration			398613	KCK5	EET CF	09/07/23 16:57
Dissolved	Prep	3005A			399124	KCK5	EET CF	09/11/23 10:20
Dissolved	Analysis	6020B		1	399799	A6US	EET CF	09/16/23 01:15
Dissolved	Filtration	Filtration			398613	KCK5	EET CF	09/07/23 16:57
Dissolved	Prep	3005A			399124	KCK5	EET CF	09/11/23 10:20
Dissolved	Analysis	6020B		1	400141	A6US	EET CF	09/20/23 13:31
Total/NA	Prep	3005A			398778	KCK5	EET CF	09/07/23 08:40
Total/NA	Analysis	6020B		1	399677	DHM5	EET CF	09/14/23 23:30
Total/NA	Prep	Distill/Ammonia			399518	WZC8	EET CF	09/14/23 08:52
Total/NA	Analysis	350.1		1	399614	ZJX4	EET CF	09/14/23 19:00
Total/NA	Prep	Carbon Trap			798282	CLJ	EET SAV	09/14/23 07:50
Total/NA	Analysis	9020B		1	798317	CLJ	EET SAV	09/14/23 13:02
Total/NA	Prep	Distill/Phenol			400051	A3GU	EET CF	09/20/23 08:48
Total/NA	Analysis	9066		1	400151	ZJX4	EET CF	09/20/23 18:40
Total/NA	Analysis	I-3765-85		1	398717	DGU1	EET CF	09/06/23 10:26
Total/NA	Analysis	SM 5220D		5	399392	ENB7	EET CF	09/13/23 08:36

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

Eurofins Cedar Falls

Accreditation/Certification Summary

Laboratory: Eurofins Cedar Falls

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

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

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 DEQ	State	19-015-0	02-01-24
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	11-30-23
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	12-31-23
Maine	State	GA00006	09-25-24
Maryland	State	250	12-31-23
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	09-21-23
Pennsylvania	NELAP	68-00474	06-30-24
Puerto Rico	State	GA00006	01-01-24
South Carolina	State	98001	06-30-23 *
Tennessee	State	TN02961	06-30-24
Texas	NELAP	T1047004185	11-30-23
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	06-30-23 *

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

Eurofins Cedar Falls

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

Eurofins Cedar Falls

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Cooler/Sample Receipt and Temperature Log Form

Client Information

Client:	EB
City/State: CITY	STATE IA	Project:

Receipt Information

Date/Time Received:	DATE 2/6/23	TIME 5/0	Received By: SL

Delivery Type: ☐ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☑ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☐ Yes	☑ No	*If yes:* Cooler # _____ of _____
Cooler Custody Seals Present?	☐ Yes	☑ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☑ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☑ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID:	P	Correction Factor (°C):	O

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C):	0	Corrected Temp (°C):	—

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:	250 plastic —	
Uncorrected Temp (°C):	7.3	7.5
Corrected Temp (°C):	7.3	7.5

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☑ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE If yes, contact PM before proceeding If no, proceed with login

Additional Comments

Document CED-P-SAM-FRM45521
Revision: 26
Date· 27 Jan 2022
Eurofins Cedar Falls
Page 22 of 28
General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C
9/21/2023

TestAmerica Cedar Falls

704 Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

COC No: 310-36804-12214 1
Page: Page 1 of 1
Job #:

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:

Sampler: Ed Bertch

Lab PM: Bindert, Zach T
E-Mail: zach.bindert@testamericainc.com

Due Date Requested:
TAT Requested (days):
PO #:
WO #:
Project #: 31007226
SSOW#:

Carrier Tracking No(s):

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
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)
Other

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D - 2,4-Dinitrotoluene, Pyridine, Pentachlor N	Ammonia - 350.1, COD - 5220D S	9056A_ORGFM_28D - Chloride, Fluoride, Sulfate N	6020A - Dissolved Metals N	Total Metals 6020A, 7470A D	9066 - Total Recoverable Phenolics S	8260C - Benzene and Methyl Ethyl Ketone A	I_3765-85 - Residue, Non-filterable (TSS) N	9020B - Total Organic Halides (TOX) S	Total Number of containers	Special Instructions/Note:
MW 3	9/1/23	915	Grab	Water	N		X	X	X	X	X	X		X	X	12	
				Water			X	X	X	X	X	X	X	X	X	12	
				Water			X	X	X	X	X	X		X	X	12	
				Water			X	X	X	X	X	X		X	X	12	
				Water			X	X	X	X	X	X		X	X	12	
				Water			X	X	X	X	X	X		X	X	12	
				Water			X	X	X	X	X	X		X	X	12	
				Water			X	X	X	X	X	X		X	X	12	
				Water			X	X	X	X	X	X		X	X	12	
Trip Blank				Water			X						X		X	3	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Deliverable Requested: I, II, III, IV, Other (specify)

Empty Kit Relinquished by:

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements:

	Date/Time		Company		Date/Time		Company
Relinquished by:	9/5/23 12:00		EB	Received by: SL	9/6/23 910		Emerites
Relinquished by:			Company	Received by:	Date/Time:		Company
Relinquished by:			Company	Received by:	Date/Time:		Company

Method of Shipment:

Custody Seals Intact: ☐ Yes ☐ No   Custody Seal No.

Cooler Temperature(s) °C and Other Remarks:

Vcr 08/04/2016

Chain of Custody Record

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Environment Testing

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

Sampler:	Carrier Tracking No(s):	COC No: 310-65007.1

Client Information (Sub Contract Lab)

Client Contact: Shipping/Receiving	Phone:		State of Origin: Iowa	Page: Page 1 of 1

Lab PM: Bindert, Zach T
E-Mail: Zach.Bindert@et.eurofinsus.com

Company: Eurofins Environment Testing Southeast,
Job #: 310-264109-1

Accreditations Required (See note):
State Program - Iowa

Due Date Requested: 9/26/2023

Address: 5102 LaRoche Avenue,
City: Savannah
State, Zip: GA, 31404
Phone: 912-354-7858(Tel) 912-352-0165(Fax)

TAT Requested (days):

PO #:

WO #:

Email:

Project Name: Crawford Project
Project #: 31007226
Site: SSOW#:

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
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Y - Trizma
Z - other (specify)
Other:

Analysis Requested

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)	Preservation Code:	9020B/Carbon_Trap	Perform MS/MSD (Yes or No)	Field Filtered Sample (Yes or No)	Total Number of containers	Special Instructions/Note:
MW3 (310-264109-1)	9/1/23	09:15 Central		Water		X			1	

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. 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
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Return To Client ☐ Disposal By Lab ☐ 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: 9/6/23 1355	Company	Received by:	Date/Time: 09-05-23	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 10:54	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: △ Yes △ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: 1.3-1.4

Ver: 06/08/2023

Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-264109-1

Login Number: 264109

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Lage, Sydney

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.	False	Cooler temperature outside required temperature criteria.
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: 310-264109-1

Login Number: 264109
List Number: 2
Creator: Harley, Tynisha

List Source: Eurofins Savannah
List Creation: 09/07/23 01:27 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	

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Environment Testing

I **ANALYTICAL REPORT**

PREPARED FOR

Attn: Edward Bertch
EB Solutions, Inc
5060 4th St. SW
Cedar Rapids, Iowa 52404
Generated 10/5/2023 8:29:23 AM

JOB DESCRIPTION

Crawford Project

JOB NUMBER

310-264490-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

my EOL

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
10/5/2023 8:29:23 AM

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

Table of Contents

Eurofins Cedar Falls
10/5/2023

Case Narrative

Job ID: 310-264490-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-264490-1

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 9/12/2023 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 1.1°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 (310-264490-1). 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 (310-264490-1).

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-264490-1	MW4	Water	09/11/23 09:30	09/12/23 09:00

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

Client Sample ID: MW4　　　　　　　　　　　　　　　　**Lab Sample ID: 310-264490-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	160		5.00		mg/L	5		9056A	Total/NA
Barium	0.135		0.00200		mg/L	1		6020B	Total/NA
Manganese	0.0608		0.0100		mg/L	1		6020B	Total/NA
Cobalt	0.00121		0.000500		mg/L	1		6020B	Dissolved
Manganese	0.0615		0.0100		mg/L	1		6020B	Dissolved
Molybdenum	0.00242		0.00200		mg/L	1		6020B	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

10/5/2023

Client Sample Results

Client Sample ID: MW4
Date Collected: 09/11/23 09:30
Date Received: 09/12/23 09:00

Lab Sample ID: 310-264490-1
Matrix: Water

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			09/13/23 16:47	1

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		80 - 120					09/13/23 16:47	1
Dibromofluoromethane (Surr)	102		80 - 128					09/13/23 16:47	1
Toluene-d8 (Surr)	97		80 - 120					09/13/23 16:47	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			09/18/23 18:03	5
Fluoride	<1.00		1.00		mg/L			09/18/23 18:03	5
Sulfate	**160**		5.00		mg/L			09/18/23 18:03	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		09/13/23 08:40	09/15/23 01:22	1
Barium	**0.135**		0.00200		mg/L		09/13/23 08:40	09/15/23 01:22	1
Cadmium	<0.000200		0.000200		mg/L		09/13/23 08:40	09/15/23 01:22	1
Manganese	**0.0608**		0.0100		mg/L		09/13/23 08:40	09/21/23 12:29	1
Zinc	<0.0200		0.0200		mg/L		09/13/23 08:40	09/15/23 01:22	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		09/22/23 09:10	10/04/23 13:34	1
Arsenic	<0.00200		0.00200		mg/L		09/22/23 09:10	09/28/23 14:32	1
Boron	<0.100		0.100		mg/L		09/22/23 09:10	09/28/23 14:32	1
Cobalt	**0.00121**		0.000500		mg/L		09/22/23 09:10	09/28/23 14:32	1
Iron	<0.100		0.100		mg/L		09/22/23 09:10	09/28/23 14:32	1
Manganese	**0.0615**		0.0100		mg/L		09/22/23 09:10	09/28/23 14:32	1
Molybdenum	**0.00242**		0.00200		mg/L		09/22/23 09:10	09/28/23 14:32	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		09/21/23 09:29	09/21/23 19:13	1
Halogens, Total Organic (SW846 9020B)	<40.0		40.0		ug/L		09/21/23 10:30	09/21/23 16:35	1
Phenols, Total (SW846 9066)	<0.0204		0.0204		mg/L		09/20/23 08:48	09/20/23 18:38	1
Total Suspended Solids (USGS I-3765-85)	<1.88		1.88		mg/L			09/13/23 10:30	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0		mg/L			09/15/23 10:08	5

Definitions/Glossary

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.
¤	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

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

Matrix: Water   **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)						
		BFB	DBFM	TOL				
Lab Sample ID	Client Sample ID	(80-120)	(80-128)	(80-120)				
310-264490-1	MW4	105	102	97				
LCS 310-399417/6	Lab Control Sample	100	100	101				
MB 310-399417/5	Method Blank	101	103	98				

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

Client: EB Solutions, Inc

Project/Site: Crawford Project

Job ID: 310-264490-1

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

Lab Sample ID: MB 310-399417/5
Matrix: Water
Analysis Batch: 399417

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			09/13/23 11:32	1

Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		80 - 120					09/13/23 11:32	1
Dibromofluoromethane (Surr)	103		80 - 128					09/13/23 11:32	1
Toluene-d8 (Surr)	98		80 - 120					09/13/23 11:32	1

Lab Sample ID: LCS 310-399417/6
Matrix: Water
Analysis Batch: 399417

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	27.04		ug/L		68	50 - 150		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		80 - 120
Dibromofluoromethane (Surr)	100		80 - 128
Toluene-d8 (Surr)	101		80 - 120

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-399954/3
Matrix: Water
Analysis Batch: 399954

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			09/18/23 17:39	1
Fluoride	<0.200		0.200		mg/L			09/18/23 17:39	1
Sulfate	<1.00		1.00		mg/L			09/18/23 17:39	1

Lab Sample ID: LCS 310-399954/4
Matrix: Water
Analysis Batch: 399954

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	9.787		mg/L		98	90 - 110		
Fluoride			2.00	1.976		mg/L		99	90 - 110		
Sulfate			10.0	10.30		mg/L		103	90 - 110		

Lab Sample ID: 310-264490-1 MS
Matrix: Water
Analysis Batch: 399954

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	26.48		mg/L		87	80 - 120		
Fluoride	<1.00		5.00	5.012		mg/L		100	80 - 120		
Sulfate	160		25.0	180.0	4	mg/L		79	80 - 120		

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

Lab Sample ID: 310-264490-1 MSD
Matrix: Water
Analysis Batch: 399954

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
Chloride	<5.00		25.0	26.35		mg/L		86	80 - 120	0	15
Fluoride	<1.00		5.00	4.938		mg/L		99	80 - 120	1	15
Sulfate	160		25.0	179.8	4	mg/L		78	80 - 120	0	15

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-399334/1-A
Matrix: Water
Analysis Batch: 399677

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 399334

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		09/13/23 08:40	09/14/23 19:05	1
Barium	<0.00200		0.00200		mg/L		09/13/23 08:40	09/14/23 19:05	1
Cadmium	<0.000200		0.000200		mg/L		09/13/23 08:40	09/14/23 19:05	1
Manganese	<0.0100		0.0100		mg/L		09/13/23 08:40	09/14/23 19:05	1
Zinc	<0.0200		0.0200		mg/L		09/13/23 08:40	09/14/23 19:05	1

Lab Sample ID: LCS 310-399334/2-A
Matrix: Water
Analysis Batch: 399677

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 399334

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Aluminum	0.200	0.2073		mg/L		104	80 - 120
Barium	0.100	0.1028		mg/L		103	80 - 120
Cadmium	0.100	0.1051		mg/L		105	80 - 120
Manganese	0.100	0.1004		mg/L		100	80 - 120
Zinc	0.200	0.2076		mg/L		104	80 - 120

Lab Sample ID: MB 310-399992/1-B
Matrix: Water
Analysis Batch: 400951

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 400349

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		09/22/23 09:10	09/28/23 13:36	1
Boron	<0.100		0.100		mg/L		09/22/23 09:10	09/28/23 13:36	1
Cobalt	<0.000500		0.000500		mg/L		09/22/23 09:10	09/28/23 13:36	1
Iron	<0.100		0.100		mg/L		09/22/23 09:10	09/28/23 13:36	1
Manganese	<0.0100		0.0100		mg/L		09/22/23 09:10	09/28/23 13:36	1
Molybdenum	<0.00200		0.00200		mg/L		09/22/23 09:10	09/28/23 13:36	1

Lab Sample ID: MB 310-399992/1-B
Matrix: Water
Analysis Batch: 401511

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 400349

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/22/23 09:10	10/04/23 13:30	1

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

Lab Sample ID: LCS 310-399992/2-B
Matrix: Water
Analysis Batch: 400951

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 400349

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Arsenic			0.200	0.2008		mg/L		100	80 - 120		
Boron			0.200	0.1958		mg/L		98	80 - 120		
Cobalt			0.100	0.1032		mg/L		103	80 - 120		
Iron			0.200	0.1888		mg/L		94	80 - 120		
Manganese			0.100	0.09288		mg/L		93	80 - 120		
Molybdenum			0.200	0.1934		mg/L		97	80 - 120		

Lab Sample ID: LCS 310-399992/2-B
Matrix: Water
Analysis Batch: 401511

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 400349

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Antimony			0.200	0.2143		mg/L		107	80 - 120		

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-400204/1-A
Matrix: Water
Analysis Batch: 400298

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 400204

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	<0.500		0.500		mg/L		09/21/23 09:29	09/21/23 18:54	1

Lab Sample ID: LCS 310-400204/2-A
Matrix: Water
Analysis Batch: 400298

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 400204

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Ammonia as N			4.00	3.969		mg/L		99	90 - 110		

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

Lab Sample ID: MB 680-799121/1-A
Matrix: Water
Analysis Batch: 799155

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 799121

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	<40.0		40.0		ug/L		09/21/23 10:30	09/21/23 14:38	1

Lab Sample ID: LCS 680-799121/2-A
Matrix: Water
Analysis Batch: 799155

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 799121

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Halogens, Total Organic			400	367.6		ug/L		92	60 - 140		

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

Lab Sample ID: 310-264490-1 MS
Matrix: Water
Analysis Batch: 799155

Client Sample ID: MW4
Prep Type: Total/NA
Prep Batch: 799121

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Halogens, Total Organic	<40.0		400	385.0		ug/L		96	60 - 140		

Lab Sample ID: 310-264490-1 MSD
Matrix: Water
Analysis Batch: 799155

Client Sample ID: MW4
Prep Type: Total/NA
Prep Batch: 799121

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	380.0		ug/L		95	60 - 140	1	40

Method: 9066 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-400051/1-A
Matrix: Water
Analysis Batch: 400151

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 400051

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0200		0.0200		mg/L		09/20/23 08:48	09/20/23 18:31	1

Lab Sample ID: LCS 310-400051/2-A
Matrix: Water
Analysis Batch: 400151

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 400051

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Phenols, Total			0.100	0.09016		mg/L		90	90 - 110		

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

Lab Sample ID: MB 310-399429/1
Matrix: Water
Analysis Batch: 399429

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			09/13/23 10:30	1

Lab Sample ID: LCS 310-399429/2
Matrix: Water
Analysis Batch: 399429

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	105.0		mg/L		105	75 - 116		

Method: SM 5220D - COD

Lab Sample ID: MB 310-399683/5
Matrix: Water
Analysis Batch: 399683

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			09/15/23 10:08	1

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QC Sample Results

Method: SM 5220D - COD (Continued)

Lab Sample ID: LCS 310-399683/3
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 399683

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chemical Oxygen Demand			125	126.0		mg/L		100	85 - 115		

QC Association Summary

GC/MS VOA

Analysis Batch: 399417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264490-1	MW4	Total/NA	Water	8260D	
MB 310-399417/5	Method Blank	Total/NA	Water	8260D	
LCS 310-399417/6	Lab Control Sample	Total/NA	Water	8260D	

HPLC/IC

Analysis Batch: 399954

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264490-1	MW4	Total/NA	Water	9056A	
MB 310-399954/3	Method Blank	Total/NA	Water	9056A	
LCS 310-399954/4	Lab Control Sample	Total/NA	Water	9056A	
310-264490-1 MS	MW4	Total/NA	Water	9056A	
310-264490-1 MSD	MW4	Total/NA	Water	9056A	

Metals

Prep Batch: 399334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264490-1	MW4	Total/NA	Water	3005A	
MB 310-399334/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-399334/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 399677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264490-1	MW4	Total/NA	Water	6020B	399334
MB 310-399334/1-A	Method Blank	Total/NA	Water	6020B	399334
LCS 310-399334/2-A	Lab Control Sample	Total/NA	Water	6020B	399334

Filtration Batch: 399992

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264490-1	MW4	Dissolved	Water	Filtration	
MB 310-399992/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-399992/2-B	Lab Control Sample	Dissolved	Water	Filtration	

Analysis Batch: 400278

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264490-1	MW4	Total/NA	Water	6020B	399334

Prep Batch: 400349

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264490-1	MW4	Dissolved	Water	3005A	399992
MB 310-399992/1-B	Method Blank	Dissolved	Water	3005A	399992
LCS 310-399992/2-B	Lab Control Sample	Dissolved	Water	3005A	399992

Analysis Batch: 400951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264490-1	MW4	Dissolved	Water	6020B	400349
MB 310-399992/1-B	Method Blank	Dissolved	Water	6020B	400349
LCS 310-399992/2-B	Lab Control Sample	Dissolved	Water	6020B	400349

Eurofins Cedar Falls

QC Association Summary

Project/Site: Crawford Project

Metals

Analysis Batch: 401511

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264490-1	MW4	Dissolved	Water	6020B	400349
MB 310-399992/1-B	Method Blank	Dissolved	Water	6020B	400349
LCS 310-399992/2-B	Lab Control Sample	Dissolved	Water	6020B	400349

General Chemistry

Analysis Batch: 399429

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264490-1	MW4	Total/NA	Water	I-3765-85	
MB 310-399429/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-399429/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 399683

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264490-1	MW4	Total/NA	Water	SM 5220D	
MB 310-399683/5	Method Blank	Total/NA	Water	SM 5220D	
LCS 310-399683/3	Lab Control Sample	Total/NA	Water	SM 5220D	

Prep Batch: 400051

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264490-1	MW4	Total/NA	Water	Distill/Phenol	
MB 310-400051/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-400051/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	

Analysis Batch: 400151

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264490-1	MW4	Total/NA	Water	9066	400051
MB 310-400051/1-A	Method Blank	Total/NA	Water	9066	400051
LCS 310-400051/2-A	Lab Control Sample	Total/NA	Water	9066	400051

Prep Batch: 400204

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264490-1	MW4	Total/NA	Water	Distill/Ammonia	
MB 310-400204/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-400204/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 400298

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264490-1	MW4	Total/NA	Water	350.1	400204
MB 310-400204/1-A	Method Blank	Total/NA	Water	350.1	400204
LCS 310-400204/2-A	Lab Control Sample	Total/NA	Water	350.1	400204

Prep Batch: 799121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264490-1	MW4	Total/NA	Water	Carbon Trap	
MB 680-799121/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 680-799121/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	
310-264490-1 MS	MW4	Total/NA	Water	Carbon Trap	
310-264490-1 MSD	MW4	Total/NA	Water	Carbon Trap	

Eurofins Cedar Falls

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

Job ID: 310-264490-1

General Chemistry

Analysis Batch: 799155

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-264490-1	MW4	Total/NA	Water	9020B	799121
MB 680-799121/1-A	Method Blank	Total/NA	Water	9020B	799121
LCS 680-799121/2-A	Lab Control Sample	Total/NA	Water	9020B	799121
310-264490-1 MS	MW4	Total/NA	Water	9020B	799121
310-264490-1 MSD	MW4	Total/NA	Water	9020B	799121

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10/5/2023

Lab Chronicle

Client Sample ID: MW4

Lab Sample ID: 310-264490-1

Date Collected: 09/11/23 09:30

Matrix: Water

Date Received: 09/12/23 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	399417	FE5V	EET CF	09/13/23 16:47
Total/NA	Analysis	9056A		5	399954	QTZ5	EET CF	09/18/23 18:03
Dissolved	Filtration	Filtration			399992	KCK5	EET CF	09/20/23 20:14
Dissolved	Prep	3005A			400349	KCK5	EET CF	09/22/23 09:10
Dissolved	Analysis	6020B		1	400951	A6US	EET CF	09/28/23 14:32
Dissolved	Filtration	Filtration			399992	KCK5	EET CF	09/20/23 20:14
Dissolved	Prep	3005A			400349	KCK5	EET CF	09/22/23 09:10
Dissolved	Analysis	6020B		1	401511	A6US	EET CF	10/04/23 13:34
Total/NA	Prep	3005A			399334	KCK5	EET CF	09/13/23 08:40
Total/NA	Analysis	6020B		1	400278	DHM5	EET CF	09/21/23 12:29
Total/NA	Prep	3005A			399334	KCK5	EET CF	09/13/23 08:40
Total/NA	Analysis	6020B		1	399677	DHM5	EET CF	09/15/23 01:22
Total/NA	Prep	Distill/Ammonia			400204	MQ8M	EET CF	09/21/23 09:29
Total/NA	Analysis	350.1		1	400298	ZJX4	EET CF	09/21/23 19:13
Total/NA	Prep	Carbon Trap			799121	CLJ	EET SAV	09/21/23 10:30
Total/NA	Analysis	9020B		1	799155	CLJ	EET SAV	09/21/23 16:35
Total/NA	Prep	Distill/Phenol			400051	A3GU	EET CF	09/20/23 08:48
Total/NA	Analysis	9066		1	400151	ZJX4	EET CF	09/20/23 18:38
Total/NA	Analysis	I-3765-85		1	399429	DGU1	EET CF	09/13/23 10:30
Total/NA	Analysis	SM 5220D		5	399683	ENB7	EET CF	09/15/23 10:08

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

Eurofins Cedar Falls

Accreditation/Certification Summary

Laboratory: Eurofins Cedar Falls

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

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

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 DEQ	State	19-015-0	02-01-24
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	11-30-23
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	12-31-23
Maine	State	GA00006	09-25-24
Maryland	State	250	12-31-23
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	09-21-23
Pennsylvania	NELAP	68-00474	06-30-24
Puerto Rico	State	GA00006	01-01-24
South Carolina	State	98001	06-30-23 *
Tennessee	State	TN02961	06-30-24
Texas	NELAP	T1047004185	11-30-23
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	06-30-23 *

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

Eurofins Cedar Falls

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

Eurofins Cedar Falls

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Environment Testing America

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client:	EB
City/State:	CITY STATE IA Project:

Receipt Information

Date/Time Received:	DATE 9/12/23 TIME 0900 Received By: SL

Delivery Type: ☐ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☑ Yes ☐ No	*If yes:* Cooler ID:	
Multiple Coolers?	☐ Yes ☑ No	*If yes:* Cooler # _____ of _____	
Cooler Custody Seals Present?	☐ Yes ☑ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No	
Sample Custody Seals Present?	☐ Yes ☑ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No	
Trip Blank Present?	☐ Yes ☑ No	*If yes:* Which VOA samples are in cooler? ↓	

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID:	T	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):	1.1	Corrected Temp (°C):	1.1

• 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? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Document· CED-P-SAM-FRM45521
Revision 26
Date 27 Jan 2022

Eurofins Cedar Falls

General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C

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10/5/2023

TestAmerica Cedar Falls

704 Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Chain of Custody Record

COC No: 310-36804-12214 1
Page: Page 1 of 1
Job #:

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
Project #:	31007226
Site:	

Sampler: ED Bertch

Lab PM: Bindert, Zach T
E-Mail: zach.bindert@testamericainc.com

Carrier Tracking No(s).

Due Date Requested:
TAT Requested (days):
PO #:
WO #:
SSOW#:

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   Z - other (specify)
Other

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Preservation Code	Matrix	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D - 2,4 Dinitrotoluene, Pyridine, Pentachlor. *	Ammonia - 350.1, 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	L_3765_85 - Residue, Non-filterable (TSS)	9020B - Total Organic Halides (TOX)	Total Number of containers	Special Instructions/Note:
								N	S	N	N	D	S	A	N	S		
MW4	9-11-23	6:30	Grab		Water	N		X	X	X	X	X	X	X	X	X	12	
					Water			X	X	X	X	X	X	X	X	X	12	
					Water			X	X	X	X	X	X	X	X	X	12	
					Water			X	X	X	X	X	X	X	X	X	12	
					Water			X	X	X	X	X	X	X	X	X	12	
					Water			X	X	X	X	X	X	X	X	X	12	
					Water			X	X	X	X	X	X	X	X	X	12	
					Water			X	X	X	X	X	X	X	X	X	12	
					Water			X	X	X	X	X	X	X	X	X	12	
Trip Blank					Water									X			3	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Deliverable Requested: I, II, III, IV, Other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab Archive For _____ Months
Special Instructions/QC Requirements:

Method of Shipment:

Empty Kit Relinquished by:

	Date	Time:	Method of Shipment:	
Relinquished by: (signature)	Date/Time: 9-11-23 Time: 10:30	Company: EBS/Huny	Received by: (signature)	Company:
Relinquished by: (signature)	Date/Time:	Company: EBSoluny	Received by: SC	Date/Time: 9/11/23
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time: 9/11/23 09/10 Company: yunshini
				Date/Time: Company:

Custody Seals Intact: △ Yes △ No   Custody Seal No.

Cooler Temperature(s) °C and Other Remarks:

Ver 08/04/2016

Chain of Custody Record

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

Client Information (Sub Contract Lab)

Company:
Eurofins Environment Testing Southeast,

Address:
5102 LaRoche Avenue,

City: Savannah
State, Zip: GA, 31404

Phone:
912-354-7858(Tel) 912-352-0165(Fax)

Email:

Project Name:
Crawford Project

Site:

Sampler:

Phone:

Due Date Requested:
10/2/2023

TAT Requested (days):

PO #:

WO #:

Project #:
31007226

SSOW#:

Carrier Tracking No(s):

Lab PM:
Bindert, Zach T

E-Mail:
Zach.Bindert@et.eurofinsus.com

Accreditations Required (See note):
State Program - Iowa

State of Origin:
Iowa

COC No:
310-65217.1

Page:
Page 1 of 1

Job #:
310-264490-1

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:

Analysis Requested

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)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9020B/Carbon_Trap	Total Number of containers	Special Instructions/Note:
MW4 (310-264490-1)	9/11/23	09:30 Central		Water				X	1	

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

Unconfirmed

Deliverable Requested: I, II, III, IV, Other (specify)

Primary Deliverable Rank: 2

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements:

Method of Shipment:

	Date/Time:	Company	Received by:	Date/Time: 4-13-23	Company
Empty Kit Relinquished by:	Date:	Time:			
Relinquished by:	Date/Time: 9/12/23 11:55	Company	Received by: TF	Date/Time: 9:55	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact:
☐ Yes ☐ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:
3.0 - 3.3

Ver: 06/08/20 10/5/2023

Login Sample Receipt Checklist

Login Number: 264490

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Lage, Sydney

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: 310-264490-1

Login Number: 264490
List Number: 2
Creator: Harley, Tynisha

List Source: Eurofins Savannah
List Creation: 09/13/23 01:14 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?	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	

eurofins

Environment Testing

I **ANALYTICAL REPORT**

PREPARED FOR

Attn: Edward Bertch
EB Solutions, Inc
5060 4th St. SW
Cedar Rapids, Iowa 52404
Generated 10/5/2023 3:34:00 PM

JOB DESCRIPTION

Crawford Project

JOB NUMBER

310-265042-1

my EOL

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
10/5/2023 3:34:00 PM

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

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Eurofins Cedar Falls
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Job ID: 310-265042-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-265042-1

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 9/19/2023 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 3.2°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: MW5 (310-265042-1). 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 (310-265042-1).

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-265042-1	MW5	Water	09/18/23 08:47	09/19/23 09:10

Client Sample ID: MW5   **Lab Sample ID: 310-265042-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	20.8		5.00		mg/L	5		9056A	Total/NA
Barium	0.0955		0.00200		mg/L	1		6020B	Total/NA
Manganese	0.0856		0.0100		mg/L	1		6020B	Total/NA
Boron	0.213		0.100		mg/L	1		6020B	Dissolved
Manganese	0.0806		0.0100		mg/L	1		6020B	Dissolved
Total Suspended Solids	2.25		1.88		mg/L	1		I-3765-85	Total/NA
Chemical Oxygen Demand	32.1		25.0		mg/L	5		SM 5220D	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

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

Client Sample ID: MW5
Date Collected: 09/18/23 08:47
Date Received: 09/19/23 09:10

Lab Sample ID: 310-265042-1
Matrix: Water

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			09/22/23 14:43	1

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		80 - 120					09/22/23 14:43	1
Dibromofluoromethane (Surr)	99		80 - 128					09/22/23 14:43	1
Toluene-d8 (Surr)	101		80 - 120					09/22/23 14:43	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			09/30/23 14:34	5
Fluoride	<1.00		1.00		mg/L			09/30/23 14:34	5
Sulfate	**20.8**		5.00		mg/L			09/30/23 14:34	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		09/20/23 09:00	10/05/23 14:35	1
Barium	**0.0955**		0.00200		mg/L		09/20/23 09:00	10/05/23 14:35	1
Cadmium	<0.000200		0.000200		mg/L		09/20/23 09:00	10/05/23 00:36	1
Manganese	**0.0856**		0.0100		mg/L		09/20/23 09:00	10/05/23 14:35	1
Zinc	<0.0200		0.0200		mg/L		09/20/23 09:00	10/05/23 00:36	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		09/22/23 09:10	10/04/23 13:37	1
Arsenic	<0.00200		0.00200		mg/L		09/22/23 09:10	09/28/23 14:55	1
Boron	**0.213**		0.100		mg/L		09/22/23 09:10	09/28/23 14:55	1
Cobalt	<0.000500		0.000500		mg/L		09/22/23 09:10	09/28/23 14:55	1
Iron	<0.100		0.100		mg/L		09/22/23 09:10	09/28/23 14:55	1
Manganese	**0.0806**		0.0100		mg/L		09/22/23 09:10	09/28/23 14:55	1
Molybdenum	<0.00200		0.00200		mg/L		09/22/23 09:10	09/28/23 14:55	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		09/26/23 09:45	09/26/23 22:08	1
Halogens, Total Organic (SW846 9020B)	<40.0		40.0		ug/L		09/29/23 10:15	09/30/23 08:36	1
Phenols, Total (SW846 9066)	<0.0204		0.0204		mg/L		09/20/23 08:48	09/20/23 18:42	1
Total Suspended Solids (USGS I-3765-85)	**2.25**		1.88		mg/L			09/19/23 11:59	1
Chemical Oxygen Demand (SM 5220D)	**32.1**		25.0		mg/L			09/21/23 09:36	5

Eurofins Cedar Falls

10/5/2023

Client: EB Solutions, Inc

Job ID: 310-265042-1

Project/Site: Crawford Project

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

Eurofins Cedar Falls

Surrogate Summary

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

Matrix: Water

Prep Type: Total/NA

| | | Percent Surrogate Recovery (Acceptance Limits) | | |
| | | BFB | DBFM | TOL |
Lab Sample ID	Client Sample ID	(80-120)	(80-128)	(80-120)
310-265042-1	MW5	107	99	101
LCS 310-400392/6	Lab Control Sample	99	98	102
MB 310-400392/5	Method Blank	104	99	101

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

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

Lab Sample ID: MB 310-400392/5
Matrix: Water
Analysis Batch: 400392

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			09/22/23 12:28	1

Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		80 - 120					09/22/23 12:28	1
Dibromofluoromethane (Surr)	99		80 - 128					09/22/23 12:28	1
Toluene-d8 (Surr)	101		80 - 120					09/22/23 12:28	1

Lab Sample ID: LCS 310-400392/6
Matrix: Water
Analysis Batch: 400392

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	40.00		ug/L		100	50 - 150		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		80 - 120
Dibromofluoromethane (Surr)	98		80 - 128
Toluene-d8 (Surr)	102		80 - 120

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-401179/35
Matrix: Water
Analysis Batch: 401179

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			09/30/23 14:10	1
Fluoride	<0.200		0.200		mg/L			09/30/23 14:10	1
Sulfate	<1.00		1.00		mg/L			09/30/23 14:10	1

Lab Sample ID: LCS 310-401179/36
Matrix: Water
Analysis Batch: 401179

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	2.023		mg/L		101	90 - 110		
Sulfate	10.0	10.23		mg/L		102	90 - 110		

Lab Sample ID: 310-265042-1 MS
Matrix: Water
Analysis Batch: 401179

Client Sample ID: MW5
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	25.20		mg/L		101	80 - 120		
Fluoride	<1.00		5.00	5.507		mg/L		99	80 - 120		
Sulfate	20.8		25.0	43.99		mg/L		93	80 - 120		

Eurofins Cedar Falls

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

Job ID: 310-265042-1

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

Lab Sample ID: 310-265042-1 MSD
Matrix: Water
Analysis Batch: 401179

Client Sample ID: MW5
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	<5.00		25.0	25.73		mg/L		103	80 - 120	2	15
Fluoride	<1.00		5.00	5.537		mg/L		100	80 - 120	1	15
Sulfate	20.8		25.0	46.13		mg/L		101	80 - 120	5	15

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: 310-265042-1 DU
Matrix: Water
Analysis Batch: 401579

Client Sample ID: MW5
Prep Type: Total/NA
Prep Batch: 400014

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cadmium	<0.000200		<0.000200		mg/L		NC	20
Zinc	<0.0200		<0.0200		mg/L		NC	20

Lab Sample ID: 310-265042-1 DU
Matrix: Water
Analysis Batch: 401652

Client Sample ID: MW5
Prep Type: Total/NA
Prep Batch: 400014

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Aluminum	<0.0500		<0.0500		mg/L		NC	20
Barium	0.0955		0.09468		mg/L		0.9	20
Manganese	0.0856		0.08462		mg/L		1	20

Lab Sample ID: MB 310-399992/1-B
Matrix: Water
Analysis Batch: 400951

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 400349

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		09/22/23 09:10	09/28/23 13:36	1
Boron	<0.100		0.100		mg/L		09/22/23 09:10	09/28/23 13:36	1
Cobalt	<0.000500		0.000500		mg/L		09/22/23 09:10	09/28/23 13:36	1
Iron	<0.100		0.100		mg/L		09/22/23 09:10	09/28/23 13:36	1
Manganese	<0.0100		0.0100		mg/L		09/22/23 09:10	09/28/23 13:36	1
Molybdenum	<0.00200		0.00200		mg/L		09/22/23 09:10	09/28/23 13:36	1

Lab Sample ID: MB 310-399992/1-B
Matrix: Water
Analysis Batch: 401511

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 400349

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		09/22/23 09:10	10/04/23 13:30	1

Lab Sample ID: LCS 310-399992/2-B
Matrix: Water
Analysis Batch: 400951

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 400349

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.200	0.2008		mg/L		100	80 - 120
Boron	0.200	0.1958		mg/L		98	80 - 120
Cobalt	0.100	0.1032		mg/L		103	80 - 120

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

Lab Sample ID: LCS 310-399992/2-B
Matrix: Water
Analysis Batch: 400951

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 400349

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	0.200	0.1888		mg/L		94	80 - 120
Manganese	0.100	0.09288		mg/L		93	80 - 120
Molybdenum	0.200	0.1934		mg/L		97	80 - 120

Lab Sample ID: LCS 310-399992/2-B
Matrix: Water
Analysis Batch: 401511

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 400349

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.2143		mg/L		107	80 - 120

Lab Sample ID: 310-265042-1 DU
Matrix: Water
Analysis Batch: 400951

Client Sample ID: MW5
Prep Type: Dissolved
Prep Batch: 400349

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	<0.00200		<0.00200		mg/L		NC	20
Boron	0.213		0.1962		mg/L		8	20
Cobalt	<0.000500		<0.000500		mg/L		NC	20
Iron	<0.100		<0.100		mg/L		NC	20
Manganese	0.0806		0.07889		mg/L		2	20
Molybdenum	<0.00200		<0.00200		mg/L		NC	20

Lab Sample ID: 310-265042-1 DU
Matrix: Water
Analysis Batch: 401511

Client Sample ID: MW5
Prep Type: Dissolved
Prep Batch: 400349

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	<0.00200		<0.00200		mg/L		NC	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-400650/1-A
Matrix: Water
Analysis Batch: 400718

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 400650

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	<0.500		0.500		mg/L		09/26/23 09:45	09/26/23 21:51	1

Lab Sample ID: LCS 310-400650/2-A
Matrix: Water
Analysis Batch: 400718

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 400650

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	4.00	4.065		mg/L		102	90 - 110

Eurofins Cedar Falls

Client: EB Solutions, Inc

Job ID: 310-265042-1

Project/Site: Crawford Project

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

Lab Sample ID: MB 680-800417/1-A
Matrix: Water
Analysis Batch: 800430

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 800417

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	<40.0		40.0		ug/L		09/29/23 10:15	09/29/23 13:02	1

Lab Sample ID: LCS 680-800417/2-A
Matrix: Water
Analysis Batch: 800430

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 800417

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Halogens, Total Organic			400	374.4		ug/L		94	60 - 140	

Lab Sample ID: 310-265042-1 MS
Matrix: Water
Analysis Batch: 800430

Client Sample ID: MW5
Prep Type: Total/NA
Prep Batch: 800417

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	
Halogens, Total Organic	<40.0		400	366.0		ug/L		92	60 - 140	

Lab Sample ID: 310-265042-1 MSD
Matrix: Water
Analysis Batch: 800430

Client Sample ID: MW5
Prep Type: Total/NA
Prep Batch: 800417

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	387.6		ug/L		97	60 - 140	6	40

Method: 9066 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-400051/1-A
Matrix: Water
Analysis Batch: 400151

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 400051

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0200		0.0200		mg/L		09/20/23 08:48	09/20/23 18:31	1

Lab Sample ID: LCS 310-400051/2-A
Matrix: Water
Analysis Batch: 400151

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 400051

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Phenols, Total			0.100	0.09016		mg/L		90	90 - 110	

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

Lab Sample ID: MB 310-399973/1
Matrix: Water
Analysis Batch: 399973

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			09/19/23 11:43	1

Eurofins Cedar Falls

10/5/2023

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

Lab Sample ID: LCS 310-399973/2
Matrix: Water
Analysis Batch: 399973

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	75 - 116		

Method: SM 5220D - COD

Lab Sample ID: MB 310-400208/32
Matrix: Water
Analysis Batch: 400208

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			09/21/23 09:36	1

Lab Sample ID: MB 310-400208/60
Matrix: Water
Analysis Batch: 400208

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			09/21/23 09:36	1

Lab Sample ID: LCS 310-400208/33
Matrix: Water
Analysis Batch: 400208

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	126.7		mg/L		101	85 - 115		

Lab Sample ID: LCS 310-400208/63
Matrix: Water
Analysis Batch: 400208

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	122.9		mg/L		98	85 - 115		

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GC/MS VOA

Analysis Batch: 400392

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265042-1	MW5	Total/NA	Water	8260D	
MB 310-400392/5	Method Blank	Total/NA	Water	8260D	
LCS 310-400392/6	Lab Control Sample	Total/NA	Water	8260D	

HPLC/IC

Analysis Batch: 401179

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265042-1	MW5	Total/NA	Water	9056A	
MB 310-401179/35	Method Blank	Total/NA	Water	9056A	
LCS 310-401179/36	Lab Control Sample	Total/NA	Water	9056A	
310-265042-1 MS	MW5	Total/NA	Water	9056A	
310-265042-1 MSD	MW5	Total/NA	Water	9056A	

Metals

Filtration Batch: 399992

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265042-1	MW5	Dissolved	Water	Filtration	
MB 310-399992/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-399992/2-B	Lab Control Sample	Dissolved	Water	Filtration	
310-265042-1 DU	MW5	Dissolved	Water	Filtration	

Prep Batch: 400014

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265042-1	MW5	Total/NA	Water	3005A	
310-265042-1 DU	MW5	Total/NA	Water	3005A	

Prep Batch: 400349

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265042-1	MW5	Dissolved	Water	3005A	399992
MB 310-399992/1-B	Method Blank	Dissolved	Water	3005A	399992
LCS 310-399992/2-B	Lab Control Sample	Dissolved	Water	3005A	399992
310-265042-1 DU	MW5	Dissolved	Water	3005A	399992

Analysis Batch: 400951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265042-1	MW5	Dissolved	Water	6020B	400349
MB 310-399992/1-B	Method Blank	Dissolved	Water	6020B	400349
LCS 310-399992/2-B	Lab Control Sample	Dissolved	Water	6020B	400349
310-265042-1 DU	MW5	Dissolved	Water	6020B	400349

Analysis Batch: 401511

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265042-1	MW5	Dissolved	Water	6020B	400349
MB 310-399992/1-B	Method Blank	Dissolved	Water	6020B	400349
LCS 310-399992/2-B	Lab Control Sample	Dissolved	Water	6020B	400349
310-265042-1 DU	MW5	Dissolved	Water	6020B	400349

Analysis Batch: 401579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265042-1	MW5	Total/NA	Water	6020B	400014

Eurofins Cedar Falls

Metals (Continued)

Analysis Batch: 401579 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265042-1 DU	MW5	Total/NA	Water	6020B	400014

Analysis Batch: 401652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265042-1	MW5	Total/NA	Water	6020B	400014
310-265042-1 DU	MW5	Total/NA	Water	6020B	400014

General Chemistry

Analysis Batch: 399973

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265042-1	MW5	Total/NA	Water	I-3765-85	
MB 310-399973/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-399973/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Prep Batch: 400051

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265042-1	MW5	Total/NA	Water	Distill/Phenol	
MB 310-400051/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-400051/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	

Analysis Batch: 400151

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265042-1	MW5	Total/NA	Water	9066	400051
MB 310-400051/1-A	Method Blank	Total/NA	Water	9066	400051
LCS 310-400051/2-A	Lab Control Sample	Total/NA	Water	9066	400051

Analysis Batch: 400208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265042-1	MW5	Total/NA	Water	SM 5220D	
MB 310-400208/32	Method Blank	Total/NA	Water	SM 5220D	
MB 310-400208/60	Method Blank	Total/NA	Water	SM 5220D	
LCS 310-400208/33	Lab Control Sample	Total/NA	Water	SM 5220D	
LCS 310-400208/63	Lab Control Sample	Total/NA	Water	SM 5220D	

Prep Batch: 400650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265042-1	MW5	Total/NA	Water	Distill/Ammonia	
MB 310-400650/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-400650/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 400718

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265042-1	MW5	Total/NA	Water	350.1	400650
MB 310-400650/1-A	Method Blank	Total/NA	Water	350.1	400650
LCS 310-400650/2-A	Lab Control Sample	Total/NA	Water	350.1	400650

Prep Batch: 800417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265042-1	MW5	Total/NA	Water	Carbon Trap	
MB 680-800417/1-A	Method Blank	Total/NA	Water	Carbon Trap	

Eurofins Cedar Falls

Client: EB Solutions, Inc

Project/Site: Crawford Project

General Chemistry (Continued)

Prep Batch: 800417 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 680-800417/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	
310-265042-1 MS	MW5	Total/NA	Water	Carbon Trap	
310-265042-1 MSD	MW5	Total/NA	Water	Carbon Trap	

Analysis Batch: 800430

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265042-1	MW5	Total/NA	Water	9020B	800417
MB 680-800417/1-A	Method Blank	Total/NA	Water	9020B	800417
LCS 680-800417/2-A	Lab Control Sample	Total/NA	Water	9020B	800417
310-265042-1 MS	MW5	Total/NA	Water	9020B	800417
310-265042-1 MSD	MW5	Total/NA	Water	9020B	800417

Eurofins Cedar Falls

10/5/2023

Client Sample ID: MW5
Date Collected: 09/18/23 08:47
Date Received: 09/19/23 09:10

Lab Sample ID: 310-265042-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	400392	FE5V	EET CF	09/22/23 14:43
Total/NA	Analysis	9056A		5	401179	QTZ5	EET CF	09/30/23 14:34
Dissolved	Filtration	Filtration			399992	KCK5	EET CF	09/20/23 20:14
Dissolved	Prep	3005A			400349	KCK5	EET CF	09/22/23 09:10
Dissolved	Analysis	6020B		1	400951	A6US	EET CF	09/28/23 14:55
Dissolved	Filtration	Filtration			399992	KCK5	EET CF	09/20/23 20:14
Dissolved	Prep	3005A			400349	KCK5	EET CF	09/22/23 09:10
Dissolved	Analysis	6020B		1	401511	A6US	EET CF	10/04/23 13:37
Total/NA	Prep	3005A			400014	KCK5	EET CF	09/20/23 09:00
Total/NA	Analysis	6020B		1	401579	A6US	EET CF	10/05/23 00:36
Total/NA	Prep	3005A			400014	KCK5	EET CF	09/20/23 09:00
Total/NA	Analysis	6020B		1	401652	DHM5	EET CF	10/05/23 14:35
Total/NA	Prep	Distill/Ammonia			400650	MQ8M	EET CF	09/26/23 09:45
Total/NA	Analysis	350.1		1	400718	ZJX4	EET CF	09/26/23 22:08
Total/NA	Prep	Carbon Trap			800417	CLJ	EET SAV	09/29/23 10:15
Total/NA	Analysis	9020B		1	800430	CLJ	EET SAV	09/30/23 08:36
Total/NA	Prep	Distill/Phenol			400051	A3GU	EET CF	09/20/23 08:48
Total/NA	Analysis	9066		1	400151	ZJX4	EET CF	09/20/23 18:42
Total/NA	Analysis	I-3765-85		1	399973	DGU1	EET CF	09/19/23 11:59
Total/NA	Analysis	SM 5220D		5	400208	ENB7	EET CF	09/21/23 09:36

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

Laboratory: Eurofins Cedar Falls

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

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

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 DEQ	State	19-015-0	02-01-24
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	11-30-23
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	12-31-23
Maine	State	GA00006	09-25-24
Maryland	State	250	12-31-23
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	12-31-23
Pennsylvania	NELAP	68-00474	06-30-24
Puerto Rico	State	GA00006	01-01-24
South Carolina	State	98001	06-30-23 *
Tennessee	State	TN02961	06-30-24
Texas	NELAP	T1047004185	11-30-23
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	06-30-23 *

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

Eurofins Cedar Falls

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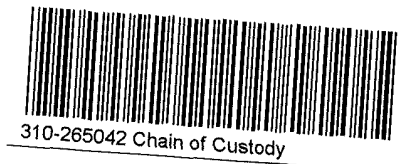
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

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

Eurofins Cedar Falls

Environment Testing America

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: EB

City/State: CITY | STATE PA | Project:

Receipt Information

Date/Time Received: DATE 9/19/23 | TIME 910 | Received By: SC

Delivery Type: ☐ UPS ☒ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☒ Yes ☐ No *If yes:* Cooler ID:

Multiple Coolers? ☐ Yes ☒ No *If yes:* Cooler # _____ of _____

Cooler Custody Seals Present? ☐ Yes ☒ No *If yes:* Cooler custody seals intact? ☐ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☒ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☒ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☒ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: P | Correction Factor (°C): O

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): N/A | Corrected Temp (°C): —

• Sample Container Temperature

Container(s) used:	CONTAINER 1 250 plastic —	CONTAINER 2
Uncorrected Temp (°C):	3.2	2.6
Corrected Temp (°C):	3.2	2.6

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE· If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Document CED-P-SAM-FRM45521
Revision 26
Date 27 Jan 2022   Eurofins Cedar Falls

General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C

Page 21 of 24   10/5/2023

TestAmerica Cedar Falls

704 Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

Chain of Custody Record

Client Information

Client Contact:	Edward Bertch
Phone:	
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:	

Sampler: Ed Bertch

Lab PM: Bindert, Zach T
E-Mail: zach.bindert@testamericainc.com

Due Date Requested:
TAT Requested (days):
PO #:
WO #:
Project #: 31007226
SSOW#:

Carrier Tracking No(s):

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		Z - other (specify)
Other:		

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Preservation Code:	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or NO)	8270D - 2,4-Dinitrotoluene, Pyridine, Pentachlor	Ammonia - 350 1, 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	I_3766_85 - Residue, Non-filterable (TSS)	9020B - Total Organic Halides (TOX)	Total Number of containers
								N	S	N	N	D	S	A	N	S	
MW5	9-18-23	8.47	Grab		Water			X	X	X	X	X	X	X	X	X	12
					Water			X	X	X	X	X	X	X	X	X	12
					Water			X	X	X	X	X	X	X	X	X	12
					Water			X	X	X	X	X	X	X	X	X	12
					Water			X	X	X	X	X	X	X	X	X	12
					Water			X	X	X	X	X	X	X	X	X	12
					Water			X	X	X	X	X	X	X	X	X	12
					Water			X	X	X	X	X	X	X	X	X	12
					Water			X	X	X	X	X	X	X	X	X	12
					Water			X	X	X	X	X	X	X	X	X	12
Trip Blank					Water									X			3

Special Instructions/Note:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Deliverable Requested: I, II, III, IV, Other (specify)

Empty Kit Relinquished by: ___ Date: ___ Time: ___

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ___ Months

Special Instructions/QC Requirements:

Relinquished by:	Date/Time: 9-18-23 / 9:30	Company: EB Solutions
Relinquished by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:

Received by:	Date/Time: 9/19/23 9:00	Company: SL
Received by:	Date/Time:	Company:
Received by:	Date/Time:	Company:

Method of Shipment:

Custody Seals Intact: ☐ Yes ☐ No   Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: SL

Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-265042-1

Login Number: 265042

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Lage, Sydney

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

Login Number: 265042

List Number: 2

Creator: Harley, Tynisha

List Source: Eurofins Savannah

List Creation: 09/20/23 01:42 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 10/16/2023 12:30:36 PM

JOB DESCRIPTION

Crawford Project

JOB NUMBER

310-265562-1

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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10/16/2023 12:30:36 PM

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

Table of Contents

Eurofins Cedar Falls
10/16/2023

Job ID: 310-265562-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-265562-1

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 9/26/2023 8:55 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.7°C

GC/MS VOA
Method 8260D: The method requirement for no headspace was not met. The following volatile sample was analyzed with headspace in the sample container: Trip Blank (310-265562-2).

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 (310-265562-1). 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
Method 6020B: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 310-400946 and 310-401115 and analytical batch 310-402052 recovered outside control limits for the following analytes: Antimony. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

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

General Chemistry
Method 9020B: Breakthrough exceeded 10% for the following sample:MW2 (310-265562-1).

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

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-265562-1	MW2	Water	09/25/23 11:50	09/26/23 08:55
310-265562-2	Trip Blank	Water	09/25/23 00:00	09/26/23 08:55

Eurofins Cedar Falls
10/16/2023

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

Client Sample ID: MW2   Lab Sample ID: 310-265562-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.99		5.00		mg/L	5		9056A	Total/NA
Sulfate	14.3		5.00		mg/L	5		9056A	Total/NA
Barium	0.118		0.00200		mg/L	1		6020B	Total/NA
Manganese	0.0237		0.0100		mg/L	1		6020B	Total/NA
Manganese	0.0246		0.0100		mg/L	1		6020B	Dissolved
Molybdenum	0.00225		0.00200		mg/L	1		6020B	Dissolved

Client Sample ID: Trip Blank   Lab Sample ID: 310-265562-2

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

10/16/2023

Client: EB Solutions, Inc

Project/Site: Crawford Project

Job ID: 310-265562-1

Client Sample ID: MW2

Date Collected: 09/25/23 11:50

Date Received: 09/26/23 08:55

Lab Sample ID: 310-265562-1

Matrix: Water

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			09/28/23 13:25	1

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		80 - 120					09/28/23 13:25	1
Dibromofluoromethane (Surr)	102		80 - 128					09/28/23 13:25	1
Toluene-d8 (Surr)	96		80 - 120					09/28/23 13:25	1

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5.99**		5.00		mg/L			10/06/23 20:32	5
Fluoride	<1.00		1.00		mg/L			10/06/23 20:32	5
Sulfate	**14.3**		5.00		mg/L			10/06/23 20:32	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		09/27/23 08:45	10/04/23 17:17	1
Barium	**0.118**		0.00200		mg/L		09/27/23 08:45	10/04/23 17:17	1
Cadmium	<0.000200		0.000200		mg/L		09/27/23 08:45	10/04/23 17:17	1
Manganese	**0.0237**		0.0100		mg/L		09/27/23 08:45	10/04/23 17:17	1
Zinc	<0.0200		0.0200		mg/L		09/27/23 08:45	10/04/23 17:17	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		10/02/23 09:45	10/10/23 08:53	1
Arsenic	<0.00200		0.00200		mg/L		10/02/23 09:45	10/10/23 08:53	1
Boron	<0.100		0.100		mg/L		10/02/23 09:45	10/10/23 08:53	1
Cobalt	<0.000500		0.000500		mg/L		10/02/23 09:45	10/10/23 08:53	1
Iron	<0.100		0.100		mg/L		10/02/23 09:45	10/10/23 08:53	1
Manganese	**0.0246**		0.0100		mg/L		10/02/23 09:45	10/10/23 08:53	1
Molybdenum	**0.00225**		0.00200		mg/L		10/02/23 09:45	10/10/23 08:53	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		09/26/23 12:02	09/26/23 23:21	1
Halogens, Total Organic (SW846 9020B)	<40.0		40.0		ug/L		10/13/23 06:25	10/13/23 09:58	1
Phenols, Total (SW846 9066)	<0.0200		0.0200		mg/L		09/27/23 12:50	09/27/23 18:56	1
Total Suspended Solids (USGS I-3765-85)	<1.88		1.88		mg/L			09/27/23 15:23	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0		mg/L			10/03/23 21:33	5

Eurofins Cedar Falls

10/16/2023

Client Sample ID: Trip Blank
Date Collected: 09/25/23 00:00
Date Received: 09/26/23 08:55

Lab Sample ID: 310-265562-2
Matrix: Water

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			09/28/23 11:04	1

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		80 - 120					09/28/23 11:04	1
Dibromofluoromethane (Surr)	101		80 - 128					09/28/23 11:04	1
Toluene-d8 (Surr)	100		80 - 120					09/28/23 11:04	1

Eurofins Cedar Falls

10/16/2023

Definitions/Glossary

Qualifiers

Metals

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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

Eurofins Cedar Falls

Surrogate Summary

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

Matrix: Water   **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)						
		BFB	**DBFM**	**TOL**				
Lab Sample ID	**Client Sample ID**	**(80-120)**	**(80-128)**	**(80-120)**				
310-265562-1	MW2	104	102	96				
310-265562-2	Trip Blank	106	101	100				
LCS 310-400883/6	Lab Control Sample	104	103	98				
MB 310-400883/5	Method Blank	107	100	95				

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: EB Solutions, Inc

Job ID: 310-265562-1

Project/Site: Crawford Project

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

Lab Sample ID: MB 310-400883/5
Matrix: Water
Analysis Batch: 400883

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			09/28/23 09:54	1

Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		80 - 120					09/28/23 09:54	1
Dibromofluoromethane (Surr)	100		80 - 128					09/28/23 09:54	1
Toluene-d8 (Surr)	95		80 - 120					09/28/23 09:54	1

Lab Sample ID: LCS 310-400883/6
Matrix: Water
Analysis Batch: 400883

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	44.77		ug/L		112	50 - 150		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		80 - 120
Dibromofluoromethane (Surr)	103		80 - 128
Toluene-d8 (Surr)	98		80 - 120

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-401862/3
Matrix: Water
Analysis Batch: 401862

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			10/06/23 20:08	1
Fluoride	<0.200		0.200		mg/L			10/06/23 20:08	1
Sulfate	<1.00		1.00		mg/L			10/06/23 20:08	1

Lab Sample ID: LCS 310-401862/4
Matrix: Water
Analysis Batch: 401862

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	9.740		mg/L		97	90 - 110		
Fluoride	2.00	2.037		mg/L		102	90 - 110		
Sulfate	10.0	10.16		mg/L		102	90 - 110		

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-400713/1-A
Matrix: Water
Analysis Batch: 401511

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 400713

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		09/27/23 08:45	10/04/23 14:05	1
Barium	<0.00200		0.00200		mg/L		09/27/23 08:45	10/04/23 14:05	1
Cadmium	<0.000200		0.000200		mg/L		09/27/23 08:45	10/04/23 14:05	1

Eurofins Cedar Falls

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

Job ID: 310-265562-1

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

Lab Sample ID: MB 310-400713/1-A
Matrix: Water
Analysis Batch: 401511

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 400713

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	<0.0100		0.0100		mg/L		09/27/23 08:45	10/04/23 14:05	1
Zinc	<0.0200		0.0200		mg/L		09/27/23 08:45	10/04/23 14:05	1

Lab Sample ID: LCS 310-400713/2-A
Matrix: Water
Analysis Batch: 401511

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 400713

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Aluminum	0.200	0.2098		mg/L		105	80 - 120	
Barium	0.100	0.1008		mg/L		101	80 - 120	
Cadmium	0.100	0.1036		mg/L		104	80 - 120	
Manganese	0.100	0.09516		mg/L		95	80 - 120	
Zinc	0.200	0.2040		mg/L		102	80 - 120	

Lab Sample ID: MB 310-400946/1-B
Matrix: Water
Analysis Batch: 402052

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 401115

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		10/02/23 09:45	10/09/23 23:29	1
Arsenic	<0.00200		0.00200		mg/L		10/02/23 09:45	10/09/23 23:29	1
Boron	<0.100		0.100		mg/L		10/02/23 09:45	10/09/23 23:29	1
Cobalt	<0.000500		0.000500		mg/L		10/02/23 09:45	10/09/23 23:29	1
Iron	<0.100		0.100		mg/L		10/02/23 09:45	10/09/23 23:29	1
Manganese	<0.0100		0.0100		mg/L		10/02/23 09:45	10/09/23 23:29	1
Molybdenum	<0.00200		0.00200		mg/L		10/02/23 09:45	10/09/23 23:29	1

Lab Sample ID: LCS 310-400946/2-B
Matrix: Water
Analysis Batch: 402052

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 401115

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Antimony	0.200	0.2412	*+	mg/L		121	80 - 120	
Arsenic	0.200	0.2238		mg/L		112	80 - 120	
Boron	0.200	0.1999		mg/L		100	80 - 120	
Cobalt	0.100	0.1144		mg/L		114	80 - 120	
Iron	0.200	0.2324		mg/L		116	80 - 120	
Manganese	0.100	0.1045		mg/L		104	80 - 120	
Molybdenum	0.200	0.1972		mg/L		99	80 - 120	

Lab Sample ID: 310-265562-1 MS
Matrix: Water
Analysis Batch: 402052

Client Sample ID: MW2
Prep Type: Dissolved
Prep Batch: 401115

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	
Antimony	<0.00200	*+	0.200	0.2439		mg/L		122	75 - 125	
Arsenic	<0.00200		0.200	0.2308		mg/L		115	75 - 125	
Boron	<0.100		0.200	0.3005		mg/L		107	75 - 125	
Cobalt	<0.000500		0.100	0.1107		mg/L		111	75 - 125	
Iron	<0.100		0.200	0.2264		mg/L		113	75 - 125	

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10/16/2023

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

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

Lab Sample ID: 310-265562-1 MS
Matrix: Water
Analysis Batch: 402052

Client Sample ID: MW2
Prep Type: Dissolved
Prep Batch: 401115

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Manganese	0.0246		0.100	0.1298		mg/L		105	75 - 125		
Molybdenum	0.00225		0.200	0.2137		mg/L		106	75 - 125		

Lab Sample ID: 310-265562-1 MSD
Matrix: Water
Analysis Batch: 402052

Client Sample ID: MW2
Prep Type: Dissolved
Prep Batch: 401115

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	<0.00200	*+	0.200	0.2366		mg/L		118	75 - 125	3	20
Arsenic	<0.00200		0.200	0.2199		mg/L		110	75 - 125	5	20
Boron	<0.100		0.200	0.2940		mg/L		104	75 - 125	2	20
Cobalt	<0.000500		0.100	0.1094		mg/L		109	75 - 125	1	20
Iron	<0.100		0.200	0.2162		mg/L		108	75 - 125	5	20
Manganese	0.0246		0.100	0.1296		mg/L		105	75 - 125	0	20
Molybdenum	0.00225		0.200	0.2081		mg/L		103	75 - 125	3	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-400688/1-A
Matrix: Water
Analysis Batch: 400718

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 400688

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	<0.500		0.500		mg/L		09/26/23 12:02	09/26/23 23:09	1

Lab Sample ID: LCS 310-400688/2-A
Matrix: Water
Analysis Batch: 400718

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 400688

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia as N	4.00	3.761		mg/L		94	90 - 110

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

Lab Sample ID: MB 680-802784/1-A
Matrix: Water
Analysis Batch: 802812

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 802784

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	<40.0		40.0		ug/L		10/13/23 06:25	10/13/23 08:25	1

Lab Sample ID: LCS 680-802784/2-A
Matrix: Water
Analysis Batch: 802812

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 802784

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	400	370.0		ug/L		93	60 - 140

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10/16/2023

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

Lab Sample ID: 310-265562-1 MS
Matrix: Water
Analysis Batch: 802812

Client Sample ID: MW2
Prep Type: Total/NA
Prep Batch: 802784

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Halogens, Total Organic	<40.0		400	282.1		ug/L		65	60 - 140		

Lab Sample ID: 310-265562-1 MSD
Matrix: Water
Analysis Batch: 802812

Client Sample ID: MW2
Prep Type: Total/NA
Prep Batch: 802784

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	348.8		ug/L		82	60 - 140	21	40

Method: 9066 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-400812/1-A
Matrix: Water
Analysis Batch: 400844

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 400812

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0200		0.0200		mg/L		09/27/23 12:50	09/27/23 18:56	1

Lab Sample ID: LCS 310-400812/2-A
Matrix: Water
Analysis Batch: 400844

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 400812

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Phenols, Total			0.100	0.09700		mg/L		97	90 - 110		

Lab Sample ID: 310-265562-1 MS
Matrix: Water
Analysis Batch: 400844

Client Sample ID: MW2
Prep Type: Total/NA
Prep Batch: 400812

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Phenols, Total	<0.0200		0.100	0.09660		mg/L		97	76 - 124		

Lab Sample ID: 310-265562-1 MSD
Matrix: Water
Analysis Batch: 400844

Client Sample ID: MW2
Prep Type: Total/NA
Prep Batch: 400812

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	0.09605		mg/L		96	76 - 124	1	14

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

Lab Sample ID: MB 310-400829/1
Matrix: Water
Analysis Batch: 400829

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			09/27/23 15:23	1

Eurofins Cedar Falls

Client: EB Solutions, Inc

Job ID: 310-265562-1

Project/Site: Crawford Project

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

Lab Sample ID: LCS 310-400829/2

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 400829

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Total Suspended Solids			100	93.00		mg/L		93	75 - 116		

Method: SM 5220D - COD

Lab Sample ID: MB 310-401230/5

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 401230

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	<5.00		5.00		mg/L			10/03/23 21:33	1

Lab Sample ID: LCS 310-401230/3

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 401230

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chemical Oxygen Demand			125	121.5		mg/L		97	85 - 115		

Lab Sample ID: 310-265562-1 MS

Client Sample ID: MW2

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 401230

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chemical Oxygen Demand	<25.0		250	299.9		mg/L		120	81 - 144		

Lab Sample ID: 310-265562-1 MSD

Client Sample ID: MW2

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 401230

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	286.4		mg/L		115	81 - 144	5	15

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10/16/2023

QC Association Summary

GC/MS VOA

Analysis Batch: 400883

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265562-1	MW2	Total/NA	Water	8260D	
310-265562-2	Trip Blank	Total/NA	Water	8260D	
MB 310-400883/5	Method Blank	Total/NA	Water	8260D	
LCS 310-400883/6	Lab Control Sample	Total/NA	Water	8260D	

HPLC/IC

Analysis Batch: 401862

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265562-1	MW2	Total/NA	Water	9056A	
MB 310-401862/3	Method Blank	Total/NA	Water	9056A	
LCS 310-401862/4	Lab Control Sample	Total/NA	Water	9056A	

Metals

Prep Batch: 400713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265562-1	MW2	Total/NA	Water	3005A	
MB 310-400713/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-400713/2-A	Lab Control Sample	Total/NA	Water	3005A	

Filtration Batch: 400946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265562-1	MW2	Dissolved	Water	Filtration	
MB 310-400946/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-400946/2-B	Lab Control Sample	Dissolved	Water	Filtration	
310-265562-1 MS	MW2	Dissolved	Water	Filtration	
310-265562-1 MSD	MW2	Dissolved	Water	Filtration	

Prep Batch: 401115

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265562-1	MW2	Dissolved	Water	3005A	400946
MB 310-400946/1-B	Method Blank	Dissolved	Water	3005A	400946
LCS 310-400946/2-B	Lab Control Sample	Dissolved	Water	3005A	400946
310-265562-1 MS	MW2	Dissolved	Water	3005A	400946
310-265562-1 MSD	MW2	Dissolved	Water	3005A	400946

Analysis Batch: 401511

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-400713/1-A	Method Blank	Total/NA	Water	6020B	400713
LCS 310-400713/2-A	Lab Control Sample	Total/NA	Water	6020B	400713

Analysis Batch: 401579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265562-1	MW2	Total/NA	Water	6020B	400713

Analysis Batch: 402052

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265562-1	MW2	Dissolved	Water	6020B	401115
MB 310-400946/1-B	Method Blank	Dissolved	Water	6020B	401115
LCS 310-400946/2-B	Lab Control Sample	Dissolved	Water	6020B	401115
310-265562-1 MS	MW2	Dissolved	Water	6020B	401115

Eurofins Cedar Falls

Metals (Continued)

Analysis Batch: 402052 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265562-1 MSD	MW2	Dissolved	Water	6020B	401115

General Chemistry

Prep Batch: 400688

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265562-1	MW2	Total/NA	Water	Distill/Ammonia	
MB 310-400688/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-400688/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 400718

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265562-1	MW2	Total/NA	Water	350.1	400688
MB 310-400688/1-A	Method Blank	Total/NA	Water	350.1	400688
LCS 310-400688/2-A	Lab Control Sample	Total/NA	Water	350.1	400688

Prep Batch: 400812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265562-1	MW2	Total/NA	Water	Distill/Phenol	
MB 310-400812/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-400812/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	
310-265562-1 MS	MW2	Total/NA	Water	Distill/Phenol	
310-265562-1 MSD	MW2	Total/NA	Water	Distill/Phenol	

Analysis Batch: 400829

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265562-1	MW2	Total/NA	Water	I-3765-85	
MB 310-400829/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-400829/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Analysis Batch: 400844

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265562-1	MW2	Total/NA	Water	9066	400812
MB 310-400812/1-A	Method Blank	Total/NA	Water	9066	400812
LCS 310-400812/2-A	Lab Control Sample	Total/NA	Water	9066	400812
310-265562-1 MS	MW2	Total/NA	Water	9066	400812
310-265562-1 MSD	MW2	Total/NA	Water	9066	400812

Analysis Batch: 401230

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265562-1	MW2	Total/NA	Water	SM 5220D	
MB 310-401230/5	Method Blank	Total/NA	Water	SM 5220D	
LCS 310-401230/3	Lab Control Sample	Total/NA	Water	SM 5220D	
310-265562-1 MS	MW2	Total/NA	Water	SM 5220D	
310-265562-1 MSD	MW2	Total/NA	Water	SM 5220D	

Prep Batch: 802784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265562-1	MW2	Total/NA	Water	Carbon Trap	
MB 680-802784/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 680-802784/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	

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General Chemistry (Continued)

Prep Batch: 802784 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265562-1 MS	MW2	Total/NA	Water	Carbon Trap	
310-265562-1 MSD	MW2	Total/NA	Water	Carbon Trap	

Analysis Batch: 802812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-265562-1	MW2	Total/NA	Water	9020B	802784
MB 680-802784/1-A	Method Blank	Total/NA	Water	9020B	802784
LCS 680-802784/2-A	Lab Control Sample	Total/NA	Water	9020B	802784
310-265562-1 MS	MW2	Total/NA	Water	9020B	802784
310-265562-1 MSD	MW2	Total/NA	Water	9020B	802784

Lab Chronicle

Client Sample ID: MW2
Date Collected: 09/25/23 11:50
Date Received: 09/26/23 08:55

Lab Sample ID: 310-265562-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	400883	WSE8	EET CF	09/28/23 13:25
Total/NA	Analysis	9056A		5	401862	QTZ5	EET CF	10/06/23 20:32
Dissolved	Filtration	Filtration			400946	KCK5	EET CF	09/28/23 16:30
Dissolved	Prep	3005A			401115	KCK5	EET CF	10/02/23 09:45
Dissolved	Analysis	6020B		1	402052	A6US	EET CF	10/10/23 08:53
Total/NA	Prep	3005A			400713	KCK5	EET CF	09/27/23 08:45
Total/NA	Analysis	6020B		1	401579	A6US	EET CF	10/04/23 17:17
Total/NA	Prep	Distill/Ammonia			400688	MQ8M	EET CF	09/26/23 12:02
Total/NA	Analysis	350.1		1	400718	ZJX4	EET CF	09/26/23 23:21
Total/NA	Prep	Carbon Trap			802784	CLJ	EET SAV	10/13/23 06:25
Total/NA	Analysis	9020B		1	802812	CLJ	EET SAV	10/13/23 09:58
Total/NA	Prep	Distill/Phenol			400812	WZC8	EET CF	09/27/23 12:50
Total/NA	Analysis	9066		1	400844	ZJX4	EET CF	09/27/23 18:56
Total/NA	Analysis	I-3765-85		1	400829	A4XP	EET CF	09/27/23 15:23
Total/NA	Analysis	SM 5220D		5	401230	ENB7	EET CF	10/03/23 21:33

Client Sample ID: Trip Blank
Date Collected: 09/25/23 00:00
Date Received: 09/26/23 08:55

Lab Sample ID: 310-265562-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	400883	WSE8	EET CF	09/28/23 11:04

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

Eurofins Cedar Falls

Accreditation/Certification Summary

Laboratory: Eurofins Cedar Falls

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

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

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 DEQ	State	19-015-0	02-01-24
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	11-30-23
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	12-31-23
Maine	State	GA00006	09-25-24
Maryland	State	250	12-31-23
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	12-31-23
Pennsylvania	NELAP	68-00474	06-30-24
Puerto Rico	State	GA00006	01-01-24
South Carolina	State	98001	06-30-23 *
Tennessee	State	TN02961	06-30-24
Texas	NELAP	T1047004185	11-30-23
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

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

Eurofins Cedar Falls

Method Summary

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

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Cooler/Sample Receipt and Temperature Log Form

Client Information
Client:	*EB*	
City/State: CITY	STATE *IA*	Project:

Receipt Information
Date/Time Received:	DATE 9/26/23 TIME 855	Received By: SL

Delivery Type: ☑ UPS ☑ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers
Sample(s) received in Cooler?	☑ Yes ☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☐ Yes ☑ No	*If yes:* Cooler # _____ of _____
Cooler Custody Seals Present?	☐ Yes ☑ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes ☑ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☑ Yes ☐ No	*If yes:* Which VOA samples are in cooler? ↓

ALL

Temperature Record
Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ 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): 2.7	Corrected Temp (°C): 2.7

• 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? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Document CED-P-SAM-FRM45521
Revision· 26
Date· 27 Jan 2022

Eurofins Cedar Falls

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General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C

10/16/2023

Chain of Custody Record

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

COC No: 310-36804-12214 1
Page: Page 1 of 1
Job #:

Sampler: Ed Bertch

Lab PM: Bindert, Zach T
E-Mail: zach.bindert@testamericainc.com

Carrier Tracking No(s):

Client Information

Client Contact: Edward Bertch
Phone:

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:

Due Date Requested:
TAT Requested (days):
PO #:
WO #:
Project #: 31007226
SSOW#:

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
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)
Other

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix	Preservation Code:	Perform MS/MSD (Yes or No)	Field Filtered Sample (Yes or No)	8270D - 2,4-Dinitrotoluene, Pyridine, Pentachlor N	Ammonia - 350.1, COD - 5220D S	9056A - ORGFM_28D - Chloride, Fluoride, Sulfate N	6020A - Dissolved Metals N	Total Metals 6020A, 7470A D	9066 - Total Recoverable Phenolics S	8260C - Benzene and Methyl Ethyl Ketone A	L_3766_85 - Residue, Non-filterable (TSS) N	9020B - Total Organic Halides (TOX) S	Total Number of containers	Special Instructions/Note:
MW2	5-25-23	11:50	G	Water				X	X	X	X	X	X	X	X	X	12	
				Water				X	X	X	X	X	X	X	X	X	12	
				Water				X	X	X	X	X	X	X	X	X	12	
				Water				X	X	X	X	X	X	X	X	X	12	
				Water				X	X	X	X	X	X	X	X	X	12	
				Water				X	X	X	X	X	X	X	X	X	12	
				Water				X	X	X	X	X	X	X	X	X	12	
				Water				X	X	X	X	X	X	X	X	X	12	
				Water				X	X	X	X	X	X	X	X	X	12	
Trip Blank	5-25-23			Water										X			3	

Deliverable Requested: I, II, III, IV, Other (specify)

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date		Time:	Method of Shipment:
Relinquished by:	Date/Time: 5-25-23 / 12:00	Company: EB Solutions	Received by:	Date/Time: 5/26/43 855	Company
Relinquished by:	Date/Time:	Company	Received by: SL	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: △ Yes △ No **Custody Seal No.:** **Cooler Temperature(s) °C and Other Remarks:**

Ver 08/04/2016

Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-265562-1

Login Number: 265562

List Source: Eurofins Cedar Falls

List Number: 1

Creator: Lage, Sydney

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: 310-265562-1

Login Number: 265562
List Number: 2
Creator: Harley, Tynisha

List Source: Eurofins Savannah
List Creation: 09/27/23 01:14 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?	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	

eurofins

Environment Testing

I **ANALYTICAL REPORT**

PREPARED FOR

Attn: Edward Bertch
EB Solutions, Inc
5060 4th St. SW
Cedar Rapids, Iowa 52404
Generated 10/19/2023 2:45:34 PM

JOB DESCRIPTION

Crawford Project

JOB NUMBER

310-266122-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

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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

Table of Contents

Eurofins Cedar Falls
10/19/2023

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

Job ID: 310-266122-1

Job ID: 310-266122-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-266122-1

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 10/3/2023 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 1.6°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
Method 6020B: The method blank for preparation batch 310-401353 contained Copper above the reporting limit (RL). None of the samples associated with this method blank contained the target compound; therefore, re-extraction and/or re-analysis of samples were not performed. MW1 (310-266122-1)

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 (310-266122-1).

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-266122-1	MW1	Water	09/29/23 11:13	10/03/23 09:00

Detection Summary

Client Sample ID: MW1   Lab Sample ID: 310-266122-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	6.38		5.00		mg/L	5		9056A	Total/NA
Sulfate	927		100		mg/L	100		9056A	Total/NA
Barium	0.0207		0.00200		mg/L	1		6020B	Total/NA
Manganese	0.0829		0.0100		mg/L	1		6020B	Total/NA
Boron	0.170		0.100		mg/L	1		6020B	Dissolved
Manganese	0.0753		0.0100		mg/L	1		6020B	Dissolved
Molybdenum	0.00264		0.00200		mg/L	1		6020B	Dissolved

This Detection Summary does not include radiochemical test results.

Eurofins Cedar Falls

Client Sample Results

Client Sample ID: MW1

Date Collected: 09/29/23 11:13

Date Received: 10/03/23 09:00

Lab Sample ID: 310-266122-1

Matrix: Water

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			10/04/23 17:37	1

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		80 - 120					10/04/23 17:37	1
Dibromofluoromethane (Surr)	105		80 - 128					10/04/23 17:37	1
Toluene-d8 (Surr)	94		80 - 120					10/04/23 17:37	1

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**6.38**		5.00		mg/L			10/18/23 20:20	5
Fluoride	<1.00		1.00		mg/L			10/18/23 20:20	5
Sulfate	**927**		100		mg/L			10/19/23 09:46	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		10/04/23 08:45	10/04/23 23:19	1
Barium	**0.0207**		0.00200		mg/L		10/04/23 08:45	10/04/23 23:19	1
Cadmium	<0.000200		0.000200		mg/L		10/04/23 08:45	10/04/23 23:19	1
Manganese	**0.0829**		0.0100		mg/L		10/04/23 08:45	10/05/23 15:27	1
Zinc	<0.0200		0.0200		mg/L		10/04/23 08:45	10/04/23 23:19	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		10/10/23 10:00	10/12/23 16:07	1
Arsenic	<0.00200		0.00200		mg/L		10/10/23 10:00	10/12/23 16:07	1
Boron	**0.170**		0.100		mg/L		10/10/23 10:00	10/12/23 16:07	1
Cobalt	<0.000500		0.000500		mg/L		10/10/23 10:00	10/12/23 16:07	1
Iron	<0.100	F1 F2	0.100		mg/L		10/10/23 10:00	10/12/23 16:07	1
Manganese	**0.0753**		0.0100		mg/L		10/10/23 10:00	10/12/23 16:07	1
Molybdenum	**0.00264**		0.00200		mg/L		10/10/23 10:00	10/12/23 16:07	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		10/05/23 11:29	10/06/23 00:53	1
Halogens, Total Organic (SW846 9020B)	<40.0		40.0		ug/L		10/16/23 07:30	10/16/23 11:53	1
Phenols, Total (SW846 9066)	<0.0216		0.0216		mg/L		10/04/23 12:04	10/04/23 21:09	1
Total Suspended Solids (USGS I-3765-85)	<1.88		1.88		mg/L			10/03/23 13:42	1
Chemical Oxygen Demand (SM 5220D)	<25.0		25.0		mg/L			10/11/23 09:00	5

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Definitions/Glossary

Qualifiers

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits

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

Eurofins Cedar Falls

10/19/2023

Surrogate Summary

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 (80-120)	DBFM (80-128)	TOL (80-120)					
310-266122-1	MW1	104	105	94					
LCS 310-401416/6	Lab Control Sample	101	98	99					
MB 310-401416/5	Method Blank	104	105	96					

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

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

Lab Sample ID: MB 310-401416/5
Matrix: Water
Analysis Batch: 401416

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			10/04/23 09:59	1

Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		80 - 120					10/04/23 09:59	1
Dibromofluoromethane (Surr)	105		80 - 128					10/04/23 09:59	1
Toluene-d8 (Surr)	96		80 - 120					10/04/23 09:59	1

Lab Sample ID: LCS 310-401416/6
Matrix: Water
Analysis Batch: 401416

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	39.04		ug/L		98	50 - 150	

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	98		80 - 128
Toluene-d8 (Surr)	99		80 - 120

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 310-403107/3
Matrix: Water
Analysis Batch: 403107

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			10/18/23 19:56	1
Fluoride	<0.200		0.200		mg/L			10/18/23 19:56	1
Sulfate	<1.00		1.00		mg/L			10/18/23 19:56	1

Lab Sample ID: LCS 310-403107/35
Matrix: Water
Analysis Batch: 403107

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	9.877		mg/L		99	90 - 110	
Fluoride			2.00	1.935		mg/L		97	90 - 110	
Sulfate			10.0	10.55		mg/L		106	90 - 110	

Lab Sample ID: 310-266122-1 MS
Matrix: Water
Analysis Batch: 403107

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	6.38		25.0	28.94		mg/L		90	80 - 120	
Fluoride	<1.00		5.00	4.572		mg/L		91	80 - 120	

Client: EB Solutions, Inc

Project/Site: Crawford Project

Job ID: 310-266122-1

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

Lab Sample ID: 310-266122-1 MS
Matrix: Water
Analysis Batch: 403107

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	927		500	1409		mg/L		96	80 - 120		

Lab Sample ID: 310-266122-1 MSD
Matrix: Water
Analysis Batch: 403107

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	6.38		25.0	29.23		mg/L		91	80 - 120	1	15
Fluoride	<1.00		5.00	4.605		mg/L		92	80 - 120	1	15

Lab Sample ID: 310-266122-1 MSD
Matrix: Water
Analysis Batch: 403107

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	927		500	1413		mg/L		97	80 - 120	0	15

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 310-401353/1-A
Matrix: Water
Analysis Batch: 401579

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 401353

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	<0.0500		0.0500		mg/L		10/04/23 08:45	10/04/23 22:41	1
Barium	<0.00200		0.00200		mg/L		10/04/23 08:45	10/04/23 22:41	1
Cadmium	<0.000200		0.000200		mg/L		10/04/23 08:45	10/04/23 22:41	1
Manganese	<0.0100		0.0100		mg/L		10/04/23 08:45	10/04/23 22:41	1
Zinc	<0.0200		0.0200		mg/L		10/04/23 08:45	10/04/23 22:41	1

Lab Sample ID: LCS 310-401353/2-A
Matrix: Water
Analysis Batch: 401579

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 401353

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Aluminum	0.200	0.2199		mg/L		110	80 - 120	
Barium	0.100	0.09840		mg/L		98	80 - 120	
Cadmium	0.100	0.1005		mg/L		100	80 - 120	
Manganese	0.100	0.09325		mg/L		93	80 - 120	
Zinc	0.200	0.2076		mg/L		104	80 - 120	

Lab Sample ID: MB 310-401345/1-B
Matrix: Water
Analysis Batch: 402453

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 402033

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00200		0.00200		mg/L		10/10/23 10:00	10/12/23 16:03	1
Arsenic	<0.00200		0.00200		mg/L		10/10/23 10:00	10/12/23 16:03	1
Boron	<0.100		0.100		mg/L		10/10/23 10:00	10/12/23 16:03	1
Cobalt	<0.000500		0.000500		mg/L		10/10/23 10:00	10/12/23 16:03	1

Eurofins Cedar Falls

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

Lab Sample ID: MB 310-401345/1-B
Matrix: Water
Analysis Batch: 402453

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 402033

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.100		0.100		mg/L		10/10/23 10:00	10/12/23 16:03	1
Manganese	<0.0100		0.0100		mg/L		10/10/23 10:00	10/12/23 16:03	1
Molybdenum	<0.00200		0.00200		mg/L		10/10/23 10:00	10/12/23 16:03	1

Lab Sample ID: LCS 310-401345/2-B
Matrix: Water
Analysis Batch: 402453

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 402033

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	0.200	0.2066		mg/L		103	80 - 120
Cobalt	0.100	0.1029		mg/L		103	80 - 120
Iron	0.200	0.1943		mg/L		97	80 - 120
Manganese	0.100	0.09248		mg/L		92	80 - 120
Molybdenum	0.200	0.1897		mg/L		95	80 - 120

Lab Sample ID: LCS 310-401345/2-B
Matrix: Water
Analysis Batch: 402519

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 402033

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.200	0.2242		mg/L		112	80 - 120
Boron	0.200	0.1730		mg/L		86	80 - 120

Lab Sample ID: 310-266122-1 MS
Matrix: Water
Analysis Batch: 402453

Client Sample ID: MW1
Prep Type: Dissolved
Prep Batch: 402033

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	<0.00200		0.200	0.2183		mg/L		109	75 - 125
Arsenic	<0.00200		0.200	0.1894		mg/L		94	75 - 125
Boron	0.170		0.200	0.3563		mg/L		93	75 - 125
Cobalt	<0.000500		0.100	0.09272		mg/L		92	75 - 125
Iron	<0.100	F1 F2	0.200	0.1779		mg/L		89	75 - 125
Manganese	0.0753		0.100	0.1578		mg/L		83	75 - 125
Molybdenum	0.00264		0.200	0.1808		mg/L		89	75 - 125

Lab Sample ID: 310-266122-1 MSD
Matrix: Water
Analysis Batch: 402453

Client Sample ID: MW1
Prep Type: Dissolved
Prep Batch: 402033

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	<0.00200		0.200	0.2416		mg/L		121	75 - 125	10	20
Arsenic	<0.00200		0.200	0.2088		mg/L		104	75 - 125	10	20
Boron	0.170		0.200	0.3596		mg/L		95	75 - 125	1	20
Cobalt	<0.000500		0.100	0.1025		mg/L		102	75 - 125	10	20
Iron	<0.100	F1 F2	0.200	0.4144	F1 F2	mg/L		207	75 - 125	80	20
Manganese	0.0753		0.100	0.1698		mg/L		95	75 - 125	7	20
Molybdenum	0.00264		0.200	0.2013		mg/L		99	75 - 125	11	20

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QC Sample Results

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 310-401622/1-A
Matrix: Water
Analysis Batch: 401670

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 401622

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	<0.500		0.500		mg/L		10/05/23 11:29	10/06/23 00:41	1

Lab Sample ID: LCS 310-401622/2-A
Matrix: Water
Analysis Batch: 401670

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 401622

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Ammonia as N			4.00	3.892		mg/L		97	90 - 110	

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

Lab Sample ID: MB 680-803120/1-A
Matrix: Water
Analysis Batch: 803181

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 803120

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	<40.0		40.0		ug/L		10/16/23 07:30	10/16/23 09:45	1

Lab Sample ID: LCS 680-803120/2-A
Matrix: Water
Analysis Batch: 803181

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 803120

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Halogens, Total Organic			400	396.8		ug/L		99	60 - 140	

Lab Sample ID: 310-266122-1 MS
Matrix: Water
Analysis Batch: 803181

Client Sample ID: MW1
Prep Type: Total/NA
Prep Batch: 803120

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	
Halogens, Total Organic	<40.0		400	296.4		ug/L		69	60 - 140	

Lab Sample ID: 310-266122-1 MSD
Matrix: Water
Analysis Batch: 803181

Client Sample ID: MW1
Prep Type: Total/NA
Prep Batch: 803120

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	309.9		ug/L		73	60 - 140	4	40

Method: 9066 - Phenolics, Total Recoverable

Lab Sample ID: MB 310-401476/1-A
Matrix: Water
Analysis Batch: 401525

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 401476

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	<0.0220		0.0220		mg/L		10/04/23 12:04	10/04/23 21:08	1

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Method: 9066 - Phenolics, Total Recoverable (Continued)

Lab Sample ID: LCS 310-401476/2-A
Matrix: Water
Analysis Batch: 401525

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 401476

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Phenols, Total			0.100	0.1085		mg/L		109	90 - 110		

Lab Sample ID: 310-266122-1 MS
Matrix: Water
Analysis Batch: 401525

Client Sample ID: MW1
Prep Type: Total/NA
Prep Batch: 401476

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Phenols, Total	<0.0216		0.100	0.1071		mg/L		107	76 - 124		

Lab Sample ID: 310-266122-1 MSD
Matrix: Water
Analysis Batch: 401525

Client Sample ID: MW1
Prep Type: Total/NA
Prep Batch: 401476

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Phenols, Total	<0.0216		0.100	0.1119		mg/L		112	76 - 124	4	14

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

Lab Sample ID: MB 310-401337/1
Matrix: Water
Analysis Batch: 401337

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			10/03/23 13:42	1

Lab Sample ID: LCS 310-401337/2
Matrix: Water
Analysis Batch: 401337

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	96.00		mg/L		96	75 - 116		

Method: SM 5220D - COD

Lab Sample ID: MB 310-402150/5
Matrix: Water
Analysis Batch: 402150

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			10/11/23 09:00	1

Lab Sample ID: LCS 310-402150/3
Matrix: Water
Analysis Batch: 402150

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		

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Method: SM 5220D - COD (Continued)

Lab Sample ID: 310-266122-1 MS
Matrix: Water
Analysis Batch: 402150

Client Sample ID: MW1
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	316.5		mg/L		127	81 - 144		

Lab Sample ID: 310-266122-1 MSD
Matrix: Water
Analysis Batch: 402150

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
Chemical Oxygen Demand	<25.0		250	304.4		mg/L		122	81 - 144	4	15

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GC/MS VOA

Analysis Batch: 401416

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-266122-1	MW1	Total/NA	Water	8260D	
MB 310-401416/5	Method Blank	Total/NA	Water	8260D	
LCS 310-401416/6	Lab Control Sample	Total/NA	Water	8260D	

HPLC/IC

Analysis Batch: 403107

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-266122-1	MW1	Total/NA	Water	9056A	
310-266122-1	MW1	Total/NA	Water	9056A	
MB 310-403107/3	Method Blank	Total/NA	Water	9056A	
LCS 310-403107/35	Lab Control Sample	Total/NA	Water	9056A	
310-266122-1 MS	MW1	Total/NA	Water	9056A	
310-266122-1 MS	MW1	Total/NA	Water	9056A	
310-266122-1 MSD	MW1	Total/NA	Water	9056A	
310-266122-1 MSD	MW1	Total/NA	Water	9056A	

Metals

Filtration Batch: 401345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-266122-1	MW1	Dissolved	Water	Filtration	
MB 310-401345/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-401345/2-B	Lab Control Sample	Dissolved	Water	Filtration	
310-266122-1 MS	MW1	Dissolved	Water	Filtration	
310-266122-1 MSD	MW1	Dissolved	Water	Filtration	

Prep Batch: 401353

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-266122-1	MW1	Total/NA	Water	3005A	
MB 310-401353/1-A	Method Blank	Total/NA	Water	3005A	
LCS 310-401353/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 401579

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-266122-1	MW1	Total/NA	Water	6020B	401353
MB 310-401353/1-A	Method Blank	Total/NA	Water	6020B	401353
LCS 310-401353/2-A	Lab Control Sample	Total/NA	Water	6020B	401353

Analysis Batch: 401734

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-266122-1	MW1	Total/NA	Water	6020B	401353

Prep Batch: 402033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-266122-1	MW1	Dissolved	Water	3005A	401345
MB 310-401345/1-B	Method Blank	Dissolved	Water	3005A	401345
LCS 310-401345/2-B	Lab Control Sample	Dissolved	Water	3005A	401345
310-266122-1 MS	MW1	Dissolved	Water	3005A	401345
310-266122-1 MSD	MW1	Dissolved	Water	3005A	401345

Eurofins Cedar Falls

QC Association Summary

Metals

Analysis Batch: 402453

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-266122-1	MW1	Dissolved	Water	6020B	402033
MB 310-401345/1-B	Method Blank	Dissolved	Water	6020B	402033
LCS 310-401345/2-B	Lab Control Sample	Dissolved	Water	6020B	402033
310-266122-1 MS	MW1	Dissolved	Water	6020B	402033
310-266122-1 MSD	MW1	Dissolved	Water	6020B	402033

Analysis Batch: 402519

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 310-401345/2-B	Lab Control Sample	Dissolved	Water	6020B	402033

General Chemistry

Analysis Batch: 401337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-266122-1	MW1	Total/NA	Water	I-3765-85	
MB 310-401337/1	Method Blank	Total/NA	Water	I-3765-85	
LCS 310-401337/2	Lab Control Sample	Total/NA	Water	I-3765-85	

Prep Batch: 401476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-266122-1	MW1	Total/NA	Water	Distill/Phenol	
MB 310-401476/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 310-401476/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	
310-266122-1 MS	MW1	Total/NA	Water	Distill/Phenol	
310-266122-1 MSD	MW1	Total/NA	Water	Distill/Phenol	

Analysis Batch: 401525

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-266122-1	MW1	Total/NA	Water	9066	401476
MB 310-401476/1-A	Method Blank	Total/NA	Water	9066	401476
LCS 310-401476/2-A	Lab Control Sample	Total/NA	Water	9066	401476
310-266122-1 MS	MW1	Total/NA	Water	9066	401476
310-266122-1 MSD	MW1	Total/NA	Water	9066	401476

Prep Batch: 401622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-266122-1	MW1	Total/NA	Water	Distill/Ammonia	
MB 310-401622/1-A	Method Blank	Total/NA	Water	Distill/Ammonia	
LCS 310-401622/2-A	Lab Control Sample	Total/NA	Water	Distill/Ammonia	

Analysis Batch: 401670

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-266122-1	MW1	Total/NA	Water	350.1	401622
MB 310-401622/1-A	Method Blank	Total/NA	Water	350.1	401622
LCS 310-401622/2-A	Lab Control Sample	Total/NA	Water	350.1	401622

Analysis Batch: 402150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-266122-1	MW1	Total/NA	Water	SM 5220D	
MB 310-402150/5	Method Blank	Total/NA	Water	SM 5220D	
LCS 310-402150/3	Lab Control Sample	Total/NA	Water	SM 5220D	

Eurofins Cedar Falls

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

General Chemistry (Continued)

Analysis Batch: 402150 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-266122-1 MS	MW1	Total/NA	Water	SM 5220D	
310-266122-1 MSD	MW1	Total/NA	Water	SM 5220D	

Prep Batch: 803120

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-266122-1	MW1	Total/NA	Water	Carbon Trap	
MB 680-803120/1-A	Method Blank	Total/NA	Water	Carbon Trap	
LCS 680-803120/2-A	Lab Control Sample	Total/NA	Water	Carbon Trap	
310-266122-1 MS	MW1	Total/NA	Water	Carbon Trap	
310-266122-1 MSD	MW1	Total/NA	Water	Carbon Trap	

Analysis Batch: 803181

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-266122-1	MW1	Total/NA	Water	9020B	803120
MB 680-803120/1-A	Method Blank	Total/NA	Water	9020B	803120
LCS 680-803120/2-A	Lab Control Sample	Total/NA	Water	9020B	803120
310-266122-1 MS	MW1	Total/NA	Water	9020B	803120
310-266122-1 MSD	MW1	Total/NA	Water	9020B	803120

Eurofins Cedar Falls

10/19/2023

Lab Chronicle

Client Sample ID: MW1

Lab Sample ID: 310-266122-1

Date Collected: 09/29/23 11:13

Matrix: Water

Date Received: 10/03/23 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	401416	WSE8	EET CF	10/04/23 17:37
Total/NA	Analysis	9056A		5	403107	QTZ5	EET CF	10/18/23 20:20
Total/NA	Analysis	9056A		100	403107	QTZ5	EET CF	10/19/23 09:46
Dissolved	Filtration	Filtration			401345	KCK5	EET CF	10/03/23 14:22
Dissolved	Prep	3005A			402033	KCK5	EET CF	10/10/23 10:00
Dissolved	Analysis	6020B		1	402453	A6US	EET CF	10/12/23 16:07
Total/NA	Prep	3005A			401353	KCK5	EET CF	10/04/23 08:45
Total/NA	Analysis	6020B		1	401579	A6US	EET CF	10/04/23 23:19
Total/NA	Prep	3005A			401353	KCK5	EET CF	10/04/23 08:45
Total/NA	Analysis	6020B		1	401734	A6US	EET CF	10/05/23 15:27
Total/NA	Prep	Distill/Ammonia			401622	MQ8M	EET CF	10/05/23 11:29
Total/NA	Analysis	350.1		1	401670	ZJX4	EET CF	10/06/23 00:53
Total/NA	Prep	Carbon Trap			803120	CLJ	EET SAV	10/16/23 07:30
Total/NA	Analysis	9020B		1	803181	CLJ	EET SAV	10/16/23 11:53
Total/NA	Prep	Distill/Phenol			401476	A3GU	EET CF	10/04/23 12:04
Total/NA	Analysis	9066		1	401525	ZJX4	EET CF	10/04/23 21:09
Total/NA	Analysis	I-3765-85		1	401337	DGU1	EET CF	10/03/23 13:42
Total/NA	Analysis	SM 5220D		5	402150	ENB7	EET CF	10/11/23 09:00

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

Laboratory: Eurofins Cedar Falls
The accreditations/certifications listed below are applicable to this report.

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

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 DEQ	State	19-015-0	02-01-24
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	11-30-23
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	12-31-23
Maine	State	GA00006	09-25-24
Maryland	State	250	12-31-23
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	12-31-23
Pennsylvania	NELAP	68-00474	06-30-24
Puerto Rico	State	GA00006	01-01-24
South Carolina	State	98001	06-30-23 *
Tennessee	State	TN02961	06-30-24
Texas	NELAP	T1047004185	11-30-23
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

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

Eurofins Cedar Falls

Method Summary

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

Eurofins Cedar Falls

10/19/2023

310-266122 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: EB

City/State: CITY ___ STATE _A_ Project:

Receipt Information

Date/Time Received: DATE 10/3/23 TIME 900 Received By: SZ

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☐ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☑ Yes ☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☐ Yes ☑ No	*If yes:* Cooler # ____ of ____
Cooler Custody Seals Present?	☐ Yes ☑ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes ☑ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes ☑ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: P   Correction Factor (°C): O

Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 1.6   Corrected Temp (°C): 1.6

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? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Document. CED-P-SAM-FRM45521
Revision: 26
Date: 27 Jan 2022
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Eurofins Cedar Falls
General temperature criteria is 0 to 6°C 10/19/2023
Bacteria temperature criteria is 0 to 10°C

Chain of Custody Record

TestAmerica Cedar Falls
704 Enterprise Drive
Cedar Falls, IA 50613
Phone (319) 277-2401 Fax (319) 277-2425

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

COC No: 310-36804-12214 1
Page: Page 1 of 1
Job #:
Vcr 08/04/2016

Client Information	
Sampler:	ED Bertch
Client Contact:	Lab PM: Bindert, Zach T
Edward Bertch	Phone:
	E-Mail: zach.bindert@testamericainc.com
Company	Due Date Requested:
EB Solutions, Inc	
Address:	TAT Requested (days):
5060 4th St. SW	
City	
Cedar Rapids	PO #:
State, Zip:	
IA, 52404	WO #:
Phone:	
Email:	Project #: 31007226
edbertch@ebsolutionsinc-web.com	Project Name: Crawford Project
	Site
	SSOW#:

Carrier Tracking No(s):

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	Z - other (specify)
Other	

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab) Preservation Code:	Matrix (W=water, S=solid, O=waste/oil, BT=tissue, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D - 2,4-Dinitrotoluene, Pyridine, Pentachlor	Ammonia - 350.1, 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	1.3765_85 - Residue, Non-filterable (TSS)	9020B - Total Organic Halides (TOX)	Total Number of containers	Special Instructions/Note:
							N	S	N	N	D	S	A	N	S		
MW1	9-25-23	11:13	G	Water			X	X	X	X	X	X		X	X	12	
				Water			X	X	X	X	X	X		X	X	12	
				Water			X	X	X	X	X	X		X	X	12	
				Water			X	X	X	X	X	X		X	X	12	
				Water			X	X	X	X	X	X		X	X	12	
				Water			X	X	X	X	X	X		X	X	12	
				Water			X	X	X	X	X	X		X	X	12	
				Water			X	X	X	X	X	X		X	X	12	
				Water			X	X	X	X	X	X		X	X	12	
				Water			X	X	X	X	X	X		X	X	12	
Trip Blank				Water			X	X	X	X	X	X	X	X	X	3	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Deliverable Requested I, II, III, IV, Other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by: Date: Time: Method of Shipment:

	Date/Time	Company		Received by	Company
Relinquished by: [signature]	10/2/23 - 9:00	EB Solutions	Received by [signature]		
Relinquished by: [signature]	Date/Time:	Company	Received by	Date/Time: 10/3/23 9:00	Company
Relinquished by:	Date/Time:	Company	Received by	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No   Custody Seal No   Cooler Temperature(s) °C and Other Remarks: 5 L

Page 23 of 26   10/19/2023

Chain of Custody Record

eurofins | Environment Testing

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

COC No: 310-65890.1
Page: Page 1 of 1
Job #: 310-266122-1

Carrier Tracking No(s):

Lab PM: Bindert, Zach T
E-Mail: Zach.Bindert@et.eurofinsus.com

State of Origin: Iowa

Client Information (Sub Contract Lab)

Sampler:

Client Contact: Shipping/Receiving

Phone:

Company: Eurofins Environment Testing Southeast,

Due Date Requested: 10/23/2023
TAT Requested (days):

Address: 5102 LaRoche Avenue,
City: Savannah
State, Zip: GA, 31404
Phone: 912-354-7858(Tel) 912-352-0165(Fax)
Email:

PO #:
WO #:

Project Name: Crawford Project
Site:

Project #: 31007226
SSOW#:

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:

Accreditations Required (See note):
State Program - Iowa

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)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9020B/Carbon_Trap	Total Number of Containers	Special Instructions/Note:
MW1 (310-266122-1)	9/29/23	11:13 Central		Water				X	1	

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
Unconfirmed

Deliverable Requested: I, II, III, IV, Other (specify)
Primary Deliverable Rank: 2

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client   ☐ Disposal By Lab   ☐ Archive For _____ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by: Date: Time: Method of Shipment:

Relinquished by:	Date/Time: 10 3 23 1235	Company
Relinquished by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company

Received by:	Date/Time: 10/4/23 10:40	Company
Received by:	Date/Time:	Company
Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No
Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 1.3 1.0

Login Sample Receipt Checklist

Client: EB Solutions, Inc

Job Number: 310-266122-1

Login Number: 266122
List Number: 1
Creator: Lage, Sydney

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.	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: 310-266122-1

Login Number: 266122
List Number: 2
Creator: Harley, Tynisha

List Source: Eurofins Savannah
List Creation: 10/04/23 12:48 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	

Eurofins Cedar Falls

10/19/2023

Keystone LABORATORIES
A Microbac Company

NELAP ACCREDITED LABORATORY TNI

MEMBER ACIL

ANALYTICAL REPORT

Work Order: 1GD1295

Report To	Work Order Information
Ed Bertch	Date Received: 4/13/2023 11:30:00AM
EB Solutions, Inc.	Collector: Bertch, Ed
5060 4th St SW	Phone: (319) 531-8487
Cedar Rapids, IA 52404	PO Number:

Project: Water Analysis

Project Number: Crawford

Analyte		Result	MRL	Batch	Method	Analyst	Analyzed	Qualifier
1GD1295-01	MW1				Matrix: Water		Collected: 04/11/23 09:15	
Formaldehyde		<10.0 ug/L	10.0	1GD0726	EPA 8315	EPP	04/17/23 11:25	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.

EB Solutions, Inc.
5060 4th St SW
Cedar Rapids, IA 52404

Work Order: 1GD1295

Determination of Carbonyl Compounds - Quality Control

Keystone Laboratories - Newton

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1GD0726 - EPA 8315 Aldehydes										
Blank (1GD0726-BLK1)				Prepared: 04/14/23 Analyzed: 04/17/23						
Formaldehyde	ND	10.0	ug/L							
LCS (1GD0726-BS1)				Prepared: 04/14/23 Analyzed: 04/17/23						
Formaldehyde	521.6	10.0	ug/L	500.000		104	61-142			
MRL Check (1GD0726-MRL1)				Prepared: 04/14/23 Analyzed: 04/17/23						
Formaldehyde	36.70	10.0	ug/L	20.0000		184	0-200			
Matrix Spike (1GD0726-MS1)		Source: 1GD1295-01		Prepared: 04/14/23 Analyzed: 04/17/23						
Formaldehyde	510.2	10.0	ug/L	500.000	ND	102	48-148			
Matrix Spike Dup (1GD0726-MSD1)		Source: 1GD1295-01		Prepared: 04/14/23 Analyzed: 04/17/23						
Formaldehyde	498.7	10.0	ug/L	500.000	ND	99.7	48-148	2.28	30	

ND = Non Detect; REC= Recovery; RPD= Relative Percent Difference

Certified Analyses Included In This Report

Method/Matrix	Analyte	Certifications
EPA 8315 in Water		
	Formaldehyde	SIA1X

Code	Description	Number	Expires
KS-KC	Kansas Department of Health and Environment-KC	E-10110	04/30/2023
KS-NT	Kansas Department of Health and Environment (NELAP)	E-10287	10/31/2023
MO-KC	Missouri Department of Natural Resources (KC)	140	04/30/2023
MO-NT	Missouri Department of Natural Resources (Newton)	10170	04/30/2026
SIA1X	Iowa Dept. of Natural Resources	95	02/01/2024

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.

EB Solutions, Inc.
5060 4th St SW
Cedar Rapids, IA 52404

April 18, 2023
Page 3 of 4

Work Order: 1GD1295

End of Report

Sue Thompson

Keystone Laboratories

Sue Thompson
Client Services Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.

CHAIN OF CUSTODY RE

Keystone LABORATORIES, INC.

600 E. 17th St S
Newton, IA. 50208
Phone:641-792-8451

3012 Ansborough Ave
Waterloo, IA. 50701
Phone:319-235-4440

EB Solutions, Inc.
PM: Sue Thompson

1 G D 1 2 9 5

t
i44
)23

PRINT OR TYPE INFO BELOW:

SAMPLER: Ed Bertch
SITE NAME: Crawford
ADDRESS: 5707 F Avenue NW
CITY/ST/ZIP: Cedar Rapids, Iowa
PHONE:

REPORT TO:

NAME: Ed Bertch
CO. NAME: EB Solutions, Inc.
ADDRESS: 5060 4th Street SW
CITY/ST/ZIP: Cedar Rapids, Iowa 52404
PHONE: 319-249-3293
Email: edbertch@ebsolutionsinc-web.com

BILL TO:

NAME: Same as Report
CO. NAME:
ADDRESS:
CITY/ST/ZIP:
PHONE:
Email:

LAB USE ONLY

Wk Order #: 1GD1295
Short Hold:
Rush:
Temp.: oC 0.7 ice ✓

CLIENT SAMPLE #	DATE	TIME	# OF CONTAINERS	MATRIX	GRAB/COMPOSITE	Formaldehyde	ANALYSES REQUIRED						Sample Condition	Sample #
MW1	4/11/23	9:15	2	GW	Grab	X								01

Relinquished by: (Signature) ___ Date: 4/12/23 Time: 5:15
Received by: (Signature) ___ Date: ___ Time: ___

Relinquished by: (Signature) ___ Date: ___ Time: ___
Received for Lab by: (Signature) Linda Madsen Date: 4/13/23 Time: 11:30

Remarks:

Keystone
LABORATORIES
A Microbac Company

NELAP ACCREDITED LABORATORY — TNI

MEMBER ACIL

ANALYTICAL REPORT

April 25, 2023

Work Order: **1GD1824**

Report To
Ed Bertch
EB Solutions, Inc.
5060 4th St SW
Cedar Rapids, IA 52404

Work Order Information
Date Received: 4/19/2023 11:20:00AM
Collector: Bertch, Ed
Phone: (319) 531-8487
PO Number: Crawford

Project: Water Analysis

Project Number: Crawford

Analyte	Result	MRL	Batch	Method	Analyst	Analyzed	Qualifier
1GD1824-01	MW4			Matrix: Water		Collected: 04/17/23 09:30	
Formaldehyde	<10.0 ug/L	10.0	1GD0999	EPA 8315	EPP	04/21/23 10:44	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.

EB Solutions, Inc.
5060 4th St SW
Cedar Rapids, IA 52404

Work Order: 1GD1824

Determination of Carbonyl Compounds - Quality Control

Keystone Laboratories - Newton

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1GD0999 - EPA 8315 Aldehydes										
Blank (1GD0999-BLK1)				Prepared: 04/20/23 Analyzed: 04/21/23						
Formaldehyde	ND	10.0	ug/L							
LCS (1GD0999-BS1)				Prepared: 04/20/23 Analyzed: 04/21/23						
Formaldehyde	508.6	10.0	ug/L	500.000		102	61-142			
MRL Check (1GD0999-MRL1)				Prepared: 04/20/23 Analyzed: 04/21/23						
Formaldehyde	35.70	10.0	ug/L	20.0000		178	0-200			

ND = Non Detect; REC= Recovery; RPD= Relative Percent Difference

Certified Analyses Included In This Report

Method/Matrix	Analyte	Certifications
EPA 8315 in Water		
	Formaldehyde	SIA1X

Code	Description	Number	Expires
KS-KC	Kansas Department of Health and Environment-KC	E-10110	04/30/2023
KS-NT	Kansas Department of Health and Environment (NELAP)	E-10287	10/31/2023
MO-KC	Missouri Department of Natural Resources (KC)	140	04/30/2023
MO-NT	Missouri Department of Natural Resources (Newton)	10170	04/30/2026
SIA1X	Iowa Dept. of Natural Resources	95	02/01/2024

End of Report

Sue Thompson

Keystone Laboratories

Sue Thompson
Client Services Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.

Keystone LABORATORIES, INC.

CHAIN OF CUSTODY

1 G D 1 8 2 4

600 E. 17th St. S
Newton, IA. 50208
Phone:641-792-8451

3012 Ansborou
Waterloo, IA. 5
Phone:319-23!

EB Solutions, Inc.
PM: Sue Thompson

I Buren St
e, IA. 52544
41-437-7023

PRINT OR TYPE INFO BELOW:

SAMPLER: Ed Bertch
SITE NAME: Crawford
ADDRESS: 5707 F Avenue NW
CITY/ST/ZIP: Cedar Rapids, Iowa
PHONE:

REPORT TO:

NAME: Ed Bertch
CO. NAME: EB Solutions, Inc.
ADDRESS: 5060 4th Street SW
CITY/ST/ZIP: Cedar Rapids, Iowa 52404
PHONE: 319-249-3293
Email: edbertch@ebsolutionsinc-web.com

BILL TO:

NAME: Same as Report
CO. NAME:
ADDRESS:
CITY/ST/ZIP:
PHONE:
Email:

LAB USE ONLY

Wk Order #: 1GD1524
Short Hold:
Rush:
Temp. oC 0.0 √ice
Sample # 01

Sample Condition:

CLIENT SAMPLE #	DATE	TIME	# OF CONTAINERS	MATRIX	GRAB/COMPOSITE	Formaldehyde
MW4	4/17/23	9:30	2	GW	Grab	X

ANALYSES REQUIRED

Relinquished by: (Signature) Date: 4/18/23 Time: 9()
Relinquished by: (Signature) Date: Time:

Received by: (Signature) Date: Time:
Received for Lab by: (Signature) Date: 4/19/23 Time: 11:20

Remarks:

Keystone LABORATORIES
A Microbac Company

NELAP ACCREDITED LABORATORY TNI

MEMBER ACIL

ANALYTICAL REPORT

May 02, 2023

Work Order: **1GD2786**

Report To
Ed Bertch
EB Solutions, Inc.
5060 4th St SW
Cedar Rapids, IA 52404

Work Order Information
Date Received: 4/27/2023 11:30:00AM
Collector: Bertch, Ed
Phone: (319) 531-8487
PO Number:

Project: Water Analysis

Project Number: [none]

Analyte	Result	MRL	Batch	Method	Analyst	Analyzed	Qualifier
1GD2786-01	MW2			Matrix: Water		Collected: 04/25/23 11:45	
Formaldehyde	<10.0 ug/L	10.0	1GD1396	EPA 8315	EPP	04/28/23 9:38	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.

EB Solutions, Inc.
5060 4th St SW
Cedar Rapids, IA 52404

Determination of Carbonyl Compounds - Quality Control

Keystone Laboratories - Newton

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1GD1396 - EPA 8315 Aldehydes										
Blank (1GD1396-BLK1)				Prepared: 04/27/23 Analyzed: 04/28/23						
Formaldehyde	ND	10.0	ug/L							
LCS (1GD1396-BS1)				Prepared: 04/27/23 Analyzed: 04/28/23						
Formaldehyde	544.1	10.0	ug/L	500.000		109	61-142			
MRL Check (1GD1396-MRL1)				Prepared: 04/27/23 Analyzed: 04/28/23						
Formaldehyde	21.70	10.0	ug/L	20.0000		108	0-200			
Matrix Spike (1GD1396-MS1)		Source: 1GD2477-01		Prepared: 04/27/23 Analyzed: 04/28/23						
Formaldehyde	589.3	10.0	ug/L	500.000	10.90	116	48-148			
Matrix Spike Dup (1GD1396-MSD1)		Source: 1GD2477-01		Prepared: 04/27/23 Analyzed: 04/28/23						
Formaldehyde	562.9	10.0	ug/L	500.000	10.90	110	48-148	4.58	30	

ND = Non Detect; REC= Recovery; RPD= Relative Percent Difference

Certified Analyses Included In This Report

Method/Matrix	Analyte	Certifications
EPA 8315 in Water		
	Formaldehyde	SIA1X

Code	Description	Number	Expires
KS-KC	Kansas Department of Health and Environment-KC	E-10110	04/30/2024
KS-NT	Kansas Department of Health and Environment (NELAP)	E-10287	10/31/2023
MO-KC	Missouri Department of Natural Resources (KC)	140	04/30/2023
MO-NT	Missouri Department of Natural Resources (Newton)	10170	04/30/2026
SIA1X	Iowa Dept. of Natural Resources	95	02/01/2024

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.

EB Solutions, Inc.
5060 4th St SW
Cedar Rapids, IA 52404

End of Report

Keystone Laboratories

Sue Thompson
Client Services Manager

CHAIN OF CUSTODY R

Keystone LABORATORIES, INC.

600 E. 17th St. S
Newton, IA. 50208
Phone:641-792-8451

3012 Ansborough Av
Waterloo, IA. 50701
Phone:319-235-4440

1 G D 2 7 8 6

i St
52544
-7023

EB Solutions, Inc.
PM: Sue Thompson

PRINT OR TYPE INFO BELOW:

SAMPLER: Ed Bertch
SITE NAME: Crawford
ADDRESS: 5707 F Avenue NW
CITY/ST/ZIP: Cedar Rapids, Iowa
PHONE:

REPORT TO:

NAME: Ed Bertch
CO. NAME: EB Solutions, Inc.
ADDRESS: 5060 4th Street SW
CITY/ST/ZIP: Cedar Rapids, Iowa 52404
PHONE: 319-249-3293
Email: edbertch@ebsolutionsinc-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
MW2	4/25/23	11:45	2	GW	Grab	X	

Relinquished by: (Signature) Date: 4/26/23 Time: 10:45
Received by: (Signature) Date: Time:
Relinquished by: (Signature) Date: Time:
Received for Lab by: (Signature) Kyle Watson Date: 4/27/23 Time: 11:30

Remarks:

ANALYTICAL REPORT

Work Order: 1GE0490

Report To	Work Order Information
Ed Bertch EB Solutions, Inc. 5060 4th St SW Cedar Rapids, IA 52404	Date Received: 5/4/2023 10:30:00AM Collector: Bertch, Ed Phone: (319) 531-8487 PO Number:

Project: Water Analysis

Project Number: Crawford

Analyte	Result	MRL	Batch	Method	Analyst	Analyzed	Qualifier
1GE0490-01 MW5				Matrix: Water		Collected: 05/02/23 10:45	
Formaldehyde	<10.0 ug/L	10.0	1GE0297	EPA 8315	EPP	05/05/23 14:59	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.

EB Solutions, Inc.
5060 4th St SW
Cedar Rapids, IA 52404

Work Order: 1GE0490

May 08, 2023
Page 2 of 3

Determination of Carbonyl Compounds - Quality Control

Keystone Laboratories - Newton

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1GE0297 - EPA 8315 Aldehydes										
Blank (1GE0297-BLK1)				Prepared: 05/04/23 Analyzed: 05/05/23						
Formaldehyde	ND	10.0	ug/L							
LCS (1GE0297-BS1)				Prepared: 05/04/23 Analyzed: 05/05/23						
Formaldehyde	562.5	10.0	ug/L	500.000		112	61-142			
Matrix Spike (1GE0297-MS1)		**Source: 1GE0490-01**		Prepared: 05/04/23 Analyzed: 05/05/23						
Formaldehyde	530.7	10.0	ug/L	500.000	ND	106	48-148			
Matrix Spike Dup (1GE0297-MSD1)		**Source: 1GE0490-01**		Prepared: 05/04/23 Analyzed: 05/05/23						
Formaldehyde	504.8	10.0	ug/L	500.000	ND	101	48-148	5.00	30	

ND = Non Detect; REC= Recovery; RPD= Relative Percent Difference

Certified Analyses Included In This Report

Method/Matrix	Analyte	Certifications
EPA 8315 in Water		
	Formaldehyde	SIA1X

Code	Description	Number	Expires
KS-KC	Kansas Department of Health and Environment-KC	E-10110	04/30/2024
KS-NT	Kansas Department of Health and Environment (NELAP)	E-10287	10/31/2023
MO-KC	Missouri Department of Natural Resources (KC)	140	04/30/2023
MO-NT	Missouri Department of Natural Resources (Newton)	10170	04/30/2026
SIA1X	Iowa Dept. of Natural Resources	95	02/01/2024

End of Report

Keystone Laboratories

Sue Thompson

Client Services Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.

CHAIN OF CUSTODY RECORD

Keystone LABORATORIES, INC.

600 E. 17th St S
Newton, IA. 50208
Phone:641-792-8451

3012 Ansborough Ave
Waterloo, IA. 50701
Phone:319-235-4440

EB Solutions, Inc.
PM: Sue Thompson

1 G E 0 4 9 0

PRINT OR TYPE INFO BELOW:

SAMPLER:	Ed Bertch
SITE NAME:	Crawford
ADDRESS:	5707 F Avenue NW
CITY/ST/ZIP:	Cedar Rapids, Iowa
PHONE:	

REPORT TO:

NAME:	Ed Bertch
CO. NAME:	EB Solutions, Inc
ADDRESS:	5060 4th Street SW
CITY/ST/ZIP:	Cedar Rapids, Iowa 52404
PHONE:	319-249-3293
Email:	edbertch@ebsolutionsinc-web.com

BILL TO:

NAME:	Same as Report
CO. NAME:	
ADDRESS:	
CITY/ST/ZIP:	
PHONE:	
Email:	

LAB USE ONLY

Wk Order #:	1GE0490
Short Hold:	
Rush:	
Temp. oC	7.1 once
Sample Condition	
Sample #	01

CLIENT SAMPLE #	DATE	TIME	# OF CONTAINERS	MATRIX	GRAB/COMPOSITE	Formaldehyde	ANALYSES REQUIRED
MW5	5/2/23	10:45	2	GW	Grab	X	

Relinquished by: (Signature)	Date: 5-3-2023 Time: 10:00	Received by: (Signature)
Relinquished by: (Signature)	Date: Time:	Received for Lab by: (Signature) *Runaledica* Date: 5/4/23 Time: 1030

Remarks:

ANALYTICAL REPORT

Work Order: **1GE1243**

Report To	Work Order Information
Ed Bertch EB Solutions, Inc. 5060 4th St SW Cedar Rapids, IA 52404	Date Received: 5/11/2023 10:40:00AM Collector: Bertch, Ed Phone: (319) 531-8487 PO Number:

Project: Water Analysis

Project Number: [none]

Analyte	Result	MRL	Batch	Method	Analyst	Analyzed	Qualifier
1GE1243-01	MW3			Matrix: Water		Collected: 05/09/23 10:35	
Formaldehyde	<10.0 ug/L	10.0	1GE0604	EPA 8315	EPP	05/11/23 15:13	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety. Samples were preserved in accordance with 40 CFR for pH adjustment unless otherwise noted. MRL= Method Reporting Limit.

EB Solutions, Inc.
5060 4th St SW
Cedar Rapids, IA 52404

Work Order: 1GE1243

May 12, 2023
Page 2 of 4

Determination of Carbonyl Compounds - Quality Control

Keystone Laboratories - Newton

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1GE0604 - EPA 8315 Aldehydes										
Blank (1GE0604-BLK1)				Prepared: 05/10/23 Analyzed: 05/11/23						
Formaldehyde	ND	10.0	ug/L							
LCS (1GE0604-BS1)				Prepared: 05/10/23 Analyzed: 05/11/23						
Formaldehyde	535.6	10.0	ug/L	500.000		107	61-142			
MRL Check (1GE0604-MRL1)				Prepared: 05/10/23 Analyzed: 05/11/23						
Formaldehyde	25.00	10.0	ug/L	20.0000		125	0-200			
Matrix Spike (1GE0604-MS1)			Source: 1GE0904-01	Prepared: 05/10/23 Analyzed: 05/11/23						
Formaldehyde	576.9	10.0	ug/L	500.000	127.3	89.9	48-148			
Matrix Spike Dup (1GE0604-MSD1)			Source: 1GE0904-01	Prepared: 05/10/23 Analyzed: 05/11/23						
Formaldehyde	690.9	10.0	ug/L	500.000	127.3	113	48-148	18.0	30	

ND = Non Detect; REC= Recovery; RPD= Relative Percent Difference

Certified Analyses Included In This Report

Method/Matrix	Analyte	Certifications
EPA 8315 in Water		
	Formaldehyde	SIA1X

Code	Description	Number	Expires
KS-KC	Kansas Department of Health and Environment-KC	E-10110	04/30/2024
KS-NT	Kansas Department of Health and Environment (NELAP)	E-10287	10/31/2023
MO-KC	Missouri Department of Natural Resources (KC)	140	04/30/2023
MO-NT	Missouri Department of Natural Resources (Newton)	10170	04/30/2026
SIA1X	Iowa Dept. of Natural Resources	95	02/01/2024

EB Solutions, Inc.
5060 4th St SW
Cedar Rapids, IA 52404

May 12, 2023
Page 3 of 4

Work Order: 1GE1243

End of Report

Keystone Laboratories

Sue Thompson
Client Services Manager

CHAIN OF CUSTODY RECORD

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83
K₂
Pt

1 G E 1 2 4 3

EB Solutions, Inc.
PM: Sue Thompson

PRINT OR TYPE INFO BELOW:

SAMPLER:	Ed Bertch
SITE NAME:	Crawford
ADDRESS:	5707 F Avenue NW
CITY/ST/ZIP:	Cedar Rapids, Iowa
PHONE:	

REPORT TO:

NAME:	Ed Bertch
CO. NAME:	EB Solutions, Inc.
ADDRESS:	5060 4th Street SW
CITY/ST/ZIP:	Cedar Rapids, Iowa 52404
PHONE:	319-249-3293
Email:	edbertch@ebsolutionsinc-web.com

BILL TO:

NAME:	Same as Report
CO. NAME:	
ADDRESS:	
CITY/ST/ZIP:	
PHONE:	
Email:	

LAB USE ONLY

Wk Order #:	1GE1243
Short Hold:	
Rush:	
Temp. oC	0.06Dice
Sample Condition	
Sample #	01

ANALYSES REQUIRED

CLIENT SAMPLE #	DATE	TIME	# OF CONTAINERS	MATRIX	GRAB/COMPOSITE	Formaldehyde
MW3	5/9/23	10:35	2	GW	Grab	X

Relinquished by: (Signature)	Received by: (Signature)	Date:
Date: 5-10-23 Time: 10:40		Time:
Relinquished by: (Signature)	Received for Lab by: (Signature) Renee Watson	Date: 5/11/23 Time: 1040
Date: Time:		

Remarks:

Keystone
LABORATORIES
A Microbac Company

EB Solutions, Inc.

Ed Bertch
5060 4th St SW
Cedar Rapids, IA 52404

Project Name: Water Analysis

Project / PO Number: / Crawford
Received: 09/06/2023
Reported: 09/12/2023

Analytical Testing Parameters

Client Sample ID:	MW3		Collected By:	Bertch, Ed
Sample Matrix:	Water			
Lab Sample ID:	1GI0244-01		Collection Date:	09/01/2023 9:15

Determination of Carbonyl Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 8315								
Formaldehyde	<10.0	10.0	ug/L	1	**I-05**	09/07/23 0906	09/08/23 0856	PDS

Definitions

I-05:	Sample received at laboratory past hold time for this analyte.
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
09/12/23 14:54

Keystone
LABORATORIES, INC.

CHAIN OF CUSTODY

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le, IA. 52544
541-437-7023

EB Solutions, Inc.
PM: Heather Murphy

PRINT OR TYPE INFO BELOW:

SAMPLER:	Ed Bertch
SITE NAME:	Crawford
ADDRESS:	5707 F Avenue NW
CITY/ST/ZIP:	Cedar Rapids, Iowa
PHONE:	

REPORT TO:

NAME:	Ed Bertch
CO. NAME:	EB Solutions, Inc.
ADDRESS:	5060 4th Street SW
CITY/ST/ZIP:	Cedar Rapids, Iowa 5240.4
PHONE:	319-249-3293
Email:	edbertch@ebsolutionsinc-web.com

BILL TO:

NAME:	Same as Report
CO. NAME:	
ADDRESS:	
CITY/ST/ZIP:	
PHONE:	
Email:	

LAB USE ONLY

Wk Order #:	G I O 2 4 4
Short Hold:	
Rush:	
Temp. oC	0.0
Sample Condition	
Sample #	01

ANALYSES REQUIRED

CLIENT SAMPLE #	DATE	TIME	# OF CONTAINERS	MATRIX	GRAB/COMPOSITE	Formaldehyde
MW3	9/1/23	9:15	2	GW	Grab	X

Relinquished by: (Signature)   Date: 9/5/23   Time: 12:00

Received by: (Signature)   Date: Time:

Relinquished by: (Signature)   Date: Time:

Received for Lab by: (Signature)   Date: 9/4/23   Time: 315

Remarks:

EB Solutions, Inc.

Ed Bertch
5060 4th St SW
Cedar Rapids, IA 52404

Project Name: Water Analysis

Project / PO Number: / Crawford
Received: 09/12/2023
Reported: 09/14/2023

Analytical Testing Parameters

Client Sample ID:	MW4					Collected By:	Bertch, Ed	
Sample Matrix:	Water					Collection Date:	09/11/2023 9:30	
Lab Sample ID:	1GI0803-01							

Determination of Carbonyl Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 8315								
Formaldehyde	<10.0	10.0	ug/L	1		09/12/23 1444	09/13/23 1500	PDS

Definitions

RL: Reporting Limit

Report Comments

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Reviewed and Approved By:

Heather Murphy
Customer Relationship Specialist
heather.murphy@microbac.com
09/14/23 15:48

Keystone
LABORATORIES, INC.

CHAIN OF CUSTODY RECO

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Newton, IA. 50208
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3012 Ansborough Ave
Waterloo, IA. 50701
Phone:319-235-4440

EB Solutions, Inc.
PM: Heather Murphy

Barcode: 1 G I 0 8 0 3

				LAB USE ONLY
			Wk Order #:	1GI0803
			Short Hold:	
			Rush:	
			Temp. oC	0.0 on ice ✓
			Sample Condition:	Sample #
				01

PRINT OR TYPE INFO BELOW:

SAMPLER: Ed Bertch
SITE NAME: Crawford
ADDRESS: 5707 F Avenue NW
CITY/ST/ZIP: Cedar Rapids, Iowa
PHONE:

REPORT TO:

NAME: Ed Bertch
CO. NAME: EB Solutions, Inc.
ADDRESS: 5060 4th Street SW
CITY/ST/ZIP: Cedar Rapids, Iowa 52404
PHONE: 319-249-3293
Email: edbertch@ebsolutionsinc-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
MW4	9/11/23	9:30	2	GW	Grab	X	

Relinquished by: (Signature) Date: 9-11-23 Time: 10:00

Received by: (Signature) Date: Time:

Relinquished by: (Signature) Date: Time:

Received for Lab by: (Signature) Linda Nelson Date: 9/12/23 Time: 12:20

Remarks:

EB Solutions, Inc.

Ed Bertch
5060 4th St SW
Cedar Rapids, IA 52404

Project Name: Water Analysis

Project / PO Number: / Crawford
Received: 09/19/2023
Reported: 09/22/2023

Analytical Testing Parameters

Client Sample ID:	MW5								
Sample Matrix:	Water					Collected By:	Bertch, Ed		
Lab Sample ID:	1GI1404-01					Collection Date:	09/18/2023 8:47		

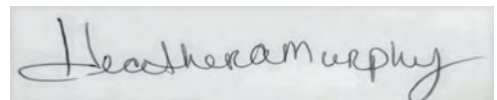| Determination of Carbonyl Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 8315								
Formaldehyde	<10.0	10.0	ug/L	1		09/21/23 0935	09/22/23 1002	EPP

Definitions

RL:	Reporting Limit

Report Comments

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Reviewed and Approved By:

Sue Thompson
Client Services Manager
09/22/23 19:17

CHAIN OF CUSTODY RECORD

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/an Buren St
ville, IA. 52544
: 641-437-7023

EB Solutions, Inc.
PM: Heather Murphy

PRINT OR TYPE INFO BELOW:

SAMPLER: Ed Bertch
SITE NAME: Crawford
ADDRESS: 5707 F Avenue NW
CITY/ST/ZIP: Cedar Rapids, Iowa
PHONE:

REPORT TO:

NAME: Ed Bertch
CO. NAME: EB Solutions, Inc.
ADDRESS: 5060 4th Street SW
CITY/ST/ZIP: Cedar Rapids, Iowa 52404
PHONE: 319-249-3293
Email: edbertch@ebsolutionsinc-web.com

BILL TO:

NAME: Same as Report
CO. NAME:
ADDRESS:
CITY/ST/ZIP:
PHONE:
Email:

LAB USE ONLY

Wk Order #:	1GI1404
Short Hold:	
Rush:	
Temp. oC	5.6 on ice
Sample Condition	
Sample #	01

CLIENT SAMPLE #	DATE	TIME	# OF CONTAINERS	MATRIX	GRAB/COMPOSITE	Formaldehyde	ANALYSES REQUIRED
MW5	9/18/23	8:47	2	GW	Grab	X	

Relinquished by: (Signature) Date: 9-18-23 Time: 9:00

Received by: (Signature) Date: Time:

Relinquished by: (Signature) Date: Time:

Received for Lab by: (Signature) Date: 9/19/23 Time: 10:30

Remarks:

EB Solutions, Inc.

Ed Bertch
5060 4th St SW
Cedar Rapids, IA 52404

Project Name: Water Analysis

Project / PO Number: / Crawford
Received: 09/26/2023
Reported: 09/29/2023

Analytical Testing Parameters

Client Sample ID:	MW2							
Sample Matrix:	Water					**Collected By:**	Bertch, Ed	
Lab Sample ID:	1GI2007-01					**Collection Date:**	09/25/2023 11:50	

Determination of Carbonyl Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 8315								
Formaldehyde	<20.0	20.0	ug/L	1		09/27/23 0848	09/29/23 0947	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
09/29/23 16:13

CHAIN OF CUSTODY RECORD

Keystone LABORATORIES, INC.

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Waterloo, IA. 50701
Phone:319-235-4440

EB Solutions, Inc.
PM: Heather Murphy

1 G I 2 0 0 7

PRINT OR TYPE INFO BELOW:

SAMPLER:	Ed Bertch
SITE NAME:	Crawford
ADDRESS:	5707 F Avenue NW
CITY/ST/ZIP:	Cedar Rapids, Iowa
PHONE:	

REPORT TO:

NAME:	Ed Bertch
CO. NAME:	EB Solutions, Inc.
ADDRESS:	5060 4th Street SW
CITY/ST/ZIP:	Cedar Rapids, Iowa 52404
PHONE:	319-249-3293
Email:	edbertch@ebsolutionsinc-web.com

BILL TO:

NAME:	Same as Report
CO. NAME:	
ADDRESS:	
CITY/ST/ZIP:	
PHONE:	
Email:	

ANALYSES REQUIRED

LAB USE ONLY

Wk Order #:	1GI2007
Short Hold:	
Rush:	
Temp. oC	1.4 °C
Sample Condition	
Sample #	01

CLIENT SAMPLE #	DATE	TIME	# OF CONTAINERS	MATRIX	GRAB/COMPOSITE	Formaldehyde						
MW2	9/25/23	11:50	2	GW	Grab	X						

Relinquished by: (Signature)   Date: 9-25-23   Time: 12:00
Received by: (Signature)   Date: Time:

Relinquished by: (Signature)   Date: Time:
Received for Lab by: (Signature)   Date: 9/26/23   Time: 12:05

Remarks:

Keystone
LABORATORIES
A Microbac Company

EB Solutions, Inc.

Ed Bertch
5060 4th St SW
Cedar Rapids, IA 52404

Project Name: Environmental Sampling

Project / PO Number: / [none]
Received: 10/03/2023
Reported: 10/10/2023

Analytical Testing Parameters

Client Sample ID:	MW1						
Sample Matrix:	Water				Collected By:	Bertch, Ed	
Lab Sample ID:	1GJ0121-01				Collection Date:	09/29/2023 11:13	

Determination of Carbonyl Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 8315								
Formaldehyde	<10.0	10.0	ug/L	1	**I-02, I-05**	10/04/23 1008	10/09/23 0936	PDS
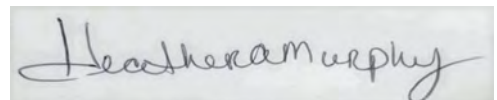
Definitions

I-02:	This result was analyzed outside of the EPA recommended holding time.
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
10/10/23 09:20

Keystone
LABORATORIES, INC.

CHAIN OF CUSTODY RE

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Waterloo, IA. 50701
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1 G J 0 1 2 1

EB Solutions, Inc.
PM: Heather Murphy

44
23

PRINT OR TYPE INFO BELOW:

SAMPLER:	Ed Bertch
SITE NAME:	Crawford
ADDRESS:	5707 F Avenue NW
CITY/ST/ZIP:	Cedar Rapids, Iowa
PHONE:	

REPORT TO:

NAME:	Ed Bertch
CO. NAME:	EB Solutions, Inc.
ADDRESS:	5060 4th Street SW
CITY/ST/ZIP:	Cedar Rapids, Iowa 52404
PHONE:	319-249-3293
Email:	edbertch@ebsolutionsinc-web.com

BILL TO:

NAME:	Same as Report
CO. NAME:	
ADDRESS:	
CITY/ST/ZIP:	
PHONE:	
Email:	

LAB USE ONLY

Wk Order #:	10 J 0121
Short Hold:	
Rush:	
Temp. oC	7.1
Sample Condition:	Sample # 01

CLIENT SAMPLE #	DATE	TIME	# OF CONTAINERS	MATRIX	GRAB/COMPOSITE	Formaldehyde	ANALYSES REQUIRED
MW1	9/29/23	11:13	2	GW	Grab	X	

Remarks:

Relinquished by: (Signature)	Received by: (Signature)		
Date: 1/28/23	Date:		
Time: 9:00	Time:		

Relinquished by: (Signature)	Received for Lab by: (Signature) John McMurry		
Date:	Date: 10/3/23		
Time:	Time: 1140		EB-EDF