2ND 2024 SEMI-ANNUAL DETECTION MONITORING REPORT

BLAYLOCK & BROWN LANDFILL
TDSWM PERMIT NUMBER DML #790000050
CLASS III (CONSTRUCTION/DEMOLITION WASTE) LANDFILL
10636 SHELTON ROAD, COLLIERVILLE, TENNESSEE 38017

Prepared For:
TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION - DIVISION OF SOLID WASTE MANAGEMENT

Prepared By:
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FRANKLIN, TENNESSEE

CEC PROJECT 328-417

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EXECUTIVE SUMMARY

Civil and Environmental Consultants, Inc. (CEC) has completed the second annual compliance monitoring event for 2024 at the Class III Blaylock & Brown Construction and Demolition Landfill (Permit DML 790000050) located at 10636 Shelton Road in Collierville, Shelby County, Tennessee (Site). Field activities were completed on November 21, 2024 and January 17, 2025. During the November 2024 sampling event, MW-3 was noted to have been damaged during ongoing construction activities and sampling was unable to take place. After weather related delays and Site closures, CEC remobilized on January 17, 2025 to collect a sample from MW-3.

Groundwater levels ranged from 258.90 feet above mean sea level (amsl) at well MW-5 to 261.79 feet amsl at well MW-1. Well MW-7, which has historically gauged dry at a total depth of 28.78 feet below top of casing was scoped in September 2024 with a downhole camera and determined to be blocked at that depth with what appears to be a rock or mud. Groundwater flow direction is to the north-northwest toward Wolf River at an estimated velocity of 140 feet per year (ft/yr).

Well MW-3 was found to be bent during the November 21, 2024 monitoring event and could not be sampled with the on-site equipment. It is unknown how the well was damaged since the bollards around the well are intact, but it is likely related to the truck traffic associated with closure activities. The facility was closed for much of December and early January. CEC staff returned to the Site on January 17, 2025 and successfully collected a sample from MW-3 utilizing a smaller diameter pump that was able to pass the bend in the well material. CEC staff attempted to straighten the well, but were unsuccessful in doing so.

Only one constituent was detected at a concentration above its respective screening value during the November 2024 monitoring event. Cobalt was detected in monitoring well MW-3 at a concentration greater than the US Environmental Protection Agency (EPA) Regional Screening Level (RSL) value of 0.006 mg/L for tap water (RSL table dated November 2024, Target Cancer Risk (TR) of 1.0×10^{-6} and Target Hazard Quotient (THQ) of 1.0). This was the first recorded detection of cobalt greater than its action level at MW-3. Cobalt has been documented to be naturally occurring at concentrations ranging from 1.3 to 12 mg/kg in Shelby County (Hazardous Trace Elements in Tennessee Soils and Other Regolith, TDEC Division of Geology, 2001). In addition, cobalt has historically been detected in samples collected from well MW-1 (the Site upgradient well) at a concentration as high as 0.086 mg/L and from well MW-4 at a concentration as high as 0.008 mg/L. The cobalt concentrations noted in Site wells are likely the result of contributions of cobalt from naturally occurring concentrations to the area groundwater. Based on the existence of naturally occurring cobalt, the historical presence of cobalt above its screening value in the upgradient background well and other Site wells, and the lack of additional indicators of leachate migration from the landfill, the identified cobalt concentration at well MW-3 does not appear to represent a release from the landfill.

All other constituents analyzed were below their respective screening levels during the second 2024 semi-annual compliance monitoring event. No statistically significant increases over background concentrations were identified. Based on the information collected, there is no indication that migration of leachate from the landfill is occurring.

1.0 BACKGROUND

The Blaylock & Brown Construction Landfill (Site), located at 10636 Shelton Road in Collierville, TN, was assigned permit #DML790000050 on June 9, 1997 by the Tennessee Department of Environment and Conservation (TDEC) – Division of Solid Waste (DSWM). In 2023, the TDEC assumed responsibility for groundwater monitoring of the landfill. Compliance monitoring at the landfill has previously been performed by other consultants including Tioga Environmental Consultants of Memphis, Tennessee (Tioga) from December 2021 to November 2023. Prior to Tioga, monitoring was performed by Environmental Compliance & Testing of Memphis, Tennessee dating back to at least December 2018. Other consultants may have collected groundwater monitoring data dating back to July 2014 or earlier. The available analytical data (in various forms) dates back to July 2014. The November 2024 monitoring event was the second event performed by CEC and represents the second semiannual sampling event for 2024.

Seven monitoring wells (wells MW-1 through MW-7) were installed to establish the monitoring network at the Site. A Vicinity Map and Site Map are included as Figure 1 and Figure 2, respectively. Monitoring well MW-1 was previously established as the upgradient background well for the Site. Monitoring well MW-7 has been gauged as dry since at least 2021. Original correspondence with TDEC and landfill staff reportedly indicated that the well was dry due to construction of a nearby lake. However, a previous firm performing compliance monitoring indicated that they believe the casing of the well had collapsed rendering the well nonfunctional. An investigation performed by CEC in September 2024 determined that MW-7 is blocked by a rock or mud at approximately 28 feet below top of casing making this well nonfunctional.

2.0 GROUNDWATER SAMPLING PROCEDURES

Sample collection was performed by Marc Dublin and Ethan Dickerson of CEC on November 21, 2024 and January 17, 2025. CEC staff used generally accepted practices and procedures to collect groundwater samples similar to those used by previous consultants at the Site. Sampling procedures are detailed in the flowing sections and are in general accordance with applicable USEPA Region 4 Laboratory Services & Applied Science Division (LSASD) Standard Operating Procedures (SOPs).

2.1 GROUNDWATER LEVEL MEASUREMENT

Wells were vented and allowed to equilibrate prior to collecting depth-to-groundwater measurements. Measurements were collected to the nearest 0.01-foot using a Solinst Model 101 electronic water level indicator. The water level probe was then lowered through the water column to obtain a total well depth. The water level indicator was decontaminated between each monitoring location. Stable groundwater level measurements and total well depth measurements were collected prior to initiating purging activities. Field depth-to-water measurements and total well depths are recorded on field forms included in Appendix A and the calculated groundwater elevations are summarized on Table 1. As noted on Table 1 and in the executive summary, MW-3 is now bent and water levels may no longer be accurate to within 0.1-foot.

2.2 WELL PURGING

Well purging and the collection of groundwater samples were completed using low-flow sampling methods in general accordance with LSASD SOPs. The pump head was lowered to the approximate halfway point of the assumed screened interval of each well. A non-dedicated down-well stainless-steel Proactive Monsoon® pump and dedicated low-density polyethylene (LDPE) tubing was utilized for purging.

During purging a YSI Professional Plus® multimeter and flow-through cell was utilized to measure in situ water quality data at regular intervals. Field parameters including temperature, pH, specific conductance, dissolved oxygen (DO) and oxidation-reduction potential (ORP) were recorded along with turbidity measurements collected with a Hach® 2100Q portable turbidimeter. Field purge forms are included in Appendix A. A table summarizing stabilized groundwater quality parameters is included as Table 2.

The non-dedicated pump was decontaminated between each sampling location and sample tubing was disposed.

On January 17, 2025, CEC staff utilized a decontaminated 1-inch diameter bladder pump and bonded LDPE sample tubing to obtain a sample from MW-3.

2.3 SAMPLE COLLECTION AND PRESERVATION

Groundwater samples were collected once stabilization of water quality parameters was met. Dedicated nitrile gloves were donned by sample personnel prior to sample collection. The sample tubing was disconnected from the flow-through cell and samples were collected from the down-well sample tubing directly into laboratory supplied sample containers. Samples were properly labeled and immediately placed in a rigid cooler on ice following collection. Samples were analyzed according to the analytical schedule outlined on the table below, consistent with previous monitoring events.

EPLEX ANALYTICAL SCHEDULE			
Analyses	Container	Preservative	USEPA Method
Appendix I Metals*	500 mL polyethylene	Nitric Acid	6020B, 7470A
Flouride, Sulfate	500 mL polyethylene	None	9056A
Ammonia	500 mL polyethylene	Sulfuric Acid	4500NH3D-2011

*Appendix I Metals include Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc

Following sample collection, a chain of custody (COC) document was completed. Groundwater samples were hand delivered by CEC staff to Waypoint Analytical in Jackson, Tennessee (Waypoint). The Waypoint Jackson, Tennessee facility in turn delivered samples via courier to their Memphis, Tennessee facility for analysis. COC records are included in Appendix B along with the Waypoint report of analysis.

2.4 QUALITY ASSURANCE & QUALITY CONTROL

Quality Assurance/Quality Control (QA/QC) samples including a rinsate blank and blind duplicate were collected during the groundwater monitoring event. Following the collection of a sample at well MW-1, the down well pump was decontaminated and a rinsate sample was collected from the pump. The rinsate sample did not detect the parameters analyzed at values greater than their respective detection limit values during this event.

The duplicate sample was collected by alternating sample containers during the collection of the sample at well MW-1. The duplicate sample results are summarized in Table 3. The calculated relative percent difference (RPD) between MW-1 and the duplicate sample results are <20% for all analytes except selenium (sample <0.001 mg/L vs. duplicate 0.001 mg/L) and zinc (sample 0.0208 mg/L vs. duplicate 0.0142 mg/L), which resulted in a RPD of 100% for selenium and 38%

for zinc. The relative variance in selenium and zinc detections may result from variable turbidity of the sample aliquot at the time of sampling.

3.0 POTENTIOMETRIC DATA

Potentiometric surface elevation data based on the calculated groundwater elevations obtained on November 21, 2024 is presented in Table 1. Monitoring well MW-1 serves as the established background well. Groundwater flow is generally to the north-northwest towards the Wolf River. The flow pattern is consistent with previous monitoring events. A potentiometric surface map is presented on Figure 2.

Estimated groundwater velocity at the Site was calculated using the Darcy equation. An average hydraulic conductivity of 2.5×10^{-2} cm/s and an effective porosity of 20% were taken from a table of Representative Values of Hydraulic Conductivity and Permeability found in Domenico and Schwartz, Physical and Chemical Hydrogeology (1990), using medium grained sand as the likely aquifer matrix for the Site.

The hydraulic gradient was calculated to be approximately 0.001 feet/foot between wells MW-1 and MW-5 during the November 21, 2024 sampling event, with a hydraulic head difference of 2.89 feet and a distance between the two wells of approximately 3,000-feet.

Darcy equation: $V=(K/n)(dH/dL)$
Where: V= average linear velocity of groundwater
K= hydraulic conductivity
n= effective porosity
(dH/dL)= horizontal component of hydraulic gradient
2.89 feet/3,000 feet (Monitoring Wells MW-1 & MW-5)

The average linear velocity of groundwater for the uppermost subject aquifer is calculated to be approximately 140 feet per year.

4.0 ANALYTICAL RESULTS

4.1 IN SITU WATER QUALITY DATA

Parameters measured in situ with the YSI Professional Plus® water quality meter included temperature, pH, specific conductance, DO, ORP, and turbidity. Temperature measurements ranged from 17.0 degrees Celsius (°C) at MW-2 to 19.9 °C at MW-6. The pH ranged from 5.58 standard units (SU) at MW-1 to 6.47 SU at MW-3. Specific conductance ranged from 100.6 microsiemens per centimeter (µS/cm) at MW-2 to 667 µS/cm at MW-4. DO measurements ranged from 0.37 mg/L at MW-6 to 6.02 mg/L at MW-2. ORP ranged from 60 millivolts (mV) at MW-4 to 206.2 mV at MW-5. Turbidity results at each location were less than 10 nephelometric turbidity units (NTUs) at the time of sampling.

The pH and specific conductance measurements were consistent and within the range of measurements collected during previous events. Measurements were also consistent across the monitoring network for the current event.

4.2 CURRENT EVENT RESULTS

A summary of detections from the current monitoring event is included in Table 3. Groundwater samples collected from landfill compliance monitoring wells were analyzed by Waypoint Analytical of Memphis, Tennessee in accordance with EPA Methods 4500NH3D-2011 (ammonia nitrogen), 9056A (fluoride/sulfate), and SW-6020B/7470A (metals). Conductivity and pH were measured in the field.

Ammonia, fluoride, beryllium, cadmium, chromium, lead, selenium, silver, thallium, and vanadium were not detected in the wells monitored during the November 2024 monitoring event. Sulfate, antimony, arsenic, cobalt, mercury, nickel, and selenium were detected in one or more wells at concentrations below their applicable regulatory screening level. Concentrations of detected constituents are consistent and within the range of previous monitoring results.

Only one constituent was detected at a concentration above its respective screening value during the November 2024 monitoring event. Cobalt was detected in monitoring well MW-3 at a concentration greater than the EPA RSL value of 0.006 mg/L for tap water (RSL table dated November 2024, Target Cancer Risk (TR) of 1.0×10^{-6} and Target Hazard Quotient (THQ) of 1.0). This was the first recorded detection of cobalt greater than its action level at MW-3. Cobalt has been documented to be naturally occurring at concentrations ranging from 1.3 to 12 mg/kg in Shelby County (Hazardous Trace Elements in Tennessee Soils and Other Regolith, TDEC Division of Geology, 2001). In addition, cobalt has historically been detected in samples collected from well MW-1 (the Site upgradient well) at a concentration as high as 0.086 mg/L and from well MW-4 at a concentration as high as 0.008 mg/L.

The cobalt concentrations noted in Site wells are likely the result of contributions of cobalt from naturally occurring concentrations to the area groundwater. Based on the existence of naturally occurring cobalt, the historical presence of cobalt above its screening value in the upgradient background well and other Site wells, and the lack of additional indicators of leachate migration from the landfill, the identified cobalt concentration at well MW-3 does not appear to represent a release from the landfill. This is further supported by the lack of statistically significant historical variance in cobalt results (see Section 5.3).

4.3 STATISTICAL ANALYSIS

Statistical analysis of the analytical results was performed in accordance with TDEC Rule 400-11-01-.04 and the EPA guidance document, "Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Unified Guidance," EPA 530/R-09-007 by utilizing the ChemStat® RCRA analysis software. Constituents which were not identified at detectable concentrations in any monitoring well were not considered for statistical analysis.

The dataset utilized to perform statistical analysis was provided by Tioga and included historical data from December 2018 to November 2023. The dataset was updated with the data from the November 2024 monitoring event prior to performing the statistical analysis. Statistical methods utilized by CEC were selected to be consistent with previous analysis which included non-parametric inter-well analysis, with MW-1 serving as upgradient background. Current potentiometric data supports MW-1 being designated as upgradient and background.

The Shapiro-Francia Test was used to determine if data for each parameter was normally distributed. For each constituent assessed, the data exhibited non-normal distribution of available historical values. Constituents with a non-normal distribution were analyzed for variance using the Kruskal-Wallis test. Kruskal-Wallis analysis demonstrated no statistically significant increases in concentration for the constituents analyzed. Table 4 presents a summary of statistical findings from the November 2024 monitoring event. Chemstat® data output sheets from the Shapiro-Francia and Kruskal-Wallis tests are included in Appendix C.

4.4 TREND ANALYSIS

When a statistical variance was identified, a Mann-Kendall Trend Analysis is performed. The Kruskal-Wallis test did not identify statistically significant increases in constituent concentrations above background for the November 2024 data, so the Mann-Kendall trend analysis was not performed.

Time vs. concentration trend graphs for constituents that have consistently been historically detected are included in Appendix D. Tables 5A through 5F include the historical data utilized to

generate trend graphs. Trend graphs and historical data tables for MW-7 are not included because historical monitoring data does not exist for well MW-7. Time vs. concentration plots (included in Appendix D) do not indicate increasing trends for any of the parameters analyzed during the November 2024 monitoring period.

5.0 CONCLUSIONS & RECOMMENDATIONS

5.1 POTENTIOMETRIC SURFACE

During the November 2024 monitoring event, groundwater flow direction was determined to be towards the north-northwest with an estimated gradient of 0.001 ft/ft and estimated flow velocity of 140 ft/year.

5.2 ANALYTICAL RESULTS

Ammonia, fluoride, beryllium, cadmium, chromium, lead, selenium, silver, thallium, and vanadium were not detected in the wells monitored during the November 2024 monitoring event. Sulfate, antimony, arsenic, cobalt, mercury, nickel, and selenium were detected in one or more wells at concentrations below their applicable regulatory screening level. Concentrations of detected constituents are consistent and within the range of previous monitoring results.

Cobalt was the only constituent detected at a concentration above its respective screening value during the November 2024 monitoring event. Cobalt was detected in monitoring well MW-3 at a concentration greater than the EPA RSL value of 0.006 mg/L for tap water. This was the first recorded detection of cobalt greater than its action level at MW-3. Cobalt has been documented to be naturally occurring at concentrations ranging from 1.3 to 12 mg/kg in Shelby County. In addition, cobalt has historically been detected in samples collected from well MW-1 (the Site upgradient well) at a concentration as high as 0.086 mg/L and from well MW-4 at a concentration as high as 0.008 mg/L. The cobalt concentrations noted in Site wells are likely the result of contributions of cobalt from naturally occurring concentrations to the area groundwater. Based on the existence of naturally occurring cobalt, the historical presence of cobalt above its screening value in the upgradient background well and other Site wells, and the lack of additional indicators of leachate migration from the landfill, the identified cobalt concentration at well MW-3 does not appear to represent a release from the landfill.

5.3 STATISTICAL ANALYSIS

No statistically significant increases over background concentrations at MW-1 were identified during the November 2024 monitoring event. Based on the information collected, there is no evidence of a release from the landfill. No trend analysis was performed on the November 2024 data since no statistically significant increases were identified. Time vs. concentration plots (included in Appendix D) do not indicate increasing trends for any of the parameters analyzed during the November 2024 monitoring period.

5.4 RECOMMENDATIONS

Based on the findings of the November 2024 monitoring event, CEC recommends continuing the compliance monitoring program with the next monitoring event tentatively scheduled for May 2025. We also offer the following optional recommendations:

- Generate a groundwater monitoring plan for the facility to meet current regulatory standards.
- MW-7 does not currently appear to be essential to the monitoring network based on its upgradient position with regard to the landfill. MW-7 will be left in place and potentially repaired if the groundwater flow direction changes in the future.
- Generate a plan to repair MW-3. CEC will be prepared to perform monitoring with an alternative, smaller diameter pump, if necessary.

FIGURES

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EPLEX CONTRUCTION LANDFILL
COLLIERVILLE, SHELBY COUNTY, TENNESSEE

EPLEX VICINITY MAP

DRAWN BY:	EBD	CHECKED BY:	HOB	APPROVED BY:	WLD*	FIGURE NO:	1
DATE:	3/25/2025	SCALE:	1"=1,000'	PROJECT NO:	328-417		

*Hand Signature on file

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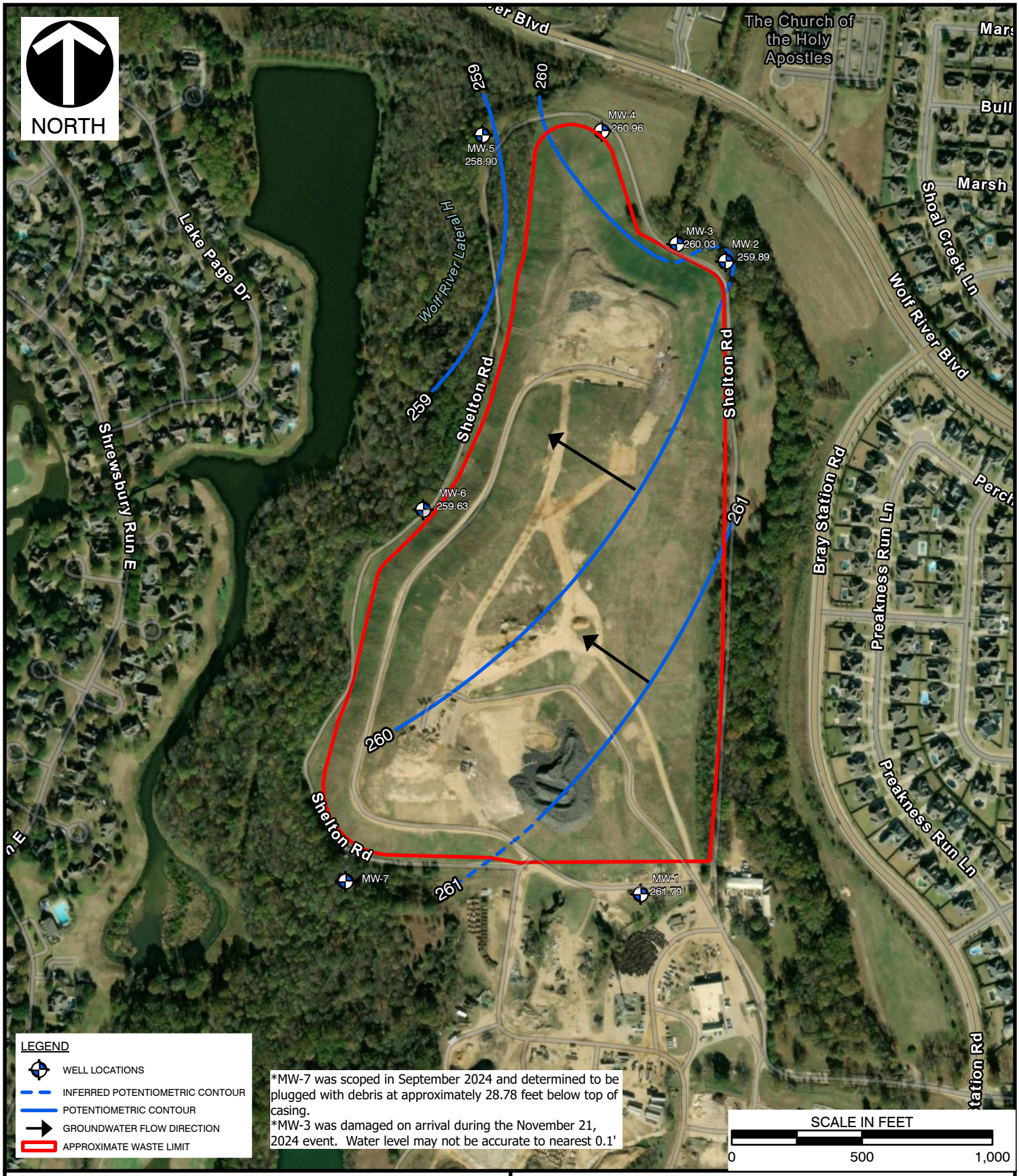

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NOVEMBER 2024 POTENTIOMETRIC MAP

DRAWN BY:	EBD	CHECKED BY:	HOB	APPROVED BY:	WLD*	FIGURE NO:	2
DATE:	3/25/2025	SCALE:	1"=500'	PROJECT NO:	328-417		

*Hand Signature on file

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TABLES

TABLE 1
POTENTIOMETRIC ELEVATIONS
NOVEMBER 21, 2024
EPLEX CONSTRUCTION LANDFILL
COLLIERVILLE, SHELBY COUNTY, TENNESSEE

Well ID	TOC Elevation	Well Depth	Dec 2018*	July 2019*	Jan 2020*	July 2020*	May 2021*	12/14/2021*	6/7/2022*	11/16/2022*	5/26/2023*	11/10/2023*	5/16/2024	11/21/2024
MW-1	311.5	57.44	263	264	264	265	265	262.19	263.58	262.17	263.57	262.07	262.79	261.79
MW-2	297.33	72.8	260	262	261	261	262	260.21	261.31	259.82	261.20	259.67	261.28	259.89
MW-3	294.41	52.94	263	264	264	263	264	260.33	261.47	259.85	261.35	259.80	260.96	260.03[1]
MW-4	290.16	41.35	263	264	263	263	264	261.21	263.40	260.85	262.27	260.73	261.91	260.96
MW-5	293.00	53.01	264	264	264	264	266	259.14	260.47	258.90	260.35	258.79	259.88	258.90
MW-6	312.76	82.3	261	262	262	262	263	259.99	260.41	259.89	261.28	259.80	260.67	259.63
MW-7	Well gauged dry at 28.78 feet below casing elevation[2]													

Notes:

Upgradient/background well is highlighted in blue

TOC Top of Casing

TOC Elevations were taken from the Harris & Associates Land Surveyors, LLC ground surface survey dated July 25, 2019.

* Values reported for July 2018 through November 2023 were reported by previous consultants.

(1) MW-3 was damaged on arrival during the November 21, 2024 event. Water level may not be accurate to nearest 0.1'

(2) MW-7 was scoped in September 2024 and determined to be plugged with debris at approximately 28.78 feet below top of casing.

TABLE 2
STABILIZED GROUNDWATER QUALITY DATA
NOVEMBER 21, 2024
EPLEX CONSTRUCTION LANDFILL
COLLIERVILLE, SHELBY COUNTY, TENNESSEE

Parameter	Units	MW-1	MW-2	MW-3[(1)]	MW-4	MW-5	MW-6
Temperature	**°C**	19.0	17.0	17.2	17.9	17.5	19.9
pH	**SU**	5.58	5.62	6.47	6.17	5.99	5.90
Conductivity	**µs/cm**	239.5	100.6	441.7	667.0	526.0	218.4
DO	**mg/L**	1.67	6.02	1.01	0.50	0.58	0.37
ORP	**mV**	135.6	183.7	174.1	60.0	206.2	196.9
Turbidity	**NTU**	8.68	9.06	6.47	7.80	5.46	6.20

Notes:

Upgradient/background well is highlighted in blue.

C - Celsius

SU - Standard Units

DO - Dissolved Oxygen

ORP - Oxidation Reduction Potential

NTU - Nephelometric Turbidity Units

(1) Well MW-3 was sampled on January 17, 2025

TABLE 3
NOVEMBER 21, 2024
SUMMARY OF DETECTIONS
EPLEX CONSTRUCTION LANDFILL
COLLIERVILLE, SHELBY COUNTY, TENNESSEE

Constituent	Screening Level	MW-1	MW-2	MW-3[(1)]	MW-4	MW-5	MW-6	Duplicate (MW-1)
Ammonia	**NA**	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Fluoride	**4.0**	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	<0.125
Sulfate	**250****	10.8	<1.00	23.0	6.38	26.1	9.53	10.7
Antimony	**0.006**	0.0019	<0.0010	0.0013	<0.0010	<0.0010	<0.0010	<0.0010
Arsenic	**0.01**	<0.0010	<0.0010	0.0021	0.0021	<0.0010	<0.0010	<0.0010
Barium	**2.0**	0.045	0.024	0.0692	0.112	0.046	0.041	0.048
Beryllium	**0.004**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cadmium	**0.005**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Chromium	**0.1**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt	**0.006***	0.005	<0.001	0.00684	0.001	<0.001	<0.001	0.005
Copper	**1.3**	0.0026	0.0035	0.00114	0.002	0.0025	0.002	0.0031
Lead	**0.015**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Mercury	**0.002**	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00025	<0.00020
Nickel	**0.1**	0.0021	<0.0010	0.00241	0.0033	0.001	0.0012	0.0023
Selenium	**0.05**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.001
Silver	**0.1**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Thallium	**0.002**	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Vanadium	**0.086***	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	**0.6***	0.0208	0.0312	0.0101	0.0136	0.0238	0.0208	0.0142

Notes:

All results in mg/L

Upgradient background well is highlighted in blue.

Bold RED indicates sample above respective regulatory limit.

[(1)] Well MW-3 was sampled on January 17, 2025

NA = Screening level not established

Screening Level = Maximum Contaminant Level from TDEC Rule 400-11-01-.04 or:

*EPA Regional Screening Levels tapwater screening value (THQ=1.0) or

**EPA Secondary Maximum Contaminant Level (non-enforceable)

TABLE 4
NOVEMBER 21, 2024
STATISTICAL ANALYSIS SUMMARY
EPLEX CONSTRUCTION LANDFILL
COLLIERVILLE, SHELBY COUNTY, TENNESSEE

Constituent	MW-1		MW-2		MW-3		MW-4		MW-5		MW-6	
Statistical Analysis	KW	MK	KW	MK	KW	MK	KW	MK	KW	MK	KW	MK
Ammonia	Parameter not detected in November 2024/Statistical analysis not performed											
Fluoride	Parameter not detected in November 2024/Statistical analysis not performed											
Sulfate	No		No		No		No		No		No	
Antimony	No		No		No		No		No		No	
Arsenic	No		No		No		No		No		No	
Barium	No		No		No		No		No		No	
Beryllium	Parameter not detected in November 2024/Statistical analysis not performed											
Cadmium	Parameter not detected in November 2024/Statistical analysis not performed											
Chromium	Parameter not detected in November 2024/Statistical analysis not performed											
Cobalt	No		No		No		No		No		No	
Copper	No		No		No		No		No		No	
Lead	Parameter not detected in November 2024/Statistical analysis not performed											
Mercury	No		No		No		No		No		No	
Nickel	No		No		No		No		No		No	
Selenium	Parameter not detected in November 2024/Statistical analysis not performed											
Silver	Parameter not detected in November 2024/Statistical analysis not performed											
Thallium	Parameter not detected in November 2024/Statistical analysis not performed											
Vanadium	Parameter not detected in November 2024/Statistical analysis not performed											
Zinc	No		No		No		No		No		No	

Notes:

Background well is highlighted in blue.

KW - Kruskal-Wallis was performed on parameters with detections. All wells were found to have non-parametric data distribution

MK - Mann-Kendall trend test (slash indicates analysis not performed because no statistically significant increase was detected)

No statisitical analysis was performed on ammonia, fluoride, beryllium, cadmium, chromium, lead, silver, thallium, or vanadium because there were no detections of these parameters in November 2024

TABLE 5A
HISTORICAL MW-1 SAMPLE DATA
EPLEX CONSTRUCTION LANDFILL
COLLIERVILLE, SHELBY COUNTY, TENNESSEE

Constituent	Screening Level	Sample Date																		
		7/1/2014	8/1/2015	12/1/2015	8/1/2016	12/1/2016	6/1/2017	12/1/2017	7/1/2018	12/1/2018	7/1/2019	1/1/2020	7/1/2020	5/1/2021	12/14/2021	6/7/2022	11/16/2022	5/26/2023	11/10/2023	5/16/2024	11/21/2024
Antimony	**0.006**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.0019**
Arsenic	**0.01**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.0058**	**0.0047**	**0.0049**	**0.0017**	BDL
Barium	**2.0**	**0.023**	**0.024**	**0.018**	**0.2**	**0.051**	**0.081**	**0.095**	**0.111**	**0.121**	**0.268**	**0.291**	**0.498**	**0.14**	**0.037**	**0.031**	**0.073**	**0.09**	**0.077**	**0.046**	**0.045**
Beryllium	**0.004**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.0004**	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Cadmium	**0.005**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.001**	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chromium	**0.1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.009**	**0.01**	BDL	BDL	BDL	BDL	BDL	**0.001**	**0.003**	**0.004**	**0.003**	**0.004**	BDL
Cobalt	**0.006***	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.086**	**0.045**	BDL	**0.07**	**0.035**	**0.032**	**0.017**	**0.005**
Copper	**1.3**	**0.066**	**0.011**	**BDL**	**0.031**	**0.038**	BDL	**0.055**	**0.041**	**0.046**	**0.05**	**0.056**	**0.063**	**0.015**	**0.0017**	**0.0011**	**0.0031**	**0.0139**	**0.0051**	**0.0101**	**0.0026**
Lead	**0.015**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.006**	**0.009**	**0.012**	**0.015**	**0.018**	**0.021**	BDL	BDL	**0.002**	**0.009**	**0.0024**	**BDL**	BDL
Nickel	**0.1**	**0.008**	BDL	BDL	**0.008**	**0.012**	**0.027**	**0.009**	**0.01**	**0.01**	**0.018**	**0.011**	**0.01**	**0.0035**	**0.0026**	BDL	**0.0049**	**0.0042**	**0.0034**	**0.0063**	**0.0021**
Selenium	**0.05**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Silver	**0.1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Thallium	**0.002**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Vanadium	**0.086***	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.013**	BDL	BDL	**0.006**	**0.009**	**0.005**	**BDL**	BDL
Zinc	**0.6***	**0.088**	**0.066**	**0.017**	**0.101**	**0.124**	**1.028**	**1.11**	**1.742**	**1.821**	**1.221**	**2.011**	**2.109**	**0.071**	BDL	BDL	**0.0148**	**0.0298**	**0.015**	**0.0308**	**0.0202**
Mercury	**0.002**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.0002**	**0.00042**	**BDL**	**BDL**	BDL
Fluoride	**4.0**	**0.02**	**0.19**	**0.22**	**0.52**	**0.6**	**1.55**	**1**	**1.76**	**1.79**	**2.05**	**2.57**	**3.62**	BDL	**0.127**	BDL	BDL	**0.149**	**BDL**	**BDL**	BDL
Ammonia	**NA**	BDL	BDL	BDL	**0.37**	**0.41**	**0.75**	**0.55**	**0.42**	**0.68**	**0.74**	**1.26**	**1.33**	**0.12**	BDL	**0.213**	BDL	**0.497**	**0.284**	**0.168**	BDL
Sulfate	**250****	BDL	BDL	BDL	**7**	**8**	**12**	**9**	**10**	**14**	**15**	**16**	**32**	**16**	**5.09**	**3.33**	**3.37**	**1.58**	**2.87**	**2.77**	**10.8**

Notes:

All results in mg/L

BDL=Below Laboratory Detection Level

Results highlighted in RED indicate exceedance of screening level

NA = Screening level not established

Screening Level = Maximum Contaminant Level from TDEC Rule 400-11-01-.04 or:

*EPA Regional Screening Levels tapwater screening value (THQ=1.0) or

**EPA Secondary Maximum Contaminant Level (non-enforceable)

TABLE 5B
HISTORICAL MW-2 SAMPLE DATA
EPLEX CONSTRUCTION LANDFILL
COLLIERVILLE, SHELBY COUNTY, TENNESSEE

Constituent	Screening Level	Sample Date																			
		7/1/2014	8/1/2015	12/1/2015	8/1/2016	12/1/2016	6/1/2017	12/1/2017	7/1/2018	12/1/2018	7/1/2019	1/1/2020	7/1/2020	5/1/2021	12/14/2021	6/7/2022	11/16/2022	5/26/2023	11/10/2023	5/16/2024	11/21/2024
Antimony	**0.006**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Arsenic	**0.01**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.0018**	**BDL**	**0.0033**	**BDL**	BDL
Barium	**2.0**	**0.026**	**0.035**	**0.043**	**0.35**	**0.044**	**0.061**	**0.073**	**0.078**	**0.081**	**0.076**	**0.081**	**0.097**	**0.031**	**0.03**	BDL	**0.048**	**0.031**	**0.061**	**0.021**	**0.024**
Beryllium	**0.004**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.001**	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Cadmium	**0.005**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chromium	**0.1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.001**	BDL	**0.014**	**0.001**	**0.026**	**0.004**	BDL
Cobalt	**0.006***	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.001**	BDL	**0.002**	**BDL**	BDL
Copper	**1.3**	**0.06**	**0.009**	BDL	**0.038**	**0.039**	**0.22**	**0.02**	**0.026**	**0.018**	BDL	BDL	BDL	**0.024**	BDL	BDL	**0.0061**	**0.0028**	**0.0116**	**0.0084**	**0.0035**
Lead	**0.015**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.005**	BDL	BDL	**0.0034**	**0.0015**	**0.0068**	**BDL**	BDL
Nickel	**0.1**	**0.015**	BDL	BDL	BDL	**0.012**	**0.01**	BDL	**0.009**	**0.006**	**0.006**	**0.005**	BDL	**0.003**	BDL	BDL	**0.0036**	BDL	**0.0058**	**0.0026**	**BDL**
Selenium	**0.05**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.001**	BDL	BDL	BDL	BDL
Silver	**0.1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Thallium	**0.002**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Vanadium	**0.086***	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.021**	**0.005**	**0.041**	**BDL**	BDL
Zinc	**0.6***	**0.155**	**0.061**	**0.018**	**0.086**	**0.091**	**0.121**	**0.141**	**0.732**	**0.887**	**0.92**	**0.753**	**0.807**	**0.054**	**0.0109**	BDL	**0.0171**	**0.0125**	**0.0246**	**0.0131**	**0.0312**
Mercury	**0.002**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.00026**	**0.00029**	**BDL**	BDL
Fluoride	**4.0**	**0.18**	**0.24**	**0.29**	**0.61**	**0.75**	**0.96**	**1.09**	**1.05**	**1.03**	**0.5**	**0.78**	**1.001**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ammonia	**NA**	BDL	BDL	BDL	**0.38**	**0.42**	**0.5**	**0.59**	**0.49**	**0.3**	**0.29**	**0.65**	**0.81**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Sulfate	**250****	BDL	BDL	BDL	**3**	**5**	**8**	**11**	**10**	**10**	**9**	**9**	**12**	BDL	**1.74**	BDL	BDL	BDL	BDL	BDL	BDL

Notes:

All results in mg/L

BDL= Below Laboratory Detection Level

Results highlighted in RED indicate exceedance of screen

NA = Screening level not established

Screening Level = Maximum Contaminant Level from TDEC Rule 400-11-01-.04 or:

*EPA Regional Screening Levels tapwater screening value (THQ=1.0) or

**EPA Secondary Maximum Contaminant Level (non-enforceable)

TABLE 5C
HISTORICAL MW-3 SAMPLE DATA
EPLEX CONSTRUCTION LANDFILL
COLLIERVILLE, SHELBY COUNTY, TENNESSEE

Constituent	Screening Level	Sample Date																			
		7/1/2014	8/1/2015	12/1/2015	8/1/2016	12/1/2016	6/1/2017	12/1/2017	7/1/2018	12/1/2018	7/1/2019	1/1/2020	7/1/2020	5/1/2021	12/14/2021	6/7/2022	11/16/2022	5/26/2023	11/10/2023	5/16/2024	11/21/2024
Antimony	**0.006**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.0013**
Arsenic	**0.01**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.001**	**0.0011**	BDL	BDL	**0.0021**
Barium	**2.0**	**0.039**	**0.042**	**0.031**	**0.039**	**0.033**	**0.028**	**0.031**	**0.084**	**0.064**	**0.055**	**0.078**	**0.09**	**0.084**	**0.037**	**0.123**	**0.055**	**0.124**	**0.024**	**0.028**	**0.0692**
Beryllium	**0.004**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.002**	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Cadmium	**0.005**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.009**	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chromium	**0.1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.002**	BDL
Cobalt	**0.006***	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.004**	**0.001**	**0.004**	**0.002**	**0.005**	BDL	BDL	**0.00684**
Copper	**1.3**	**0.054**	**0.008**	BDL	**0.45**	**0.043**	**0.031**	**0.033**	**0.049**	**0.04**	BDL	BDL	BDL	**0.031**	**0.0132**	**0.001**	**0.0035**	BDL	BDL	**0.0048**	**0.00114**
Lead	**0.015**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.0075**	BDL	BDL	BDL	BDL	BDL	BDL
Nickel	**0.1**	**0.008**	BDL	BDL	BDL	BDL	BDL	BDL	**0.009**	**0.009**	**0.009**	**0.006**	**0.007**	**0.008**	BDL	**0.0137**	**0.003**	**0.0139**	BDL	**0.0024**	**0.0024**
Selenium	**0.05**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Silver	**0.1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Thallium	**0.002**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Vanadium	**0.086***	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.001**	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Zinc	**0.6***	**0.028**	**0.061**	**0.021**	**0.164**	**0.141**	**0.173**	**1.002**	**1**	**1.11**	**0.107**	**0.324**	**0.543**	**0.061**	**0.0191**	**0.0114**	BDL	**0.0149**	BDL	**0.0111**	**0.0101**
Mercury	**0.002**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Fluoride	**4.0**	**0.26**	**0.13**	**0.18**	**0.34**	**0.22**	**0.75**	**1**	**0.92**	**0.58**	**0.49**	**0.62**	**0.745**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ammonia	**NA**	BDL	BDL	BDL	**0.36**	**0.4**	**0.55**	**0.62**	**0.71**	**0.31**	**0.3**	**0.59**	**0.71**	**0.11**	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Sulfate	**250****	BDL	BDL	BDL	**2**	**4**	**7**	**8**	**11**	**10**	**11**	**11**	**9**	BDL	**15.9**	**10.6**	**16.8**	**13.8**	**5.76**	**17.6**	**23**

Notes:

All results in mg/L

BDL=Below Laboratory Detection Level

Results highlighted in RED indicate exceedance of scree

NA = Screening level not established

Screening Level = Maximum Contaminant Level from TDEC Rule 400-11-01-.04 or:

*EPA Regional Screening Levels tapwater screening value (THQ=1.0) or

**EPA Secondary Maximum Contaminant Level (non-enforceable)

TABLE 5D
HISTORICAL MW-4 SAMPLE DATA
EPLEX CONSTRUCTION LNDFILL
COLLIERVILLE, SHELBY COUNTY, TENNESSEE

Constituent	Screening Level	Sample Date																			
		7/1/2014	8/1/2015	12/1/2015	8/1/2016	12/1/2016	6/1/2017	12/1/2017	7/1/2018	12/1/2018	7/1/2019	1/1/2020	7/1/2020	5/1/2021	12/14/2021	6/7/2022	11/16/2022	5/26/2023	11/10/2023	5/16/2024	11/21/2024
Antimony	**0.006**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Arsenic	**0.01**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.0052**	**0.0035**	**0.0261**	**0.0094**	**0.0056**	**0.0064**	**0.0021**
Barium	**2.0**	**0.037**	**0.063**	**0.044**	**0.086**	**0.081**	**0.07**	**0.083**	**0.095**	**0.055**	**0.053**	**0.079**	**0.091**	**0.19**	**0.131**	**0.194**	**0.278**	**0.0197**	**0.145**	**0.132**	**0.112**
Beryllium	**0.004**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.002**	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Cadmium	**0.005**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.002**	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chromium	**0.1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.001**	BDL	BDL	BDL	BDL	0.003	BDL
Cobalt	**0.006***	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.008**	**0.001**	**0.006**	**0.003**	**0.007**	**0.002**	**0.004**	**0.001**
Copper	**1.3**	**0.055**	**0.009**	BDL	**0.017**	**0.022**	**0.031**	**0.039**	**0.052**	**0.032**	**0.032**	BDL	BDL	**0.057**	**0.0012**	**0.0011**	**0.0018**	BDL	**0.0011**	**0.0049**	**0.002**
Lead	**0.015**	BDL	**0.006**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.016**	**0.001**	BDL	BDL	BDL	BDL	BDL	BDL
Nickel	**0.1**	**0.007**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.006**	**0.0026**	**0.0046**	**0.0072**	**0.0054**	**0.0033**	**0.0077**	**0.0033**
Selenium	**0.05**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.001	BDL
Silver	**0.1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Thallium	**0.002**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Vanadium	**0.086***	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.003**	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Zinc	**0.6***	**0.103**	**0.06**	**0.034**	**0.091**	**0.112**	**0.121**	**0.115**	**0.129**	**0.099**	**0.117**	**0.505**	**0.67**	**0.067**	BDL	BDL	BDL	BDL	BDL	**0.0107**	**0.0136**
Mercury	**0.002**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Fluoride	**4.0**	**0.12**	BDL	BDL	**0.41**	**0.56**	**0.52**	**0.47**	**1.24**	**1.09**	**0.65**	**0.73**	**0.791**	BDL	**0.162**	BDL	BDL	BDL	**0.174**	**BDL**	BDL
Ammonia	**NA**	BDL	BDL	BDL	**0.45**	**0.46**	**0.4**	**0.59**	**0.63**	**0.4**	**0.37**	**0.42**	**0.52**	**1.1**	BDL	BDL	BDL	**1.47**	BDL	**0.492**	BDL
Sulfate	**250****	BDL	BDL	BDL	**13**	**9**	**9**	**10**	**12**	**11**	**9**	**15**	**11**	BDL	**6.64**	**5.99**	**6.49**	**4.65**	**6.31**	**7.33**	**6.38**

Notes:

All results in mg/L

BDL= Below Laboratory Dete

Results highlighted in RED indicate exceedance of scree

NA = Screening level not established

Screening Level = Maximum Contaminant Level from TDEC Rule 400-11-01-.04 or:

*EPA Regional Screening Levels tapwater screening value (THQ=1.0) or

**EPA Secondary Maximum Contaminant Level (non-enforceable)

TABLE 5E
HISTORICAL MW-5 SAMPLE DATA
EPLEX CONSTRUCTION LANDFILL
COLLIERVILLE, SHELBY COUNTY, TENNESSEE

Constituent	Screening Level	Sample Date																			
		7/1/2014	8/1/2015	12/1/2015	8/1/2016	12/1/2016	6/1/2017	12/1/2017	7/1/2018	12/1/2018	7/1/2019	1/1/2020	7/1/2020	5/1/2021	12/14/2021	6/7/2022	11/16/2022	5/26/2023	11/10/2023	5/16/2024	11/21/2024
Antimony	**0.006**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Arsenic	**0.01**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.0013**	BDL	BDL	**0.0021**	**0.0031**	BDL	BDL
Barium	**2.0**	**0.023**	**0.03**	**0.071**	**0.023**	**0.036**	**0.044**	**0.055**	**0.06**	**0.059**	**0.052**	**0.072**	**0.088**	**0.031**	**0.058**	**0.049**	**0.051**	**0.054**	**0.067**	**0.047**	**0.046**
Beryllium	**0.004**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Cadmium	**0.005**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.005**	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chromium	**0.1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.002**	BDL	**0.001**	**0.002**	**0.003**	**0.005**	BDL
Cobalt	**0.006***	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.002**	BDL	**0.001**	**0.003**	**0.004**	BDL	BDL
Copper	**1.3**	**0.026**	**0.006**	**BDL**	**0.028**	**0.026**	**0.025**	**0.027**	**0.031**	**0.028**	BDL	BDL	BDL	**0.013**	**0.0016**	BDL	BDL	**0.0017**	**0.0067**	**0.0031**	**0.0025**
Lead	**0.015**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.0011**	BDL	BDL	**0.001**	**0.0019**	BDL	BDL
Nickel	**0.1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.0013**	BDL	**0.0011**	**0.0011**	**0.0023**	**0.0036**	**0.001**
Selenium	**0.05**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.001	BDL
Silver	**0.1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Thallium	**0.002**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Vanadium	**0.086***	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.002**	**0.006**	BDL	BDL	**0.005**	**0.01**	BDL	BDL
Zinc	**0.6***	**0.051**	**0.053**	**0.022**	**0.222**	**0.184**	**0.15**	**0.109**	**0.274**	**0.374**	**0.222**	**0.446**	**0.544**	BDL	BDL	BDL	BDL	BDL	**0.0122**	**0.0118**	**0.0238**
Mercury	**0.002**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.00023**	BDL	BDL	BDL	**0.00023**	BDL	BDL
Fluoride	**4.0**	**0.11**	**0.22**	**0.25**	**1.26**	**0.92**	**0.76**	**0.83**	**0.88**	**0.74**	**0.6**	**0.97**	**0.781**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ammonia	**NA**	BDL	BDL	BDL	**0.39**	**0.42**	**0.36**	**0.6**	**0.61**	**0.6**	**0.48**	**0.81**	**0.74**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Sulfate	**250****	BDL	BDL	BDL	**98**	**84**	**28**	**17**	**16**	**13**	**10**	**15**	**18**	**11**	**8.53**	**11.1**	**6.41**	**9.73**	**9.52**	**9.62**	**26.1**

Notes:

All results in mg/L

BDL=Below Laboratory Detection Level

Results highlighted in RED indicate exceedance of scree

NA = Screening level not established

Screening Level = Maximum Contaminant Level from TDEC Rule 400-11-01-.04 or:

*EPA Regional Screening Levels tapwater screening value (THQ=1.0) or

**EPA Secondary Maximum Contaminant Level (non-enforceable)

TABLE 5F
HISTORICAL MW-6 SAMPLE DATA
EPLEX CONSTRUCTION LANDFILL
COLLIERVILLE, SHELBY COUNTY, TENNESSEE

Constituent	Screening Level	Sample Date																			
		7/1/2014	8/1/2015	12/1/2015	8/1/2016	12/1/2016	6/1/2017	12/1/2017	7/1/2018	12/1/2018	7/1/2019	1/1/2020	7/1/2020	5/1/2021	12/14/2021	6/7/2022	11/16/2022	5/26/2023	11/10/2023	5/16/2024	11/21/2024
Antimony	**0.006**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Arsenic	**0.01**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.0036**	**0.0017**	**0.0016**	**BDL**	BDL
Barium	**2.0**	**0.017**	**0.022**	**0.009**	**0.023**	**0.061**	**0.034**	**0.044**	**0.063**	**0.071**	**0.092**	**0.089**	**0.078**	**0.031**	**0.033**	**0.049**	**0.042**	**0.047**	**0.04**	**0.046**	**0.041**
Beryllium	**0.004**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Cadmium	**0.005**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chromium	**0.1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.002**	BDL	**0.005**	**0.001**	**0.002**	**0.006**	BDL
Cobalt	**0.006***	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.002**	BDL	**0.006**	**0.002**	**0.004**	**0.001**	**0.001**	BDL
Copper	**1.3**	**0.046**	**0.008**	**0.005**	**0.046**	**0.048**	**0.027**	**0.03**	**0.038**	**0.022**	BDL	BDL	BDL	**0.018**	**0.0018**	BDL	**0.0017**	BDL	**0.001**	**0.0032**	**0.002**
Lead	**0.015**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.0012**	BDL	BDL	BDL	BDL
Nickel	**0.1**	BDL	BDL	BDL	**0.012**	**0.006**	**0.006**	**0.006**	**0.006**	**0.006**	BDL	BDL	BDL	BDL	BDL	**0.0025**	**0.0026**	BDL	BDL	**0.0055**	**0.0012**
Selenium	**0.05**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.001	BDL	BDL	BDL	BDL
Silver	**0.1**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Thallium	**0.002**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Vanadium	**0.086***	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.001**	**0.005**	BDL	**0.013**	BDL	**0.005**	BDL	BDL
Zinc	**0.6***	**0.076**	**0.069**	**0.1**	**0.16**	**0.1**	**0.114**	**0.272**	**0.37**	**0.355**	**0.103**	**0.247**	**0.372**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.0208**
Mercury	**0.002**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.00025**	BDL	BDL	**0.00119**	**0.00136**	**0.00051**	**0.00025**
Fluoride	**4.0**	BDL	BDL	BDL	**0.35**	**0.21**	**0.19**	**0.55**	**0.92**	**0.79**	**0.61**	**0.76**	**0.209**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ammonia	**NA**	BDL	BDL	BDL	**0.41**	**0.44**	**0.36**	**0.42**	**0.44**	**0.57**	**0.44**	**0.57**	**0.68**	**0.42**	**0.42**	**0.543**	**BDL**	**0.705**	BDL	**0.328**	BDL
Sulfate	**250****	BDL	BDL	BDL	**9**	**10**	**11**	**10**	**11**	**10**	**9**	**11**	**12**	**8**	**8.89**	**11.1**	**9.02**	**10.1**	**9.09**	**10.7**	**9.53**

Notes:

All results in mg/L

BDL=Below Laboratory Detection Level

Results highlighted in RED indicate exceedance of screening level

NA = Screening level not established

Screening Level = Maximum Contaminant Level from TDEC Rule 400-11-01-.04 or:

*EPA Regional Screening Levels tapwater screening value (THQ=1.0) or

**EPA Secondary Maximum Contaminant Level (non-enforceable)

APPENDIX A

FIELD INFORMATION LOGS

Project Name:	Eplex Class III Landfill	Well ID:	MW-1
Location:	Collierville, TN		
Project No:	328-417	Date:	11-21-2024
Weather Conditions:	Sun	Ambient Temp:	50's
Sampling Personnel:	M. Dublin + E. Dickerson		

EQUIPMENT				SAMPLE BOTTLES			# Bottles	SAMPLE METHOD
Purging:		Sampling:		X	500mL poly - HNO3		1	App. I Metals - 6020/7470
	Grundfos		Grundfos	X	500 mL poly - none		1	Fluoride, Sulfate - 9056
	Fultz		Fultz	X	500 mL poly - H2SO4		1	Ammonia - 4500NH3D-2011
	Bailer		Bailer					
	QED		QED					
X	YSI		YSI					
	Peristaltic		Peristaltic					
X	Proactive	X	Proactive					
	Hydrolab							

Notes: Dup Here / Rinseate @ 1130

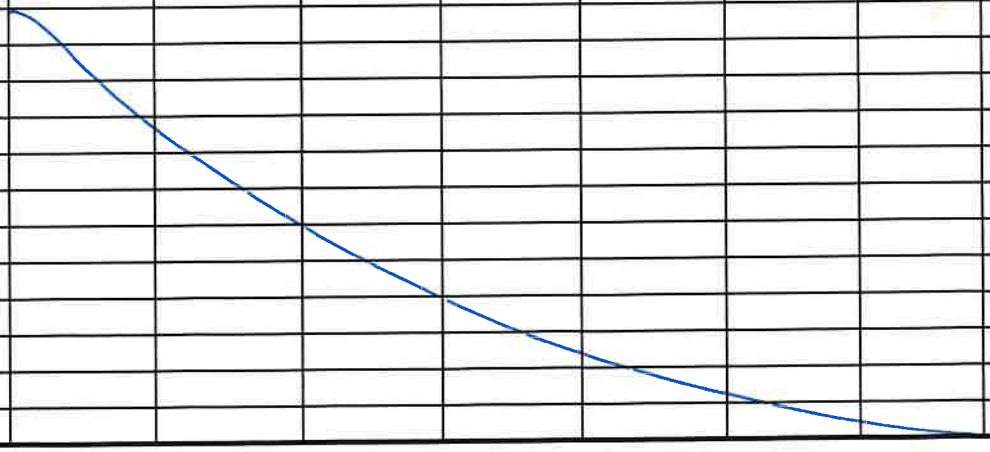
Work Plan Approved Decontamination Procedures Followed? yes

Well Diameter (in):	2	Depth of well from TOC (ft):	57.44		
Depth to Groundwater (ft):	49.71	Length of Water Column (ft):	7.73	Start:	Finish:
Total Purge Volume (3):	1.4 gal		Purge:	11:17	11:52
Sediment Thickness (ft):	—		Sample:	11:52	11:57

Time		1117	1122	1127	1132	1137	1142	1147	1152
Depth to Water	ft-bgs	49.71	49.71	49.71	49.71	49.71	49.71	49.71	49.71
Purge Volume	gal	Int	0.2	0.4	0.6	0.8	1.0	1.2	1.4
Pumping Rate	L/min	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Temperature	C	18.6	18.4	18.8	19.6	19.0	19.0	19.2	19.0
Conductivity	mS/cm	389.0	280.9	271.3	268.7	246.5	243.7	244.8	239.5
DO	mg/L	1.40	1.43	1.41	1.44	1.55	1.57	1.62	1.67
pH	units	5.81	5.68	5.65	5.64	5.59	5.59	5.59	5.58
Specific Cond.	g/L	438.4	319.4	307.4	299.8	277.4	275.0	275.7	270.9
ORP	mV	146.5	108.0	109.7	112.4	121.4	126.3	130.6	135.6
Turbidity	NTU	485	321	190	87.2	56.5	31.8	20.3	8.68
Odor		None →							
Color		Brown	Cloudy Brown						

Field Parameters (continued)

Time									
Depth to Water	ft-bgs								
Purge Volume	L								
Pumping Rate	mL/min								
Temperature	C								
Conductivity	mS/cm								
DO	mg/L								
pH	units								
TDS	g/L								
ORP	mV								
Turbidity	NTU								
Odor									
Color									



Notes:

1 ft. of water in 2" dia. Well = 0.16 gal

1 ft. of water in 4" dia. Well = 0.65 gal

Turbidity Choices: clear, turbid, opaque

Color Choices: clear, brown, gray, milky, orange

Project Name:	Eplex Class III Landfill	Well ID:	MW-2
Location:	Collierville, TN		
Project No:	328-417	Date:	11-21-2024
Weather Conditions:	Sun	Ambient Temp:	50's
Sampling Personnel:	M. Dublin & B. Dickerson		

EQUIPMENT				SAMPLE BOTTLES			
Purging:		Sampling:				# Bottles	SAMPLE METHOD
	Grundfos		Grundfos	X	500mL poly - HNO3	1	App. I Metals - 6020/7470
	Fultz		Fultz	X	500 mL poly - none	1	Fluoride, Sulfate - 9056
	Bailer		Bailer	X	500 mL poly - H2SO4	1	Ammonia - 4500NH3D-2011
	QED		QED				
X	YSI		YSI				
	Peristaltic		Peristaltic				
X	Proactive	X	Proactive				
	Hydrolab						

Notes:

Work Plan Approved Decontamination Procedures Followed? yes

Well Diameter (in):	2	Depth of well from TOC (ft):	72.80		
Depth to Groundwater (ft):	37.44	Length of Water Column (ft):	35.36	Start:	Finish:
Total Purge Volume (L):	1.6 gal		Purge:	1000	1040
Sediment Thickness (ft):			Sample:	1040	1045

Time		1000	1005	1010	1015	1020	1025	1030	1035
Depth to Water	ft-bgs	37.44	37.50	37.52	37.52	37.52	37.52	37.52	37.52
Purge Volume	L	Init	0.2	0.4	0.6	0.8	1.0	1.2	1.4
Pumping Rate	L/min	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Temperature	C	16.3	16.8	16.8	16.8	16.8	16.9	16.9	16.9
Conductivity	mS/cm	92.5	103.1	105.1	103.1	102.9	102.4	101.0	100.6
DO	mg/L	7.07	6.06	5.92	5.98	5.97	5.98	6.00	6.02
pH	units	6.14	5.63	5.63	5.62	5.62	5.62	5.62	5.63
Specific Cond.	g/L	117.0	122.4	124.3	122.1	121.9	121.1	119.5	119.1
ORP	mV	87.4	180.4	194.2	201.6	207.5	213.1	217.1	164.6
Turbidity	NTU	6.99	13.8	36.3	37.8	36.4	27.7	18.6	15.2
Odor		None →							
Color		Clear →							

Field Parameters (continued)

Time		1040	~~1045~~						
Depth to Water	ft-bgs	37.52							
Purge Volume	L	1.6							
Pumping Rate	mL/min	0.2							
Temperature	C	17.0							
Conductivity	mS/cm	100.6							
DO	mg/L	6.02							
pH	units	5.62							
~~TDS~~ Rec Cond	g/L	118.9							
ORP	mV	183.7							
Turbidity	NTU	9.06							
Odor									
Color									

Notes:

1 ft. of water in 2" dia. Well = 0.16 gal

1 ft. of water in 4" dia. Well = 0.65 gal

Turbidity Choices: clear, turbid, opaque

Color Choices: clear, brown, gray, milky, orange

Project Name:	Eplex Class III Landfill	**Well ID:**	**MW-3**
Location:	Collierville, TN		
Project No:	328-417	**Date:**	11-21-2024
Weather Conditions:	Sun	**Ambient Temp:**	50's
Sampling Personnel:	M. Dublin + E. Dickerson		

EQUIPMENT				SAMPLE BOTTLES				# Bottles	SAMPLE METHOD
Purging:		**Sampling:**		X	500mL poly - HNO3			1	App. I Metals - 6020/7470
	Grundfos		Grundfos	X	500 mL poly - none			1	Fluoride, Sulfate - 9056
	Fultz		Fultz	X	500 mL poly - H2SO4			1	Ammonia - 4500NH3D-2011
	Bailer		Bailer						
	QED		QED						
X	YSI		YSI						
	Peristaltic		Peristaltic						
X	Proactive	X	Proactive						
	Hydrolab								

Notes: Well Blocked @ ground level - Well/Bollards hit during construction

Work Plan Approved Decontamination Procedures Followed?

Well Diameter (in):	2	**Depth of well from TOC (ft):**	52.94		
Depth to Groundwater (ft):	34.38	**Length of Water Column (ft):**	18.56	**Start:**	**Finish:**
Total Purge Volume (L):				**Purge:**	
Sediment Thickness (ft):				**Sample:**	

Time										
Depth to Water	**ft-bgs**									
Purge Volume	**L**									
Pumping Rate	**L/min**									
Temperature	**C**									
Conductivity	**mS/cm**									
DO	**mg/L**									
pH	**units**									
Specific Cond.	**g/L**									
ORP	**mV**									
Turbidity	**NTU**									
Odor										
Color										

Field Parameters (continued)

Time										
Depth to Water	**ft-bgs**									
Purge Volume	**L**									
Pumping Rate	**mL/min**									
Temperature	**C**									
Conductivity	**mS/cm**									
DO	**mg/L**									
pH	**units**									
TDS	**g/L**									
ORP	**mV**									
Turbidity	**NTU**									
Odor										
Color										

Notes:

1 ft. of water in 2" dia. Well = 0.16 gal

1 ft. of water in 4" dia. Well = 0.65 gal

Turbidity Choices: clear, turbid, opaque

Color Choices: clear, brown, gray, milky, orange

Project Name:	Eplex Class III Landfill	Well ID:	MW-4
Location:	Collierville, TN		
Project No:	328-417	Date:	11-21-2024
Weather Conditions:	Sun	Ambient Temp:	50's
Sampling Personnel:	M. Dustin + E. Dickerson		

EQUIPMENT				SAMPLE BOTTLES		# Bottles	SAMPLE METHOD
Purging:		Sampling:		X	500mL poly - HNO3	1	App. I Metals - 6020/7470
	Grundfos		Grundfos	X	500 mL poly - none	1	Fluoride, Sulfate - 9056
	Fultz		Fultz	X	500 mL poly - H2SO4	1	Ammonia - 4500NH3D-2011
	Bailer		Bailer				
	QED		QED				
X	YSI		YSI				
	Peristaltic		Peristaltic				
X	Proactive	X	Proactive				
	Hydrolab						

Notes:

Work Plan Approved Decontamination Procedures Followed? yes

Well Diameter (in):	2	Depth of well from TOC (ft):	41.35		
Depth to Groundwater (ft):	29.20	Length of Water Column (ft):	12.15	Start:	Finish:
Total Purge Volume (L):	1.2 gal		Purge:	900	930
Sediment Thickness (ft):	—		Sample:	930	935

Time		900	905	910	915	920	925	930
Depth to Water	ft-bgs	29.20	29.29	29.29	29.29	29.29	29.29	29.29
Purge Volume	L	tnt	0.2	0.4	0.6	0.8	1.0	1.2
Pumping Rate	L/min	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Temperature	C	17.1	17.8	17.7	17.8	17.9	17.9	17.9
Conductivity	mS/cm	1365	1019	756	716	715	689	667
DO	mg/L	1.54	0.93	0.89	0.90	0.62	0.52	0.50
pH	units	6.20	6.15	6.18	6.18	6.18	6.18	6.17
Specific Cond.	g/L	1608	1156	874	823	826	793	768
ORP	mV	-27.2	36.7	51.6	57.8	58.5	59.1	60.0
Turbidity	NTU	638	72.7	27.2	18.9	15.1	11.1	7.8
Odor		None	→	→	→	→	→	→
Color		tan	Clear	→	→	→	→	→

Field Parameters (continued)

Time									
Depth to Water	ft-bgs								
Purge Volume	L								
Pumping Rate	mL/min								
Temperature	C								
Conductivity	mS/cm								
DO	mg/L								
pH	units								
TDS	g/L								
ORP	mV								
Turbidity	NTU								
Odor									
Color									

Notes:

1 ft. of water in 2" dia. Well = 0.16 gal

1 ft. of water in 4" dia. Well = 0.65 gal

Turbidity Choices: clear, turbid, opaque

Color Choices: clear, brown, gray, milky, orange

Project Name:	Eplex Class III Landfill	Well ID:	MW-5
Location:	Collierville, TN		
Project No:	328-417	Date:	11-21-2024
Weather Conditions:	Sun	Ambient Temp:	50's
Sampling Personnel:	M. Dublin + E. Dickerson		

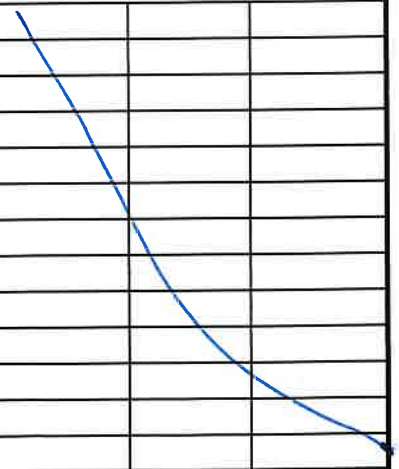
EQUIPMENT				SAMPLE BOTTLES		# Bottles	SAMPLE METHOD
Purging:		Sampling:		X	500mL poly - HNO3	1	App. I Metals - 6020/7470
	Grundfos		Grundfos	X	500 mL poly - none	1	Fluoride, Sulfate - 9056
	Fultz		Fultz	X	500 mL poly - H2SO4	1	Ammonia - 4500NH3D-2011
	Bailer		Bailer				
	QED		QED				
X	YSI		YSI				
	Peristaltic		Peristaltic				
X	Proactive	X	Proactive				
	Hydrolab						

Notes:

Work Plan Approved Decontamination Procedures Followed? Yes

Well Diameter (in):	2	Depth of well from TOC (ft):	53.01		
Depth to Groundwater (ft):	34.10	Length of Water Column (ft):	18.91	Start:	Finish:
Total Purge Volume (L):	1.0 gal		Purge:	819	839
Sediment Thickness (ft):	—		Sample:	900	905

Time		819	824	829	834	839	
Depth to Water	ft-bgs	34.16	34.18	34.18	34.18	34.18	
Purge Volume	L	Init	0.2	0.4	0.6	0.8	
Pumping Rate	L/min	0.2	0.2	0.2	0.2	0.2	
Temperature	C	16.6	17.3	17.5	17.5	17.5	
Conductivity	mS/cm	587	524	525	526	526	
DO	mg/L	2.97	0.90	0.68	0.61	0.58	
pH	units	6.04	6.00	5.99	5.99	5.99	
Specific Cond.	g/L	601	614	613	614	615	
ORP	mV	198.1	203.4	205.3	205.9	206.2	
Turbidity	NTU	49.4	98.7	17.4	8.5	5.46	
Odor		None →					
Color		Clear →					



Field Parameters (continued)

Time									
Depth to Water	ft-bgs								
Purge Volume	L								
Pumping Rate	mL/min								
Temperature	C								
Conductivity	mS/cm								
DO	mg/L								
pH	units								
TDS	g/L								
ORP	mV								
Turbidity	NTU								
Odor									
Color									

Notes:

1 ft. of water in 2" dia. Well = 0.16 gal

1 ft. of water in 4" dia. Well = 0.65 gal

Turbidity Choices: clear, turbid, opaque

Color Choices: clear, brown, gray, milky, orange

Project Name:	Eplex Class III Landfill	Well ID:	MW-6
Location:	Collierville, TN		
Project No:	328-417	Date:	11-21-2024
Weather Conditions:	Sun	Ambient Temp:	50's
Sampling Personnel:	M. Duslin + B. Dickerson		

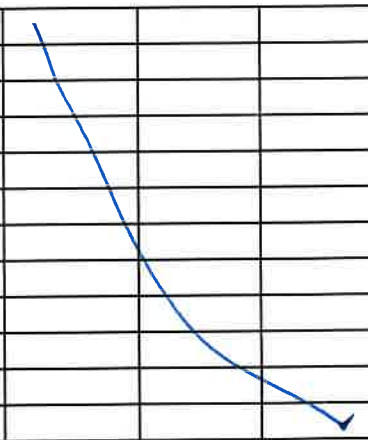
EQUIPMENT				SAMPLE BOTTLES		# Bottles	SAMPLE METHOD
Purging:		Sampling:		X	500mL poly - HNO3	1	App. I Metals - 6020/7470
	Grundfos		Grundfos	X	500 mL poly - none	1	Fluoride, Sulfate - 9056
	Fultz		Fultz	X	500 mL poly - H2SO4	1	Ammonia - 4500NH3D-2011
	Bailer		Bailer				
	QED		QED				
X	YSI		YSI				
	Peristaltic		Peristaltic				
X	Proactive	X	Proactive				
	Hydrolab						

Notes:

Work Plan Approved Decontamination Procedures Followed? yes

Well Diameter (in):	2	Depth of well from TOC (ft):	82.30		
Depth to Groundwater (ft):	53.13	Length of Water Column (ft):	29.17	Start:	Finish:
Total Purge Volume (L):	1.0 gal		Purge:	0735	0755
Sediment Thickness (ft):	—		Sample:	755	800

Time		735	740	745	750	755	
Depth to Water	ft-bgs	53.13	53.20	53.20	53.20	53.20	
Purge Volume	L	Init	0.2	0.4	0.6	0.8	
Pumping Rate	L/min	0.2	0.2	0.2	0.2	0.2	
Temperature	C	19.3	19.9	19.6	19.7	19.9	
Conductivity	mS/cm	217.3	213.3	217.1	216.9	218.4	
DO	mg/L	1.30	0.66	0.53	0.43	0.37	
pH	units	6.06	5.94	5.92	5.91	5.90	
Specific Cond.	g/L	244.4	241.7	242.1	241.5	241.9	
ORP	mV	135.2	176.3	190.5	194.6	196.9	
Turbidity	NTU	18.3	37.3	14.1	11.1	6.20	
Odor		None	→	→			
Color		Clear	→	→			



Field Parameters (continued)

Time									
Depth to Water	ft-bgs								
Purge Volume	L								
Pumping Rate	mL/min								
Temperature	C								
Conductivity	mS/cm								
DO	mg/L								
pH	units								
TDS	g/L								
ORP	mV								
Turbidity	NTU								
Odor									
Color									

Notes:

1 ft. of water in 2" dia. Well = 0.16 gal

1 ft. of water in 4" dia. Well = 0.65 gal

Turbidity Choices: clear, turbid, opaque

Color Choices: clear, brown, gray, milky, orange

Project Name:	Eplex Class III Landfill	**Well ID:**	**MW-7**
Location:	Collierville, TN		
Project No:	328-417	**Date:**	11-21-2024
Weather Conditions:	Sunny	**Ambient Temp:**	50's
Sampling Personnel:	M. Dublin + E. Dillenson		

EQUIPMENT				SAMPLE BOTTLES		# Bottles	SAMPLE METHOD
Purging:		**Sampling:**		X	500mL poly - HNO3	1	App. I Metals - 6020/7470
	Grundfos		Grundfos	X	500 mL poly - none	1	Fluoride, Sulfate - 9056
	Fultz		Fultz	X	500 mL poly - H2SO4	1	Ammonia - 4500NH3D-2011
	Bailer		Bailer				
	QED		QED				
X	YSI		YSI				
	Peristaltic		Peristaltic				
X	Proactive	X	Proactive				
	Hydrolab						

Notes: Blockage in well @ 28.70 ft b top of casing

Work Plan Approved Decontamination Procedures Followed?

Well Diameter (in):	2	**Depth of well from TOC (ft):**		
Depth to Groundwater (ft):		**Length of Water Column (ft):**	**Start:**	**Finish:**
Total Purge Volume (L):		**Purge:**		
Sediment Thickness (ft):		**Sample:**		

Time										
Depth to Water	**ft-bgs**									
Purge Volume	**L**									
Pumping Rate	**L/min**									
Temperature	**C**									
Conductivity	**mS/cm**									
DO	**mg/L**									
pH	**units**									
Specific Cond.	**g/L**									
ORP	**mV**									
Turbidity	**NTU**									
Odor										
Color										

Field Parameters (continued)

Time										
Depth to Water	**ft-bgs**									
Purge Volume	**L**									
Pumping Rate	**mL/min**									
Temperature	**C**									
Conductivity	**mS/cm**									
DO	**mg/L**									
pH	**units**									
TDS	**g/L**									
ORP	**mV**									
Turbidity	**NTU**									
Odor										
Color										

Notes:

1 ft. of water in 2" dia. Well = 0.16 gal

1 ft. of water in 4" dia. Well = 0.65 gal

Turbidity Choices: clear, turbid, opaque

Color Choices: clear, brown, gray, milky, orange

Project Name:	Eplex Class III Landfill	Well ID:	MW-3
Location:	Collierville, TN		
Project No:	328-417	Date:	1-17-2025
Weather Conditions:	Sun	Ambient Temp:	38 - 45°
Sampling Personnel:	M. Dublin + J. Daughtry		

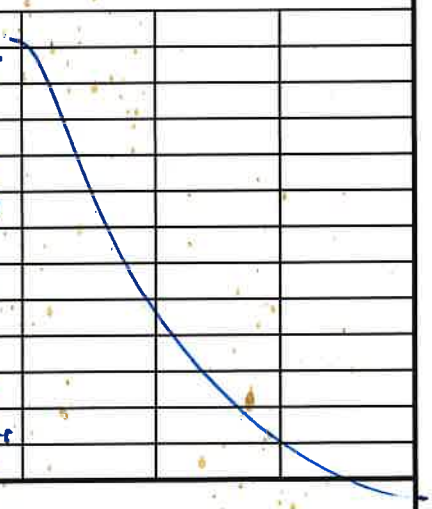
EQUIPMENT				SAMPLE BOTTLES			
Purging:		Sampling:				# Bottles	SAMPLE METHOD
	Grundfos		Grundfos	X	500mL poly - HNO3	1	App. I Metals - 6020/7470
	Fultz		Fultz	X	500 mL poly - none	1	Fluoride, Sulfate - 9056
	Bailer		Bailer	X	500 mL poly - H2SO4	1	Ammonia - 4500NH3D-2011
	QED		QED				
X	YSI		YSI				
	Peristaltic		Peristaltic				
X	Proactive	X	Proactive				
	Hydrolab						

Notes:

Work Plan Approved Decontamination Procedures Followed?

Well Diameter (in):	2	Depth of well from TOC (ft):	52.94		
Depth to Groundwater (ft):	33.78	Length of Water Column (ft):	19.16	Start:	Finish:
Total Purge Volume ~~(L)~~:	1.0 gal		Purge:	1120	1140
Sediment Thickness (ft):			Sample:	1140	1145

Time		1120	1125	1130	1135	1140
Depth to Water	ft-bgs	33.78	33.81	33.85	33.85	33.85
Purge Volume	~~gal~~ L	Initial	.25	.50	.75	1.0
Pumping Rate	~~g~~ L/min	Initial	.25	.25	.25	.25
Temperature	C	17.1	17.3	16.7	17.4	17.2
Conductivity	mS/cm	468.5	465.0	446.6	440.4	441.7
DO	mg/L	1.51	1.22	1.15	1.04	1.01
pH	units	6.63	6.51	6.55	6.49	6.47
Specific Cond.	g/L	547	542	533	522	519
ORP	mV	166.3	190.6	180.8	174.3	174.1
Turbidity	NTU	31.01	17.13	8.52	9.96	6.47
Odor		No odor	No odor	No odor	No odor	No odor
Color		Clear	Clear	Clear	Clear	Clear



Field Parameters (continued)

Time									
Depth to Water	ft-bgs								
Purge Volume	L								
Pumping Rate	mL/min								
Temperature	C								
Conductivity	mS/cm								
DO	mg/L								
pH	units								
TDS	g/L								
ORP	mV								
Turbidity	NTU								
Odor									
Color									

Notes:

1 ft. of water in 2" dia. Well = 0.16 gal

1 ft. of water in 4" dia. Well = 0.65 gal

Turbidity Choices: clear, turbid, opaque

Color Choices: clear, brown, gray, milky, orange

EQUIPMENT CALIBRATION LOG

Civil & Environmental Consultants, Inc. 117 Seaboard Lane Suite E100 Franklin, Tennessee 37067 - 800-763-2326 - www.cecinc.com

EQUIPMENT CALIBRATION FORM

NAME OF REPRESENTATIVE	M. Dublin
LOCATION	EPLEX Landfill
DATE AND TIME	11-20-24 @ 15:00
Equipment and Model # (ex. YSI Pro Plus 556)	YSI DSS Pro & Hach Turbidity #1
Equipment Serial #	

pH Calibration

pH buffer Calibration Standard	Buffer solution exp. date	Pre-Cal Reading (S.U.)	ph mV Value	Accepted Range mV	Within Range? (Yes or No)	Post-Cal Reading (S.U.)	Calibrated? (yes/no)
4	7/25/26	4.13	150.3	160 to 180	no	4.00	yes
7	3/18/26	7.10	-21.3	+/-50	yes	7.02	yes
10	4/14/26	9.99	-191.9	-160 to -180	no	10.00	yes

Temperature Calibration Check

Cert. Thermometer Value (deg C)	Meter Value (deg C)
22.4	21.8

DO Calibration

Actual Barometric Pressure	Barometric Pressure (mm Hg)	D.O. Value (% Saturated)	Unit reading (%)	% DO accepted?
		100	79.9	yes

Specific Conductivity Calibration

Sp. Conductivity Calibration Standard buffer solution	Buffer solution exp. date	Pre Cal Reading (umhos)	Post Cal Reading (umhos)
1409 umho/cm	8/15/25	1391	1409

ORP Calibration

ORP Calibration (mV)	Buffer solution exp. date	Pre Cal Reading (mV)	Post Cal Reading (mV)
220	10/1/25	220	220

Hach Model 2100P Turbidimeter Calibration

Calibration verification Test performed and passed?	NTU Standard	Within Range? (Yes/No)	Measured Value	Stored?	Final Verification test passed? (Yes/No)
Yes	20	y	21.2	y	ok
No	100	y	100	y	ok
Note: if verification passed, calibration not required	800	y	798.2	y	ok

APPENDIX B

LABORATORY ANALYTICAL REPORTS

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ⁰ Fax 901.213.2440
www.waypointanalytical.com

12/11/2024

Civil & Environmental Consultants, Inc.
Mr. Michael Johnson
117 Seaboard Lane
Suite E-100
Franklin, TN, 37067

Ref: Analytical Testing
Lab Report Number: 24-327-0220
Client Project Description: Blaylock and Brown Construction Landfill
Project #: 328-417
Project Number: Walnut Grove Rd Landfill

Dear Mr. Michael Johnson:
Waypoint Analytical, LLC. received sample(s) on 11/22/2024 for the analyses presented in the following report.

The above referenced project has been analyzed per your instructions. The analyses were performed in accordance with the applicable analytical method. Where the laboratory was not responsible for the sampling stage (refer to the chain of custody) results apply to the sample as received.

The analytical data has been validated using standard quality control measures performed as required by the analytical method. Quality Assurance, method validations, instrumentation maintenance and calibration for all parameters (NELAP and non-NELAP) were performed in accordance with guidelines established by the USEPA (including 40 CFR 136 Method Update Rule May 2021) and NELAC unless otherwise indicated. Any parameter for which the laboratory is not officially NELAP accredited is indicated by a '~' symbol. These are not included in the scope because NELAP accreditation is either not available or has not been applied for. Additional certifications may be held/are available for parameters, where NELAP accreditation is not required or applicable. A full list of certifications is available upon request.

Certain parameters (chlorine, pH, dissolved oxygen, sulfite...) are required to be analyzed within 15 minutes of sampling. Usually, but not always, any field parameter analyzed at the laboratory is outside of this holding time. Refer to sample analysis time for confirmation of holding time compliance.

The results are shown on the attached Report of Analysis(s). Results for solid matrices are reported on an as-received basis unless otherwise indicated. This report shall not be reproduced except in full and relates only to the samples included in this report.

Please do not hesitate to contact me or client services if you have any questions or need additional information.

Sincerely,

Andrea R Brownfield
Project manager

Laboratory's liability in any claim relating to analyses performed shall be limited to, at laboratory's option, repeating the analysis in question at laboratory's expense, or the refund of the charges paid for performance of said analysis.

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Certification Summary

Laboratory ID: WP MTN: Waypoint Analytical, LLC., Memphis, TN

State	Program	Lab ID	Expiration Date
Alabama	State Program	40750	02/28/2025
Arkansas	State Program	88-0650	02/07/2025
California	State Program	2904	06/30/2025
Florida	State Program - NELAP	E871157	06/30/2025
Georgia	State Program	C044	11/14/2025
Georgia	State Program	04015	06/30/2025
Illinois	State Program - NELAP	200078	10/31/2025
Kentucky	State Program	90047	12/31/2024
Kentucky	State Program	80215	06/30/2025
Kentucky	State Program	KY90047	12/31/2024
Louisiana	State Program - NELAP	LA037	12/31/2024
Louisiana	State Program - NELAP	04015	06/30/2025
Mississippi	State Program	MS	11/14/2025
North Carolina	State Program	47701	07/31/2025
North Carolina	State Program	415	12/31/2024
Pennsylvania	State Program - NELAP	68-03195	05/31/2025
South Carolina	State Program	84002	06/30/2025
Tennessee	State Program	02027	11/14/2025
Texas	State Program - NELAP	T104704180	09/30/2025
Virginia	State Program	00106	06/30/2025
Virginia	State Program - NELAP	460181	09/14/2025

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Sample Summary Table

Report Number: **24-327-0220**

Client Project Description: **Blaylock and Brown Construction Landfill**
Project #: 328-417

Lab No	Client Sample ID	Matrix	Date Collected	Date Received
87556	MW-1	Aqueous	11/21/2024 11:50	11/22/2024
87557	MW-2	Aqueous	11/21/2024 10:40	11/22/2024
87558	MW-4	Aqueous	11/21/2024 09:30	11/22/2024
87559	MW-5	Aqueous	11/21/2024 08:39	11/22/2024
87560	MW-6	Aqueous	11/21/2024 07:55	11/22/2024
87561	Duplicate	Aqueous	11/21/2024	11/22/2024
87562	Rinsate	Aqueous	11/21/2024 11:30	11/22/2024

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Client: Civil & Environmental Consultants, Inc. **CASE NARRATIVE**
Project: Blaylock and Brown Construction Landfill
Lab Report Number: 24-327-0220
Date: 12/11/2024

Metals Analyses Method 6020B
Sample 97797
Analyte: Cobalt
QC Batch No: L787488/L786894
Target analyte(s) was identified in the method blank associated with this project, below the Method Quantitation Limit. Per laboratory protocol any associated affected sample result is flagged "B" to indicate that it was detected in the method blank.

Waypoint ANALYTICAL

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04511
Civil & Environmental Consultants, Inc.
Mr. Michael Johnson
117 Seaboard Lane
Suite E-100
Franklin , TN 37067

Project ID :
Project Blaylock and Brown Construction Landfill
Information : Project #: 328-417

Report Date : 12/11/2024
Received : 11/22/2024

Andrea R. Brownfield
Project manager

Report Number : **24-327-0220**

REPORT OF ANALYSIS

Lab No : **87556**
Sample ID : **MW-1**

Matrix: **Aqueous**
Sampled: **11/21/2024 11:50**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Silver	<0.0010	mg/L	0.0010	1	12/01/24 17:43	CPW	6020B
Arsenic	<0.0010	mg/L	0.0010	1	12/01/24 17:43	CPW	6020B
Barium	**0.045**	mg/L	0.001	1	12/01/24 17:43	CPW	6020B
Beryllium	<0.0010	mg/L	0.0010	1	12/01/24 17:43	CPW	6020B
Cadmium	<0.0010	mg/L	0.0010	1	12/01/24 17:43	CPW	6020B
Cobalt	**0.005**	mg/L	0.001	1	12/01/24 17:43	CPW	6020B
Chromium	<0.001	mg/L	0.001	1	12/01/24 17:43	CPW	6020B
Copper	**0.0026**	mg/L	0.0010	1	12/01/24 17:43	CPW	6020B
Nickel	**0.0021**	mg/L	0.0010	1	12/01/24 17:43	CPW	6020B
Lead	<0.0010	mg/L	0.0010	1	12/01/24 17:43	CPW	6020B
Antimony	**0.0019**	mg/L	0.0010	1	12/01/24 17:43	CPW	6020B
Selenium	<0.001	mg/L	0.001	1	12/01/24 17:43	CPW	6020B
Thallium	<0.0010	mg/L	0.0010	1	12/01/24 17:43	CPW	6020B
Vanadium	<0.005	mg/L	0.005	1	12/01/24 17:43	CPW	6020B
Zinc	**20.2**	µg/L	10.0	1	12/01/24 17:43	CPW	6020B
Mercury	<0.00020	mg/L	0.00020	1	12/03/24 13:04	FDS	7470A
Fluoride (w/o distillation)	<0.125	mg/L	0.125	1	12/09/24 16:14	HMQ	9056A
Ammonia Nitrogen	<0.100	mg/L	0.100	1	11/26/24 13:42	JAAT	4500NH3D-2011
Sulfate	**10.8**	mg/L	1.00	1	12/09/24 16:14	HMQ	9056A

Qualifiers/ Definitions DF Dilution Factor MQL Method Quantitation Limit

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04511
Civil & Environmental Consultants, Inc.
Mr. Michael Johnson
117 Seaboard Lane
Suite E-100
Franklin , TN 37067

Project ID :
Project Blaylock and Brown Construction Landfill
Information : Project #: 328-417

Report Date : 12/11/2024
Received : 11/22/2024

Andrea R. Brownfield
Project manager

Report Number : **24-327-0220**

REPORT OF ANALYSIS

Lab No : **87557**
Sample ID : **MW-2**

Matrix: **Aqueous**
Sampled: **11/21/2024 10:40**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Silver	<0.0010	mg/L	0.0010	1	12/01/24 17:47	CPW	6020B
Arsenic	<0.0010	mg/L	0.0010	1	12/01/24 17:47	CPW	6020B
Barium	**0.024**	mg/L	0.001	1	12/01/24 17:47	CPW	6020B
Beryllium	<0.0010	mg/L	0.0010	1	12/01/24 17:47	CPW	6020B
Cadmium	<0.0010	mg/L	0.0010	1	12/01/24 17:47	CPW	6020B
Cobalt	<0.001	mg/L	0.001	1	12/01/24 17:47	CPW	6020B
Chromium	<0.001	mg/L	0.001	1	12/01/24 17:47	CPW	6020B
Copper	**0.0035**	mg/L	0.0010	1	12/01/24 17:47	CPW	6020B
Nickel	<0.0010	mg/L	0.0010	1	12/01/24 17:47	CPW	6020B
Lead	<0.0010	mg/L	0.0010	1	12/01/24 17:47	CPW	6020B
Antimony	<0.0010	mg/L	0.0010	1	12/01/24 17:47	CPW	6020B
Selenium	<0.001	mg/L	0.001	1	12/01/24 17:47	CPW	6020B
Thallium	<0.0010	mg/L	0.0010	1	12/01/24 17:47	CPW	6020B
Vanadium	<0.005	mg/L	0.005	1	12/01/24 17:47	CPW	6020B
Zinc	**31.2**	µg/L	10.0	1	12/01/24 17:47	CPW	6020B
Mercury	<0.00020	mg/L	0.00020	1	12/03/24 13:06	FDS	7470A
Fluoride (w/o distillation)	<0.125	mg/L	0.125	1	12/09/24 16:40	HMQ	9056A
Ammonia Nitrogen	<0.100	mg/L	0.100	1	11/26/24 13:42	JAAT	4500NH3D-2011
Sulfate	<1.00	mg/L	1.00	1	12/09/24 16:40	HMQ	9056A

Qualifiers/ Definitions DF Dilution Factor MQL Method Quantitation Limit

Waypoint ANALYTICAL

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04511
Civil & Environmental Consultants, Inc.
Mr. Michael Johnson
117 Seaboard Lane
Suite E-100
Franklin , TN 37067

Project ID :
Project Blaylock and Brown Construction Landfill
Information : Project #: 328-417

Report Date : 12/11/2024
Received : 11/22/2024

Andrea R. Brownfield
Project manager

Report Number : **24-327-0220**

REPORT OF ANALYSIS

Lab No : **87558**
Sample ID : **MW-4**

Matrix: **Aqueous**
Sampled: **11/21/2024 9:30**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Silver	<0.0010	mg/L	0.0010	1	12/01/24 17:52	CPW	6020B
Arsenic	**0.0021**	mg/L	0.0010	1	12/01/24 17:52	CPW	6020B
Barium	**0.112**	mg/L	0.001	1	12/01/24 17:52	CPW	6020B
Beryllium	<0.0010	mg/L	0.0010	1	12/01/24 17:52	CPW	6020B
Cadmium	<0.0010	mg/L	0.0010	1	12/01/24 17:52	CPW	6020B
Cobalt	**0.001**	mg/L	0.001	1	12/01/24 17:52	CPW	6020B
Chromium	<0.001	mg/L	0.001	1	12/01/24 17:52	CPW	6020B
Copper	**0.0020**	mg/L	0.0010	1	12/01/24 17:52	CPW	6020B
Nickel	**0.0033**	mg/L	0.0010	1	12/01/24 17:52	CPW	6020B
Lead	<0.0010	mg/L	0.0010	1	12/01/24 17:52	CPW	6020B
Antimony	<0.0010	mg/L	0.0010	1	12/01/24 17:52	CPW	6020B
Selenium	<0.001	mg/L	0.001	1	12/01/24 17:52	CPW	6020B
Thallium	<0.0010	mg/L	0.0010	1	12/01/24 17:52	CPW	6020B
Vanadium	<0.005	mg/L	0.005	1	12/01/24 17:52	CPW	6020B
Zinc	**13.6**	µg/L	10.0	1	12/01/24 17:52	CPW	6020B
Mercury	<0.00020	mg/L	0.00020	1	12/03/24 13:07	FDS	7470A
Fluoride (w/o distillation)	<0.125	mg/L	0.125	1	12/09/24 17:06	HMQ	9056A
Ammonia Nitrogen	<0.100	mg/L	0.100	1	11/26/24 13:42	JAAT	4500NH3D-2011
Sulfate	**6.38**	mg/L	1.00	1	12/09/24 17:06	HMQ	9056A

Qualifiers/ Definitions DF Dilution Factor MQL Method Quantitation Limit

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04511
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Mr. Michael Johnson
117 Seaboard Lane
Suite E-100
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Project ID :
Project Blaylock and Brown Construction Landfill
Information : Project #: 328-417

Report Date : 12/11/2024
Received : 11/22/2024

Andrea R. Brownfield
Project manager

Report Number : **24-327-0220**

REPORT OF ANALYSIS

Lab No : **87559**
Sample ID : **MW-5**

Matrix: **Aqueous**
Sampled: **11/21/2024 8:39**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Silver	<0.0010	mg/L	0.0010	1	12/01/24 17:59	CPW	6020B
Arsenic	<0.0010	mg/L	0.0010	1	12/01/24 17:59	CPW	6020B
Barium	**0.046**	mg/L	0.001	1	12/01/24 17:59	CPW	6020B
Beryllium	<0.0010	mg/L	0.0010	1	12/01/24 17:59	CPW	6020B
Cadmium	<0.0010	mg/L	0.0010	1	12/01/24 17:59	CPW	6020B
Cobalt	<0.001	mg/L	0.001	1	12/01/24 17:59	CPW	6020B
Chromium	<0.001	mg/L	0.001	1	12/01/24 17:59	CPW	6020B
Copper	**0.0025**	mg/L	0.0010	1	12/01/24 17:59	CPW	6020B
Nickel	**0.0010**	mg/L	0.0010	1	12/01/24 17:59	CPW	6020B
Lead	<0.0010	mg/L	0.0010	1	12/01/24 17:59	CPW	6020B
Antimony	<0.0010	mg/L	0.0010	1	12/01/24 17:59	CPW	6020B
Selenium	<0.001	mg/L	0.001	1	12/01/24 17:59	CPW	6020B
Thallium	<0.0010	mg/L	0.0010	1	12/01/24 17:59	CPW	6020B
Vanadium	<0.005	mg/L	0.005	1	12/01/24 17:59	CPW	6020B
Zinc	**23.8**	µg/L	10.0	1	12/01/24 17:59	CPW	6020B
Mercury	<0.00020	mg/L	0.00020	1	12/03/24 13:08	FDS	7470A
Fluoride (w/o distillation)	<0.125	mg/L	0.125	1	12/09/24 17:32	HMQ	9056A
Ammonia Nitrogen	<0.100	mg/L	0.100	1	11/27/24 13:07	JAAT	4500NH3D-2011
Sulfate	**26.1**	mg/L	1.00	1	12/09/24 17:32	HMQ	9056A

Qualifiers/ Definitions DF Dilution Factor MQL Method Quantitation Limit

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Project ID :
Project Blaylock and Brown Construction Landfill
Information : Project #: 328-417

Report Date : 12/11/2024
Received : 11/22/2024

Andrea R. Brownfield
Project manager

Report Number : **24-327-0220**

REPORT OF ANALYSIS

Lab No : **87560**
Sample ID : **MW-6**

Matrix: **Aqueous**
Sampled: **11/21/2024 7:55**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Silver	<0.0010	mg/L	0.0010	1	12/01/24 18:05	CPW	6020B
Arsenic	<0.0010	mg/L	0.0010	1	12/01/24 18:05	CPW	6020B
Barium	**0.041**	mg/L	0.001	1	12/01/24 18:05	CPW	6020B
Beryllium	<0.0010	mg/L	0.0010	1	12/01/24 18:05	CPW	6020B
Cadmium	<0.0010	mg/L	0.0010	1	12/01/24 18:05	CPW	6020B
Cobalt	<0.001	mg/L	0.001	1	12/01/24 18:05	CPW	6020B
Chromium	<0.001	mg/L	0.001	1	12/01/24 18:05	CPW	6020B
Copper	**0.0020**	mg/L	0.0010	1	12/01/24 18:05	CPW	6020B
Nickel	**0.0012**	mg/L	0.0010	1	12/01/24 18:05	CPW	6020B
Lead	<0.0010	mg/L	0.0010	1	12/01/24 18:05	CPW	6020B
Antimony	<0.0010	mg/L	0.0010	1	12/01/24 18:05	CPW	6020B
Selenium	<0.001	mg/L	0.001	1	12/01/24 18:05	CPW	6020B
Thallium	<0.0010	mg/L	0.0010	1	12/01/24 18:05	CPW	6020B
Vanadium	<0.005	mg/L	0.005	1	12/01/24 18:05	CPW	6020B
Zinc	**20.8**	µg/L	10.0	1	12/01/24 18:05	CPW	6020B
Mercury	**0.00025**	mg/L	0.00020	1	12/03/24 13:10	FDS	7470A
Fluoride (w/o distillation)	<0.125	mg/L	0.125	1	12/09/24 17:58	HMQ	9056A
Ammonia Nitrogen	<0.100	mg/L	0.100	1	11/27/24 13:07	JAAT	4500NH3D-2011
Sulfate	**9.53**	mg/L	1.00	1	12/09/24 17:58	HMQ	9056A

Qualifiers/ Definitions DF Dilution Factor MQL Method Quantitation Limit

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Project ID :
Project Blaylock and Brown Construction Landfill
Information : Project #: 328-417

Report Date : 12/11/2024
Received : 11/22/2024

Andrea R. Brownfield
Project manager

Report Number : **24-327-0220**

REPORT OF ANALYSIS

Lab No : **87561**
Sample ID : **Duplicate**

Matrix: **Aqueous**
Sampled: **11/21/2024 0:00**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Silver	<0.0010	mg/L	0.0010	1	12/02/24 18:19	JTR	6020B
Arsenic	<0.0010	mg/L	0.0010	1	12/02/24 18:19	JTR	6020B
Barium	**0.048**	mg/L	0.001	1	12/02/24 18:19	JTR	6020B
Beryllium	<0.0010	mg/L	0.0010	1	12/02/24 18:19	JTR	6020B
Cadmium	<0.0010	mg/L	0.0010	1	12/02/24 18:19	JTR	6020B
Cobalt	**0.005**	mg/L	0.001	1	12/02/24 18:19	JTR	6020B
Chromium	<0.001	mg/L	0.001	1	12/02/24 18:19	JTR	6020B
Copper	**0.0031**	mg/L	0.0010	1	12/02/24 18:19	JTR	6020B
Nickel	**0.0023**	mg/L	0.0010	1	12/02/24 18:19	JTR	6020B
Lead	<0.0010	mg/L	0.0010	1	12/02/24 18:19	JTR	6020B
Antimony	<0.0010	mg/L	0.0010	1	12/04/24 16:47	CPW	6020B
Selenium	**0.001**	mg/L	0.001	1	12/02/24 18:19	JTR	6020B
Thallium	<0.0010	mg/L	0.0010	1	12/02/24 18:19	JTR	6020B
Vanadium	<0.005	mg/L	0.005	1	12/04/24 16:47	CPW	6020B
Zinc	**14.2**	µg/L	10.0	1	12/02/24 18:19	JTR	6020B
Mercury	<0.00020	mg/L	0.00020	1	12/03/24 13:11	FDS	7470A
Fluoride (w/o distillation)	<0.125	mg/L	0.125	1	12/09/24 18:50	HMQ	9056A
Ammonia Nitrogen	<0.100	mg/L	0.100	1	11/27/24 13:07	JAAT	4500NH3D-2011
Sulfate	**10.7**	mg/L	1.00	1	12/09/24 18:50	HMQ	9056A

Qualifiers/ Definitions DF Dilution Factor MQL Method Quantitation Limit

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Project ID :
Project Blaylock and Brown Construction Landfill
Information : Project #: 328-417

Report Date : 12/11/2024
Received : 11/22/2024

Andrea R. Brownfield
Project manager

Report Number : **24-327-0220**

REPORT OF ANALYSIS

Lab No : **87562**
Sample ID : **Rinsate**

Matrix: **Aqueous**
Sampled: **11/21/2024 11:30**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Silver	<0.0010	mg/L	0.0010	1	12/01/24 18:16	CPW	6020B
Arsenic	<0.0010	mg/L	0.0010	1	12/01/24 18:16	CPW	6020B
Barium	<0.001	mg/L	0.001	1	12/01/24 18:16	CPW	6020B
Beryllium	<0.0010	mg/L	0.0010	1	12/01/24 18:16	CPW	6020B
Cadmium	<0.0010	mg/L	0.0010	1	12/01/24 18:16	CPW	6020B
Cobalt	<0.001	mg/L	0.001	1	12/01/24 18:16	CPW	6020B
Chromium	<0.001	mg/L	0.001	1	12/01/24 18:16	CPW	6020B
Copper	<0.0010	mg/L	0.0010	1	12/01/24 18:16	CPW	6020B
Nickel	<0.0010	mg/L	0.0010	1	12/01/24 18:16	CPW	6020B
Lead	<0.0010	mg/L	0.0010	1	12/01/24 18:16	CPW	6020B
Antimony	<0.0010	mg/L	0.0010	1	12/01/24 18:16	CPW	6020B
Selenium	<0.001	mg/L	0.001	1	12/01/24 18:16	CPW	6020B
Thallium	<0.0010	mg/L	0.0010	1	12/01/24 18:16	CPW	6020B
Vanadium	<0.005	mg/L	0.005	1	12/01/24 18:16	CPW	6020B
Zinc	<10.0	µg/L	10.0	1	12/01/24 18:16	CPW	6020B
Mercury	<0.00020	mg/L	0.00020	1	12/03/24 13:13	FDS	7470A
Fluoride (w/o distillation)	<0.125	mg/L	0.125	1	12/09/24 19:16	HMQ	9056A
Ammonia Nitrogen	<0.100	mg/L	0.100	1	11/27/24 13:07	JAAT	4500NH3D-2011
Sulfate	<1.00	mg/L	1.00	1	12/09/24 19:16	HMQ	9056A

Qualifiers/ Definitions DF Dilution Factor MQL Method Quantitation Limit

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Quality Control Data

Client ID: **Civil & Environmental Consultants, Inc.**
Project Description: **Blaylock and Brown Construction Landfill**
Report No: **24-327-0220**

QC Analytical Batch: L786485
Analysis Method: 4500NH3D-2011
Analysis Description: Ammonia Nitrogen (ISE)

Lab Reagent Blank LRB Matrix: AQU
Associated Lab Samples: 87556, 87557, 87558

Parameter	Units	Blank Result	MQL	Analyzed
Ammonia Nitrogen	mg/L	< 0.100	0.100	11/26/24 13:42

Laboratory Control Sample LCS

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Ammonia Nitrogen	mg/L	5.00	4.89	98.0	90-110

Matrix Spike & Matrix Spike Duplicate L 83291-MS L 83291-MSD

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	MSD %Rec	%Rec Limits	RPD	Max RPD
Ammonia Nitrogen	mg/L	29.7	20.0	20.0	50.4	50.8	103	106	70-130	0.7	20.0

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Quality Control Data

Client ID: **Civil & Environmental Consultants, Inc.**
Project Description: **Blaylock and Brown Construction Landfill**
Report No: **24-327-0220**

QC Analytical Batch: L786859
Analysis Method: 4500NH3D-2011
Analysis Description: Ammonia Nitrogen (ISE)

Lab Reagent Blank LRB Matrix: AQU
Associated Lab Samples: 87559, 87560, 87561, 87562

Parameter	Units	Blank Result	MQL	Analyzed
Ammonia Nitrogen	mg/L	< 0.100	0.100	11/27/24 13:07

Laboratory Control Sample LCS

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Ammonia Nitrogen	mg/L	5.00	5.19	104	90-110

Matrix Spike & Matrix Spike Duplicate L 88351-MS L 88351-MSD

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	MSD %Rec	%Rec Limits	RPD	Max RPD
Ammonia Nitrogen	mg/L	35.8	20.0	20.0	57.2	57.7	107	110	70-130	0.8	20.0

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Quality Control Data

Client ID: Civil & Environmental Consultants, Inc.
Project Description: Blaylock and Brown Construction Landfill
Report No: 24-327-0220

QC Prep: L786732
QC Prep Batch Method: 3005A
QC Analytical Batch(es): L787206
Analysis Method: 6020B
Analysis Description: Metals Analyses

Lab Reagent Blank LRB-L786732 Matrix: AQU
Associated Lab Samples: 87556, 87557, 87558, 87559, 87560, 87562

Parameter	Units	Blank Result	MQL	Analyzed
Antimony	mg/L	<0.0010	0.0010	12/01/24 16:09
Arsenic	mg/L	<0.0010	0.0010	12/01/24 16:09
Barium	mg/L	<0.001	0.001	12/01/24 16:09
Beryllium	mg/L	<0.0010	0.0010	12/01/24 16:09
Cadmium	mg/L	<0.0010	0.0010	12/01/24 16:09
Chromium	mg/L	<0.001	0.001	12/01/24 16:09
Cobalt	mg/L	<0.001	0.001	12/01/24 16:09
Copper	mg/L	<0.0010	0.0010	12/01/24 16:09
Lead	mg/L	<0.0010	0.0010	12/01/24 16:09
Nickel	mg/L	<0.0010	0.0010	12/01/24 16:09
Selenium	mg/L	<0.001	0.001	12/01/24 16:09
Silver	mg/L	<0.0010	0.0010	12/01/24 16:09
Thallium	mg/L	<0.0010	0.0010	12/01/24 16:09
Vanadium	mg/L	<0.005	0.005	12/01/24 16:09
Zinc	mg/L	<0.010	0.010	12/01/24 16:09

Laboratory Control Sample LCS-L786732

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Antimony	mg/L	0.100	0.120	120	80-120
Arsenic	mg/L	0.0500	0.0508	102	80-120
Barium	mg/L	0.100	0.103	103	80-120
Beryllium	mg/L	0.0500	0.0499	100	80-120
Cadmium	mg/L	0.0100	0.0098	98.0	80-120
Chromium	mg/L	0.100	0.103	103	80-120
Cobalt	mg/L	0.100	0.100	100	80-120
Copper	mg/L	0.0500	0.0513	103	80-120

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Quality Control Data

Client ID: Civil & Environmental Consultants, Inc.
Project Description: Blaylock and Brown Construction Landfill
Report No: 24-327-0220

QC Prep: L786732
QC Prep Batch Method: 3005A
QC Analytical Batch(es): L787206
Analysis Method: 6020B
Analysis Description: Metals Analyses

Laboratory Control Sample LCS-L786732

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Lead	mg/L	0.0500	0.0487	97.0	80-120
Nickel	mg/L	0.0500	0.0500	100	80-120
Selenium	mg/L	0.100	0.102	102	80-120
Silver	mg/L	0.0100	0.0099	99.0	80-120
Thallium	mg/L	0.0100	0.0096	96.0	80-120
Vanadium	mg/L	0.500	0.493	99.0	80-120
Zinc	mg/L	0.500	0.542	108	80-120

Matrix Spike & Matrix Spike Duplicate L 87562-MS-L786732 L 87562-MSD-L786732

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	MSD %Rec	%Rec Limits	RPD	Max RPD
Antimony	mg/L	<0.0010	0.100	0.100	0.112	0.113	112	113	75-125	0.8	20
Arsenic	mg/L	<0.0010	0.0500	0.0500	0.0496	0.0490	99.0	98.0	75-125	1.2	20
Barium	mg/L	<0.001	0.100	0.100	0.100	0.100	100	100	75-125	0.0	20
Beryllium	mg/L	<0.0010	0.0500	0.0500	0.0470	0.0467	94.0	93.0	75-125	0.6	20
Cadmium	mg/L	<0.0010	0.0100	0.0100	0.0096	0.0096	96.0	96.0	75-125	0.1	20
Chromium	mg/L	<0.001	0.100	0.100	0.102	0.102	102	102	75-125	0.0	20
Cobalt	mg/L	<0.001	0.100	0.100	0.098	0.096	98.0	97.0	75-125	1.4	20
Copper	mg/L	<0.0010	0.0500	0.0500	0.0503	0.0498	101	100	75-125	0.9	20
Lead	mg/L	<0.0010	0.0500	0.0500	0.0499	0.0498	100	100	75-125	0.2	20
Nickel	mg/L	<0.0010	0.0500	0.0500	0.0487	0.0482	97.0	96.0	75-125	1.0	20
Selenium	mg/L	<0.001	0.100	0.100	0.099	0.097	99.0	98.0	75-125	1.3	20
Silver	mg/L	<0.0010	0.0100	0.0100	0.0096	0.0097	97.0	97.0	75-125	0.5	20
Thallium	mg/L	<0.0010	0.0100	0.0100	0.0099	0.0095	100	95.0	75-125	4.8	20
Vanadium	mg/L	<0.005	0.500	0.500	0.504	0.490	101	98.0	75-125	2.8	20

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Quality Control Data

Client ID: **Civil & Environmental Consultants, Inc.**
Project Description: **Blaylock and Brown Construction Landfill**
Report No: **24-327-0220**

QC Prep: L786732
QC Prep Batch Method: 3005A
QC Analytical Batch(es): L787206
Analysis Method: 6020B
Analysis Description: Metals Analyses

Matrix Spike & Matrix Spike Duplicate L 87562-MS-L786732 L 87562-MSD-L786732

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	MSD %Rec	%Rec Limits	RPD	Max RPD
Zinc	mg/L	<0.010	0.500	0.500	0.518	0.520	102	103	75-125	0.3	20

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Quality Control Data

Client ID: Civil & Environmental Consultants, Inc.
Project Description: Blaylock and Brown Construction Landfill
Report No: 24-327-0220

QC Prep: L786894
QC Prep Batch Method: 3005A
QC Analytical Batch(es): L787488,L787951,L788535
Analysis Method: 6020B
Analysis Description: Metals Analyses

Lab Reagent Blank LRB-L786894 Matrix: AQU
Associated Lab Samples: 87561

Parameter	Units	Blank Result	MQL	Analyzed
Antimony	mg/L	<0.0010	0.0010	12/02/24 18:09
Arsenic	mg/L	<0.0010	0.0010	12/02/24 18:09
Barium	mg/L	<0.001	0.001	12/04/24 16:37
Beryllium	mg/L	<0.0010	0.0010	12/02/24 18:09
Cadmium	mg/L	<0.0010	0.0010	12/02/24 18:09
Chromium	mg/L	<0.001	0.001	12/02/24 18:09
Cobalt	mg/L	<0.001	0.001	12/02/24 18:09
Copper	mg/L	<0.0010	0.0010	12/02/24 18:09
Lead	mg/L	<0.0010	0.0010	12/02/24 18:09
Nickel	mg/L	<0.0010	0.0010	12/02/24 18:09
Selenium	mg/L	<0.001	0.001	12/02/24 18:09
Silver	mg/L	<0.0010	0.0010	12/02/24 18:09
Thallium	mg/L	<0.0010	0.0010	12/02/24 18:09
Vanadium	mg/L	<0.005	0.005	12/04/24 16:37
Zinc	mg/L	<0.010	0.010	12/02/24 18:09

Laboratory Control Sample LCS-L786894

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Antimony	mg/L	0.100	0.110	110	80-120
Arsenic	mg/L	0.0500	0.0505	101	80-120
Barium	mg/L	0.100	0.104	104	80-120
Beryllium	mg/L	0.0500	0.0473	95.0	80-120
Cadmium	mg/L	0.0100	0.0099	99.0	80-120
Chromium	mg/L	0.100	0.107	107	80-120
Cobalt	mg/L	0.100	0.097	98.0	80-120
Copper	mg/L	0.0500	0.0510	102	80-120

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Quality Control Data

Client ID: Civil & Environmental Consultants, Inc.
Project Description: Blaylock and Brown Construction Landfill
Report No: 24-327-0220

QC Prep: L786894
QC Prep Batch Method: 3005A
QC Analytical Batch(es): L787488,L787951,L788535
Analysis Method: 6020B
Analysis Description: Metals Analyses

Laboratory Control Sample LCS-L786894

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Lead	mg/L	0.0500	0.0447	89.0	80-120
Nickel	mg/L	0.0500	0.0495	99.0	80-120
Selenium	mg/L	0.100	0.098	99.0	80-120
Silver	mg/L	0.0100	0.0100	100	80-120
Thallium	mg/L	0.0100	0.0085	86.0	80-120
Vanadium	mg/L	0.500	0.466	93.0	80-120
Zinc	mg/L	0.500	0.498	100	80-120

Matrix Spike & Matrix Spike Duplicate V 97797-MS-L786894 V 97797-MSD-L786894

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	MSD %Rec	%Rec Limits	RPD	Max RPD
Antimony	mg/L	<0.0010	0.100	0.100	0.121	0.123	121	123	75-125	1.6	20
Arsenic	mg/L	<0.0010	0.0500	0.0500	0.0531	0.0543	106	109	75-125	2.2	20
Barium	mg/L	0.006	0.100	0.100	0.107	0.108	101	102	75-125	0.9	20
Beryllium	mg/L	<0.0010	0.0500	0.0500	0.0480	0.0483	96.0	97.0	75-125	0.6	20
Cadmium	mg/L	<0.0010	0.0100	0.0100	0.0097	0.0098	98.0	98.0	75-125	0.5	20
Chromium	mg/L	<0.001	0.100	0.100	0.103	0.105	103	105	75-125	1.9	20
Cobalt	mg/L	<0.001	0.100	0.100	0.102	0.105	101	104	75-125	2.8	20
Copper	mg/L	0.0017	0.0500	0.0500	0.0504	0.0510	97.0	99.0	75-125	1.1	20
Lead	mg/L	<0.0010	0.0500	0.0500	0.0436	0.0436	87.0	87.0	75-125	0.0	20
Nickel	mg/L	0.0027	0.0500	0.0500	0.0519	0.0524	98.0	99.0	75-125	0.9	20
Selenium	mg/L	<0.001	0.100	0.100	0.104	0.105	103	104	75-125	0.9	20
Silver	mg/L	<0.0010	0.0100	0.0100	0.0092	0.0093	92.0	94.0	75-125	1.3	20
Thallium	mg/L	<0.0010	0.0100	0.0100	0.0086	0.0086	86.0	86.0	75-125	0.3	20
Vanadium	mg/L	<0.025	0.500	0.500	0.458	0.466	92.0	93.0	75-125	1.7	20

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Quality Control Data

Client ID: **Civil & Environmental Consultants, Inc.**
Project Description: **Blaylock and Brown Construction Landfill**
Report No: **24-327-0220**

QC Prep: L786894
QC Prep Batch Method: 3005A
QC Analytical Batch(es): L787488,L787951,L788535
Analysis Method: 6020B
Analysis Description: Metals Analyses

Matrix Spike & Matrix Spike Duplicate V 97797-MS-L786894 V 97797-MSD-L786894

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	MSD %Rec	%Rec Limits	RPD	Max RPD
Zinc	mg/L	0.025	0.500	0.500	0.521	0.528	99.0	100	75-125	1.3	20

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Quality Control Data

Client ID: Civil & Environmental Consultants, Inc.
Project Description: Blaylock and Brown Construction Landfill
Report No: 24-327-0220

QC Prep: L787392
QC Prep Batch Method: 7470A
QC Analytical Batch(es): L787556
Analysis Method: 7470A
Analysis Description: Total Aqueous Mercury Analysis - CVAA

Lab Reagent Blank LRB-L787392 Matrix: AQU
Associated Lab Samples: 87556, 87557, 87558, 87559, 87560, 87561, 87562

Parameter	Units	Blank Result	MQL	Analyzed
Mercury	mg/L	< 0.00020	0.00020	12/03/24 12:54

Laboratory Control Sample LCS-L787392

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Mercury	mg/L	0.00400	0.00427	107	80-120

Matrix Spike & Matrix Spike Duplicate V 97826-MS-L787392 V 97826-MSD-L787392

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	MSD %Rec	%Rec Limits	RPD	Max RPD
Mercury	mg/L	< 0.00020	0.00400	0.00400	0.00381	0.00369	95.0	92.0	80-120	3.2	20.0

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Quality Control Data

Client ID: Civil & Environmental Consultants, Inc.
Project Description: Blaylock and Brown Construction Landfill
Report No: 24-327-0220

QC Prep: L788738
QC Prep Batch Method: SW-9056A (PREP)
QC Analytical Batch(es): L788961
Analysis Method: 9056A
Analysis Description: Anions by Ion Chromatography

Lab Reagent Blank LRB-L788738 Matrix: AQU
Associated Lab Samples: 87556, 87557, 87558, 87559, 87560, 87561, 87562

Parameter	Units	Blank Result	MQL	Analyzed
Fluoride (w/o distillation)	mg/L	< 0.125	0.125	12/09/24 15:47
Sulfate	mg/L	< 1.00	1.00	12/09/24 15:47

Laboratory Control Sample & LCSD LCS-L788738 LCSD-L788738

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS %Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD
Fluoride (w/o distillation)	mg/L	6.25	6.14	6.12	98.0	98.0	80-120	0.3	20.0
Sulfate	mg/L	62.5	63.6	64.0	102	102	80-120	0.6	20.0

Matrix Spike & Matrix Spike Duplicate L 87557-MS-L788738 L 87557-MSD-L788738

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	MSD %Rec	%Rec Limits	RPD	Max RPD
Fluoride (w/o distillation)	mg/L	< 0.131	3.29	3.29	2.89	2.22	88.0	67.0*	80-120	26.2*	15.0
Sulfate	mg/L	< 1.05	32.9	32.9	33.7	34.0	102	103	80-120	0.8	15.0

* QC Fail

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Shipment Receipt Form

Customer Number: **04511**
Customer Name: **Civil & Environmental Consultants, Inc.**
Report Number: **24-327-0220**

Shipping Method

◯ Fed Ex	◯ US Postal	◯ Lab	◯ Other :	
◯ UPS	◯ Client	◉ Courier	Thermometer ID:	TI202

Shipping container/cooler uncompromised?	◉ Yes	◯ No	
Number of coolers/boxes received	1		
Custody seals intact on shipping container/cooler?	◯ Yes	◯ No	◉ Not Present
Custody seals intact on sample bottles?	◯ Yes	◯ No	◉ Not Present
Chain of Custody (COC) present?	◉ Yes	◯ No	
COC agrees with sample label(s)?	◉ Yes	◯ No	
COC properly completed	◉ Yes	◯ No	
Samples in proper containers?	◉ Yes	◯ No	
Sample containers intact?	◉ Yes	◯ No	
Sufficient sample volume for indicated test(s)?	◉ Yes	◯ No	
All samples received within holding time?	◉ Yes	◯ No	
Cooler temperature in compliance?	◉ Yes	◯ No	◯ Not Present
Cooler/Samples arrived at the laboratory on ice. Samples were considered acceptable as cooling process had begun.	◉ Yes	◯ No	
Water - Sample containers properly preserved	◉ Yes	◯ No	◯ N/A
Water - VOA vials free of headspace	◯ Yes	◯ No	◉ N/A
Trip Blanks received with VOAs	◯ Yes	◯ No	◉ N/A
Soil VOA method 5035 – compliance criteria met	◯ Yes	◯ No	◉ N/A

☐ High concentration container (48 hr) ☐ Low concentration EnCore samplers (48 hr)
☐ High concentration pre-weighed (methanol -14 d) ☐ Low conc pre-weighed vials (Sod Bis -14 d)

Special precautions or instructions included?	◯ Yes	◉ No

Comments:

Signature: Mallory Earle Date & Time: 11/22/2024 16:23:45

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Kit ID:	**238414**
Initiated By:	**Andrea Brownfield**
Initiated Date:	**4/30/2024**
Project Comment	

CHAIN-OF-CUSTODY

24-327-0220
04511
11-22-2024
16:20:40
Civil & Environmental Consultants, Inc.
Blaylock and Brown Construction Landfill

Company Name	Company Number	Client Project Manager/Contact	Purchase Order Number
Civil & Environmental Consultants, Inc.	04511	Mr. Heath Bush	
Site Name	**Project Number**	☐ RUSH – Additional charges apply ☐ Special Detection Limits(s) Date Results Needed	**Method of Shipment** ☐ Fed Ex ☐ UPS ☐ USPS ☐ Courier ☑ Client Drop Off Other
Blaylock & Brown Construction LF	328-417		
LIMS Project ID	**Project Manager Phone #**	**Project Manager Email**	**Site/Facility ID #**
	(615) 333-7797	hbush@cecinc.com	

Date	Time	Sample ID	Matrix	Grab/ Comp	# of Cont	Container Type	Preservation	Analyses
11/21/24	1150	MW-1	AQU	G	1	Plastic - Pint	HNO3 - Nitric Acid	Appx I Metals
	1150	MW-1	AQU	G	1	Plastic - Pint	NONE	Fluoride, Sulfate
	1150	MW-1	AQU	G	1	Plastic - Pint	H2SO4 - Sulfuric Acid	Ammonia
	1040	MW-2	AQU	G	1	Plastic - Pint	HNO3 - Nitric Acid	Appx I Metals
	1040	MW-2	AQU	G	1	Plastic - Pint	NONE	Fluoride, Sulfate
	1040	MW-2	AQU	G	1	Plastic - Pint	H2SO4 - Sulfuric Acid	Ammonia
	0930	MW-4	AQU	G	1	Plastic - Pint	HNO3 - Nitric Acid	Appx I Metals

For Laboratory Use Only			Sampled by (Name - Print)	Client Remarks/Comments			
Ice	Custody Seals	Lab Comments	Marc Dublin				
(Y)/N	Y/(N)		Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time	
Blank/Cooler Temp			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE) L. Hickam	Date Time 11/21/24 1405	
0.1 ABB 1200			Relinquished by: (SIGNATURE)	Date Time 11/22/24 500	Received by: (SIGNATURE)	Date Time 11/22/24 1040	

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Kit ID:	**238414**
Initiated By:	**Andrea Brownfield**
Initiated Date:	**4/30/2024**
Project Comment	

CHAIN-OF-CUSTODY

24-327-0220
04511
11-22-2024
16:20:40
Civil & Environmental Consultants, Inc.
Blaylock and Brown Construction Landfill

Company Name	Company Number	Client Project Manager/Contact	Purchase Order Number
Civil & Environmental Consultants, Inc.	04511	Mr. Heath Bush	
Site Name	**Project Number**	☐ RUSH – Additional charges apply ☐ Special Detection Limits(s) Date Results Needed	**Method of Shipment** ☐ Fed Ex ☐ UPS ☐ USPS ☐ Courier ☑ Client Drop Off Other
Blaylock & Brown Construction LF	328-417		
LIMS Project ID	**Project Manager Phone #**	**Project Manager Email**	**Site/Facility ID #**
	(615) 333-7797	hbush@cecinc.com	

Date	Time	Sample ID	Matrix	Grab/ Comp	# of Cont	Container Type	Preservation	Analyses
11-21-24	0930	MW-4	AQU	G	1	Plastic - Pint	NONE	Fluoride, Sulfate
	0930	MW-4	AQU	G	1	Plastic - Pint	H2SO4 - Sulfuric Acid	Ammonia
	0839	MW-5	AQU	G	1	Plastic - Pint	HNO3 - Nitric Acid	Appx I Metals
	0839	MW-5	AQU	G	1	Plastic - Pint	NONE	Fluoride, Sulfate
	0839	MW-5	AQU	G	1	Plastic - Pint	H2SO4 - Sulfuric Acid	Ammonia
	0755	MW-6	AQU	G	1	Plastic - Pint	HNO3 - Nitric Acid	Appx I Metals
	0755	MW-6	AQU	G	1	Plastic - Pint	NONE	Fluoride, Sulfate

For Laboratory Use Only			Sampled by (Name - Print)	Client Remarks/Comments			
Ice	Custody Seals	Lab Comments	Marc Dublin				
Y/N	Y/N		Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time	
Blank/Cooler Temp			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time	
0.1 TB2	TB3		Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time	
				11/22/24 500		11/22/24 1040	

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Kit ID:	238414
Initiated By:	Andrea Brownfield
Initiated Date:	4/30/2024
Project Comment	

CHAIN-OF-CUSTODY

24-327-0220
04511
11-22-2024
16:20:40
Civil & Environmental Consultants, Inc.
Blaylock and Brown Construction Landfill

Company Name	Company Number	Client Project Manager/Contact	Purchase Order Number
Civil & Environmental Consultants, Inc.	04511	Mr. Heath Bush	
Site Name	**Project Number**	☐ RUSH – Additional charges apply ☐ Special Detection Limits(s) Date Results Needed	**Method of Shipment** ☐ Fed Ex ☐ UPS ☐ USPS ☐ Courier ☑ Client Drop Off Other
Blaylock & Brown Construction LF	328-417		
LIMS Project ID	**Project Manager Phone #**	**Project Manager Email**	**Site/Facility ID #**
	(615) 333-7797	hbush@cecinc.com	

Date	Time	Sample ID	Matrix	Grab/ Comp	# of Cont	Container Type	Preservation	Analyses
11-21-24	0755	MW-6	AQU	6	1	Plastic - Pint	H2SO4 - Sulfuric Acid	Ammonia
	–	Duplicate	AQU	6	1	Plastic - Pint	HNO3 - Nitric Acid	Appx I Metals
	–	Duplicate	AQU	6	1	Plastic - Pint	NONE	Fluoride, Sulfate
	–	Duplicate	AQU	6	1	Plastic - Pint	H2SO4 - Sulfuric Acid	Ammonia
	1130	Rinsate	AQU		1	Plastic - Pint	HNO3 - Nitric Acid	Appx I Metals
	1130	Rinsate	AQU		1	Plastic - Pint	NONE	Fluoride, Sulfate
	1130	Rinsate	AQU		1	Plastic - Pint	H2SO4 - Sulfuric Acid	Ammonia

For Laboratory Use Only			Sampled by (Name - Print)	Client Remarks/Comments			
Ice	Custody Seals	Lab Comments	Matt Dublin				
Y/N	Y/N		Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time	
				11/21/24			
Blank/Cooler Temp			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time	
0.1 TB202					L. Hickam	11/21/24 1403	
			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time	
				11/22/24 500	Allison B	11/22/24 1040	

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1/30/2025

Civil & Environmental Consultants, Inc.
Mr. Heath Bush
117 Seaboard Lane
Suite E-100
Franklin, TN, 37067

Ref: Analytical Testing
Lab Report Number: 25-017-0105
Client Project Description: E-plex Collierville, TN
Project No:328-417

Dear Mr. Heath Bush:
Waypoint Analytical, LLC. received sample(s) on 1/17/2025 for the analyses presented in the following report.

The above referenced project has been analyzed per your instructions. The analyses were performed in accordance with the applicable analytical method. Where the laboratory was not responsible for the sampling stage (refer to the chain of custody) results apply to the sample as received.

The analytical data has been validated using standard quality control measures performed as required by the analytical method. Quality Assurance, method validations, instrumentation maintenance and calibration for all parameters (NELAP and non-NELAP) were performed in accordance with guidelines established by the USEPA (including 40 CFR 136 Method Update Rule May 2021) and NELAC unless otherwise indicated. Any parameter for which the laboratory is not officially NELAP accredited is indicated by a '~' symbol. These are not included in the scope because NELAP accreditation is either not available or has not been applied for. Additional certifications may be held/are available for parameters, where NELAP accreditation is not required or applicable. A full list of certifications is available upon request.

Certain parameters (chlorine, pH, dissolved oxygen, sulfite...) are required to be analyzed within 15 minutes of sampling. Usually, but not always, any field parameter analyzed at the laboratory is outside of this holding time. Refer to sample analysis time for confirmation of holding time compliance.

The results are shown on the attached Report of Analysis(s). Results for solid matrices are reported on an as-received basis unless otherwise indicated. This report shall not be reproduced except in full and relates only to the samples included in this report.

Please do not hesitate to contact me or client services if you have any questions or need additional information.

Sincerely,

Andrea R Brownfield
Project manager

Laboratory's liability in any claim relating to analyses performed shall be limited to, at laboratory's option, repeating the analysis in question at laboratory's expense, or the refund of the charges paid for performance of said analysis.

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Certification Summary

Laboratory ID: WP MTN: Waypoint Analytical, LLC., Memphis, TN

State	Program	Lab ID	Expiration Date
Alabama	State Program	40750	02/28/2025
Arkansas	State Program	88-0650	02/07/2025
California	State Program	2904	06/30/2025
Florida	State Program - NELAP	E871157	06/30/2025
Georgia	State Program	C044	11/14/2025
Georgia	State Program	04015	06/30/2025
Illinois	State Program - NELAP	200078	10/31/2025
Kentucky	State Program	KY90047	12/31/2025
Kentucky	State Program	80215	06/30/2025
Kentucky	State Program	KY90047	12/31/2025
Louisiana	State Program - NELAP	LA037	12/31/2025
Louisiana	State Program - NELAP	04015	06/30/2025
Mississippi	State Program	MS	11/14/2025
North Carolina	State Program	47701	07/31/2025
North Carolina	State Program	415	12/31/2025
Pennsylvania	State Program - NELAP	68-03195	05/31/2025
South Carolina	State Program	84002	06/30/2025
Tennessee	State Program	02027	11/14/2025
Texas	State Program - NELAP	T104704180	09/30/2025
Virginia	State Program	00106	06/30/2025
Virginia	State Program - NELAP	460181	09/14/2025

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Sample Summary Table

Report Number: **25-017-0105**

Client Project Description: **E-plex Collierville, TN**
Project No:328-417

Lab No	Client Sample ID	Matrix	Date Collected	Date Received
91896	MW-3	Aqueous	01/17/2025 11:40	01/17/2025

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Client: Civil & Environmental Consultants, Inc.
Project: E-plex Collierville, TN
Lab Report Number: 25-017-0105
Date: 1/30/2025

CASE NARRATIVE

There were re-runs of some metals due to a partial QC failure on the original MS/MSD run. QC info from all associated batches is included.

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04511
Civil & Environmental Consultants, Inc.
Mr. Heath Bush
117 Seaboard Lane
Suite E-100
Franklin , TN 37067

Project E-plex Collierville, TN

Information : Project No:328-417

Report Date : 01/30/2025
Received : 01/17/2025

Andrea R. Brownfield
Project manager

Report Number : **25-017-0105**

REPORT OF ANALYSIS

Lab No : **91896**
Sample ID : **MW-3**

Matrix: **Aqueous**
Sampled: **1/17/2025 11:40**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Ammonia Nitrogen	<0.100	mg/L	0.100	1	01/20/25 12:31	KAK	4500NH3D-2011
Fluoride (w/o distillation)	<0.125	mg/L	0.125	1	01/20/25 12:01	HMQ	EPA-300.0
Sulfate	**23.0**	mg/L	1.00	1	01/20/25 12:01	HMQ	EPA-300.0
Antimony	**1.30**	µg/L	1.00	1	01/20/25 17:38	TJS	6020B
Arsenic	**2.10**	µg/L	1.00	1	01/20/25 17:38	TJS	6020B
Barium	**69.2**	µg/L	1.00	1	01/20/25 17:38	TJS	6020B
Beryllium	<1.00	µg/L	1.00	1	01/20/25 17:38	TJS	6020B
Cadmium	<1.00	µg/L	1.00	1	01/20/25 17:38	TJS	6020B
Chromium	<1.00	µg/L	1.00	1	01/21/25 17:43	TJS	6020B
Cobalt	**6.84**	µg/L	1.00	1	01/20/25 17:38	TJS	6020B
Copper	**1.14**	µg/L	1.00	1	01/23/25 16:38	TJS	6020B
Lead	<1.00	µg/L	1.00	1	01/20/25 17:38	TJS	6020B
Mercury	<0.00020	mg/L	0.00020	1	01/20/25 15:55	JTR	7470A
Nickel	**2.41**	µg/L	1.00	1	01/20/25 17:38	TJS	6020B
Selenium	<1.00	µg/L	1.00	1	01/21/25 17:43	TJS	6020B
Silver	<1.00	µg/L	1.00	1	01/20/25 17:38	TJS	6020B
Thallium	<1.00	µg/L	1.00	1	01/20/25 17:38	TJS	6020B
Vanadium	<5.00	µg/L	5.00	1	01/20/25 17:38	TJS	6020B
Zinc	**10.1**	µg/L	10.0	1	01/20/25 17:38	TJS	6020B

Qualifiers/ Definitions DF Dilution Factor MQL Method Quantitation Limit

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Quality Control Data

Client ID: **Civil & Environmental Consultants, Inc.**
Project Description: **E-plex Collierville, TN**
Report No: **25-017-0105**

QC Analytical Batch: L795569
Analysis Method: 4500NH3D-2011
Analysis Description: Ammonia Nitrogen (ISE)

Lab Reagent Blank LRB Matrix: AQU
Associated Lab Samples: 91896

Parameter	Units	Blank Result	MQL	Analyzed
Ammonia Nitrogen	mg/L	< 0.100	0.100	01/20/25 12:31

Laboratory Control Sample LCS

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Ammonia Nitrogen	mg/L	5.00	5.04	101	90-110

Matrix Spike & Matrix Spike Duplicate L 91345-MS L 91345-MSD

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	MSD %Rec	%Rec Limits	RPD	Max RPD
Ammonia Nitrogen	mg/L	14.9	10.0	10.0	25.7	25.9	108	110	70-130	0.7	20.0

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Quality Control Data

Client ID: Civil & Environmental Consultants, Inc.
Project Description: E-plex Collierville, TN
Report No: 25-017-0105

QC Prep: L795397
QC Prep Batch Method: 3005A
QC Analytical Batch(es): L795704,L795943
Analysis Method: 6020B
Analysis Description: Metals Analyses

Lab Reagent Blank LRB-L795397 Matrix: AQU
Associated Lab Samples: 91896

Parameter	Units	Blank Result	MQL	Analyzed
Antimony	µg/L	< 1.00	1.00	01/20/25 17:19
Arsenic	µg/L	< 1.00	1.00	01/20/25 17:19
Barium	µg/L	< 1.00	1.00	01/20/25 17:19
Beryllium	µg/L	< 1.00	1.00	01/20/25 17:19
Cadmium	µg/L	< 1.00	1.00	01/20/25 17:19
Chromium	µg/L	< 1.00	1.00	01/21/25 17:38
Cobalt	µg/L	< 1.00	1.00	01/20/25 17:19
Lead	µg/L	< 1.00	1.00	01/20/25 17:19
Nickel	µg/L	< 1.00	1.00	01/20/25 17:19
Selenium	µg/L	< 1.00	1.00	01/20/25 17:19
Silver	µg/L	< 1.00	1.00	01/20/25 17:19
Thallium	µg/L	< 1.00	1.00	01/20/25 17:19
Vanadium	µg/L	< 5.00	5.00	01/20/25 17:19
Zinc	µg/L	< 10.0	10.0	01/20/25 17:19

Laboratory Control Sample LCS-L795397

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Antimony	µg/L	100	113	113	80-120
Arsenic	µg/L	50.0	49.7	99.0	80-120
Barium	µg/L	100	103	103	80-120
Beryllium	µg/L	50.0	53.3	107	80-120
Cadmium	µg/L	10.0	10.1	101	80-120
Chromium	µg/L	100	107	107	80-120
Cobalt	µg/L	100	108	108	80-120
Lead	µg/L	50.0	51.7	103	80-120
Nickel	µg/L	50.0	55.1	110	80-120

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Quality Control Data

Client ID: **Civil & Environmental Consultants, Inc.**
Project Description: **E-plex Collierville, TN**
Report No: **25-017-0105**

QC Prep: L795397
QC Prep Batch Method: 3005A
QC Analytical Batch(es): L795704,L795943
Analysis Method: 6020B
Analysis Description: Metals Analyses

Laboratory Control Sample LCS-L795397

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Selenium	µg/L	100	98.5	99.0	80-120
Silver	µg/L	10.0	10.2	102	80-120
Thallium	µg/L	10.0	9.30	93.0	80-120
Vanadium	µg/L	500	542	108	80-120
Zinc	µg/L	500	542	108	80-120

Matrix Spike & Matrix Spike Duplicate Q 90109-MS-L795397 Q 90109-MSD-L795397

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	MSD %Rec	%Rec Limits	RPD	Max RPD
Antimony	µg/L	< 5.00	100	100	125	113	124	112	75-125	10.0	20.0

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Quality Control Data

Client ID: **Civil & Environmental Consultants, Inc.**
Project Description: **E-plex Collierville, TN**
Report No: **25-017-0105**

QC Prep: L796098
QC Prep Batch Method: 3005A
QC Analytical Batch(es): L796405
Analysis Method: 6020B
Analysis Description: Metals Analyses

Lab Reagent Blank LRB-L796098 Matrix: AQU
Associated Lab Samples: 91896

Parameter	Units	Blank Result	MQL	Analyzed
Copper	µg/L	< 1.00	1.00	01/23/25 16:24

Laboratory Control Sample & LCSD LCS-L796098 LCSD-L796098

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS %Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD
Copper	µg/L	50.0	55.5	56.7	111	113	80-120	2.1	20.0

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Quality Control Data

Client ID: Civil & Environmental Consultants, Inc.
Project Description: E-plex Collierville, TN
Report No: 25-017-0105

QC Prep: L795493
QC Prep Batch Method: 7470A
QC Analytical Batch(es): L795651
Analysis Method: 7470A
Analysis Description: Total Aqueous Mercury Analysis - CVAA

Lab Reagent Blank LRB-L795493 Matrix: AQU
Associated Lab Samples: 91896

Parameter	Units	Blank Result	MQL	Analyzed
Mercury	mg/L	< 0.00020	0.00020	01/20/25 15:26

Laboratory Control Sample LCS-L795493

Parameter	Units	Spike Conc.	LCS Result	LCS %Rec	% Rec Limits
Mercury	mg/L	0.00400	0.00420	105	80-120

Matrix Spike & Matrix Spike Duplicate L 91896-MS-L795493 L 91896-MSD-L795493

Parameter	Units	Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS %Rec	MSD %Rec	%Rec Limits	RPD	Max RPD
Mercury	mg/L	< 0.00020	0.00400	0.00400	0.00333	0.00335	83.0	84.0	80-120	0.5	20.0

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Quality Control Data

Client ID: **Civil & Environmental Consultants, Inc.**
Project Description: **E-plex Collierville, TN**
Report No: **25-017-0105**

QC Prep: L795636
QC Prep Batch Method: EPA-300.0 (PREP)
QC Analytical Batch(es): L795637
Analysis Method: EPA-300.0
Analysis Description: Anions by Ion Chromatography

Lab Reagent Blank LRB-L795636 Matrix: AQU
Associated Lab Samples: 91896

Parameter	Units	Blank Result	MQL	Analyzed
Fluoride (w/o distillation)	mg/L	< 0.125	0.125	01/20/25 08:09
Sulfate	mg/L	< 1.00	1.00	01/20/25 08:09

Laboratory Control Sample & LCSD LCS-L795636 LCSD-L795636

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS %Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD
Fluoride (w/o distillation)	mg/L	6.25	6.56	6.50	105	104	90-110	0.9	20.0
Sulfate	mg/L	62.5	63.5	64.1	102	103	90-110	0.9	20.0

QAQC Report

QC Batch No: **L795704**
Date/Time: 1/20/25 13:12
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Calibration Standard 1 - C1

QC Measurement: % Recovery

Analyte	QC Result		Criteria	C1 Result	Dilution
Ag	100	%	80-120%	< 1.00	1
As	101	%	80-120%	< 1.00	1
Ba	97.0	%	80-120%	< 1.00	1
Be	100	%	80-120%	< 1.00	1
Cd	100	%	80-120%	< 1.00	1
Co	102	%	80-120%	1.02	1
Cr	100	%	80-120%	< 1.00	1
Cu	111	%	80-120%	< 1.00	1
Ni	98.0	%	80-120%	< 1.00	1
Pb	110	%	80-120%	< 1.00	1
Sb	85.0	%	80-120%	< 1.00	1
Se	101	%	80-120%	1.01	1
Tl	100	%	80-120%	< 1.00	1
V	96.0	%	80-120%	< 5.00	1
Zn	104	%	80-120%	< 10.0	1

Continuing Calibration Blank - CCB1

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0.0356	< 0.297	< 1.00	1
Ba	0.006	< 0.453	< 1.00	1
Be	0.0032	< 0.102	< 1.00	1
Cd	0.0108	< 0.35	< 1.00	1
Co	0.017	< 0.06	< 1.00	1
Cr	0	< 0.346	< 1.00	1
Cu	0.147	< 0.489	< 1.00	1
Ni	0.0033	< 0.182	< 1.00	1
Pb	0.0031	< 0.264	< 1.00	1
Sb	0.212	< 0.618	< 1.00	1
Se	-0.1	< 0.703	< 1.00	1
Tl	0	< 0.061	< 1.00	1
V	0.267	< 0.767	< 5.00	1
Zn	0.037	< 4.67	< 10.0	1

QAQC Report

QC Batch No: **L795704**
Date/Time: 1/20/25 13:12
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Blank - CCB10

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0.0265	< 0.297	< 1.00	1
Ba	0.021	< 0.453	< 1.00	1
Be	0.0096	< 0.102	< 1.00	1
Cd	0.0028	< 0.35	< 1.00	1
Co	0.016	< 0.06	< 1.00	1
Cr	0.011	< 0.346	< 1.00	1
Cu	0.0448	< 0.489	< 1.00	1
Ni	0	< 0.182	< 1.00	1
Pb	0.0109	< 0.264	< 1.00	1
Sb	0.229	< 0.618	< 1.00	1
Se	0.290	< 0.703	< 1.00	1
V	0.176	< 0.767	< 5.00	1
Zn	0.065	< 4.67	< 10.0	1

Continuing Calibration Blank - CCB11

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0	< 0.297	< 1.00	1
Ba	0.057	< 0.453	< 1.00	1
Be	0.0007	< 0.102	< 1.00	1
Cd	0.000	< 0.35	< 1.00	1
Co	0.000	< 0.06	< 1.00	1
Cr	0.032	< 0.346	< 1.00	1
Cu	0.0453	< 0.489	< 1.00	1
Ni	0	< 0.182	< 1.00	1
Pb	0.0005	< 0.264	< 1.00	1
Sb	0.0164	< 0.618	< 1.00	1
Se	0.415	< 0.703	< 1.00	1
Tl	0	< 0.061	< 1.00	1
V	-0.2	< 0.767	< 5.00	1
Zn	0	< 4.67	< 10.0	1

QAQC Report

QC Batch No: **L795704**
Date/Time: 1/20/25 13:12
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Blank - CCB12

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0	< 0.297	< 1.00	1
Ba	0.026	< 0.453	< 1.00	1
Be	0.0002	< 0.102	< 1.00	1
Cd	0.0002	< 0.35	< 1.00	1
Co	0.000	< 0.06	< 1.00	1
Cr	0.035	< 0.346	< 1.00	1
Cu	0.0395	< 0.489	< 1.00	1
Ni	0	< 0.182	< 1.00	1
Pb	0.0028	< 0.264	< 1.00	1
Sb	0.0133	< 0.618	< 1.00	1
Se	0.438	< 0.703	< 1.00	1
Tl	0	< 0.061	< 1.00	1
V	-0.1	< 0.767	< 5.00	1
Zn	0.366	< 4.67	< 10.0	1

Continuing Calibration Blank - CCB13

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0.000	< 0.297	< 1.00	1
Ba	0.015	< 0.453	< 1.00	1
Be	0.0038	< 0.102	< 1.00	1
Cd	0.0010	< 0.35	< 1.00	1
Co	0.005	< 0.06	< 1.00	1
Cr	0.080	< 0.346	< 1.00	1
Cu	0.0241	< 0.489	< 1.00	1
Ni	0	< 0.182	< 1.00	1
Pb	0.0074	< 0.264	< 1.00	1
Sb	0.569	< 0.618	< 1.00	1
Se	0.175	< 0.703	< 1.00	1
Tl	0.0138	< 0.061	< 1.00	1
V	-0.1	< 0.767	< 5.00	1
Zn	0.012	< 4.67	< 10.0	1

QAQC Report

QC Batch No: **L795704**
Date/Time: 1/20/25 13:12
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Blank - CCB2

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0	< 0.297	< 1.00	1
Ba	0.025	< 0.453	< 1.00	1
Be	0.0002	< 0.102	< 1.00	1
Cd	0.0027	< 0.35	< 1.00	1
Co	0.003	< 0.06	< 1.00	1
Cr	0	< 0.346	< 1.00	1
Cu	0.0017	< 0.489	< 1.00	1
Ni	0	< 0.182	< 1.00	1
Pb	0.0521	< 0.264	< 1.00	1
Sb	0.0739	< 0.618	< 1.00	1
Se	0.245	< 0.703	< 1.00	1
Tl	0	< 0.061	< 1.00	1
V	0.120	< 0.767	< 5.00	1
Zn	1.16	< 4.67	< 10.0	1

Continuing Calibration Blank - CCB3

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0	< 0.297	< 1.00	1
Ba	0.007	< 0.453	< 1.00	1
Be	0.0008	< 0.102	< 1.00	1
Cd	0.0001	< 0.35	< 1.00	1
Co	0.001	< 0.06	< 1.00	1
Cr	0.047	< 0.346	< 1.00	1
Cu	0.0039	< 0.489	< 1.00	1
Ni	0	< 0.182	< 1.00	1
Pb	0.0110	< 0.264	< 1.00	1
Sb	0.0353	< 0.618	< 1.00	1
Se	0.157	< 0.703	< 1.00	1
Tl	0	< 0.061	< 1.00	1
V	-0.4	< 0.767	< 5.00	1
Zn	0	< 4.67	< 10.0	1

QAQC Report

QC Batch No: **L795704**
Date/Time: 1/20/25 13:12
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Blank - CCB4

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0.0113	< 0.297	< 1.00	1
Ba	0.012	< 0.453	< 1.00	1
Be	0.0091	< 0.102	< 1.00	1
Cd	0.0014	< 0.35	< 1.00	1
Co	0.011	< 0.06	< 1.00	1
Cr	0.175	< 0.346	< 1.00	1
Cu	0.246	< 0.489	< 1.00	1
Ni	0	< 0.182	< 1.00	1
Pb	0.0077	< 0.264	< 1.00	1
Sb	0.152	< 0.618	< 1.00	1
Se	0.195	< 0.703	< 1.00	1
Tl	0.0276	< 0.061	< 1.00	1
V	0.019	< 0.767	< 5.00	1
Zn	0.174	< 4.67	< 10.0	1

Continuing Calibration Blank - CCB5

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0.0341	< 0.297	< 1.00	1
Ba	0.078	< 0.453	< 1.00	1
Be	0.0140	< 0.102	< 1.00	1
Cd	0.0018	< 0.35	< 1.00	1
Co	0.023	< 0.06	< 1.00	1
Cr	0.050	< 0.346	< 1.00	1
Cu	0.249	< 0.489	< 1.00	1
Ni	0.0037	< 0.182	< 1.00	1
Pb	0.0142	< 0.264	< 1.00	1
Sb	0.146	< 0.618	< 1.00	1
Tl	0.0288	< 0.061	< 1.00	1
V	0.115	< 0.767	< 5.00	1
Zn	0.113	< 4.67	< 10.0	1

QAQC Report

QC Batch No: **L795704**
Date/Time: 1/20/25 13:12
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Blank - CCB6

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0	< 0.297	< 1.00	1
Ba	0.015	< 0.453	< 1.00	1
Be	0.0009	< 0.102	< 1.00	1
Cd	0.000	< 0.35	< 1.00	1
Co	0.001	< 0.06	< 1.00	1
Cr	0.065	< 0.346	< 1.00	1
Cu	0.0385	< 0.489	< 1.00	1
Ni	0	< 0.182	< 1.00	1
Pb	0.0008	< 0.264	< 1.00	1
Sb	0.0619	< 0.618	< 1.00	1
Se	-0.2	< 0.703	< 1.00	1
Tl	0	< 0.061	< 1.00	1
V	-0.3	< 0.767	< 5.00	1
Zn	0.006	< 4.67	< 10.0	1

Continuing Calibration Blank - CCB7

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0	< 0.297	< 1.00	1
Ba	0.035	< 0.453	< 1.00	1
Be	0.0007	< 0.102	< 1.00	1
Cd	0.000	< 0.35	< 1.00	1
Co	0.000	< 0.06	< 1.00	1
Cr	0.054	< 0.346	< 1.00	1
Cu	0.0373	< 0.489	< 1.00	1
Ni	0.0011	< 0.182	< 1.00	1
Pb	0	< 0.264	< 1.00	1
Sb	0.0367	< 0.618	< 1.00	1
Se	-0.3	< 0.703	< 1.00	1
Tl	0	< 0.061	< 1.00	1
V	-0.2	< 0.767	< 5.00	1
Zn	0.057	< 4.67	< 10.0	1

QAQC Report

QC Batch No: **L795704**
Date/Time: 1/20/25 13:12
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Blank - CCB8

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0.0227	< 0.297	< 1.00	1
Ba	0.029	< 0.453	< 1.00	1
Be	0.0210	< 0.102	< 1.00	1
Cd	0.0030	< 0.35	< 1.00	1
Co	0.027	< 0.06	< 1.00	1
Cr	0.011	< 0.346	< 1.00	1
Cu	0.0151	< 0.489	< 1.00	1
Ni	0.0040	< 0.182	< 1.00	1
Pb	0.0158	< 0.264	< 1.00	1
Sb	0.242	< 0.618	< 1.00	1
Se	0.260	< 0.703	< 1.00	1
Tl	0.0534	< 0.061	< 1.00	1
V	0.254	< 0.767	< 5.00	1
Zn	0.120	< 4.67	< 10.0	1

Continuing Calibration Blank - CCB9

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0	< 0.297	< 1.00	1
Ba	0.022	< 0.453	< 1.00	1
Be	0.0056	< 0.102	< 1.00	1
Cd	0.0032	< 0.35	< 1.00	1
Co	0.008	< 0.06	< 1.00	1
Cr	0.052	< 0.346	< 1.00	1
Cu	0.0258	< 0.489	< 1.00	1
Ni	0	< 0.182	< 1.00	1
Pb	0.0063	< 0.264	< 1.00	1
Sb	0.0421	< 0.618	< 1.00	1
Se	0.364	< 0.703	< 1.00	1
Tl	0.0042	< 0.061	< 1.00	1
V	0	< 0.767	< 5.00	1
Zn	0.029	< 4.67	< 10.0	1

QAQC Report

QC Batch No: **L795704**
Date/Time: 1/20/25 13:12
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Verification - CCV1

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	100	%	90-110%	9.96	1
As	103	%	90-110%	51.3	1
Ba	101	%	90-110%	101	1
Be	102	%	90-110%	50.8	1
Cd	101	%	90-110%	10.1	1
Co	101	%	90-110%	101	1
Cr	99.0	%	90-110%	99.3	1
Cu	106	%	90-110%	53.0	1
Ni	101	%	90-110%	50.5	1
Pb	101	%	90-110%	50.7	1
Sb	99.0	%	90-110%	98.6	1
Se	103	%	90-110%	103	1
Tl	99.0	%	90-110%	9.90	1
V	100	%	90-110%	498	1
Zn	103	%	90-110%	516	1

Continuing Calibration Verification - CCV10

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	100	%	90-110%	9.97	1
As	100	%	90-110%	50.2	1
Ba	101	%	90-110%	101	1
Be	99.0	%	90-110%	49.7	1
Cd	102	%	90-110%	10.2	1
Co	98.0	%	90-110%	97.7	1
Cr	96.0	%	90-110%	96.1	1
Cu	103	%	90-110%	51.7	1
Ni	98.0	%	90-110%	49.1	1
Pb	105	%	90-110%	52.3	1
Sb	96.0	%	90-110%	95.5	1
Se	100	%	90-110%	100	1
Tl	101	%	90-110%	10.1	1
V	94.0	%	90-110%	472	1
Zn	102	%	90-110%	510	1

QAQC Report

QC Batch No: **L795704**
Date/Time: 1/20/25 13:12
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Verification - CCV11

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	103	%	90-110%	10.3	1
As	103	%	90-110%	51.3	1
Ba	103	%	90-110%	103	1
Be	99.0	%	90-110%	49.5	1
Cd	104	%	90-110%	10.4	1
Co	100	%	90-110%	100	1
Cr	99.0	%	90-110%	99.1	1
Cu	106	%	90-110%	53.0	1
Ni	103	%	90-110%	51.6	1
Pb	104	%	90-110%	52.2	1
Sb	100	%	90-110%	99.8	1
Se	102	%	90-110%	102	1
Tl	101	%	90-110%	10.1	1
V	98.0	%	90-110%	489	1
Zn	105	%	90-110%	523	1

Continuing Calibration Verification - CCV12

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	99.0	%	90-110%	9.92	1
As	102	%	90-110%	51.1	1
Ba	100	%	90-110%	100	1
Be	100	%	90-110%	50.1	1
Cd	103	%	90-110%	10.3	1
Co	99.0	%	90-110%	99.3	1
Cr	98.0	%	90-110%	98.3	1
Cu	105	%	90-110%	52.3	1
Ni	101	%	90-110%	50.3	1
Pb	102	%	90-110%	50.9	1
Sb	95.0	%	90-110%	95.3	1
Se	101	%	90-110%	101	1
Tl	100	%	90-110%	9.99	1
V	95.0	%	90-110%	475	1
Zn	104	%	90-110%	521	1

QAQC Report

QC Batch No: **L795704**
Date/Time: 1/20/25 13:12
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Verification - CCV13

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	98.0	%	90-110%	9.80	1
As	102	%	90-110%	51.1	1
Ba	96.0	%	90-110%	96.4	1
Be	101	%	90-110%	50.7	1
Cd	101	%	90-110%	10.1	1
Co	100	%	90-110%	100	1
Cr	97.0	%	90-110%	96.5	1
Cu	105	%	90-110%	52.3	1
Ni	100	%	90-110%	50.1	1
Pb	103	%	90-110%	51.4	1
Sb	95.0	%	90-110%	94.7	1
Se	100	%	90-110%	99.9	1
Tl	100	%	90-110%	9.98	1
V	95.0	%	90-110%	477	1
Zn	104	%	90-110%	518	1

Continuing Calibration Verification - CCV2

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	99.0	%	90-110%	9.88	1
As	100	%	90-110%	50.2	1
Ba	101	%	90-110%	101	1
Be	102	%	90-110%	50.9	1
Cd	100	%	90-110%	9.97	1
Co	102	%	90-110%	102	1
Cr	99.0	%	90-110%	99.0	1
Cu	107	%	90-110%	53.5	1
Ni	101	%	90-110%	50.6	1
Pb	100	%	90-110%	50.0	1
Sb	96.0	%	90-110%	95.7	1
Se	100	%	90-110%	100	1
Tl	97.0	%	90-110%	9.71	1
V	100	%	90-110%	498	1
Zn	103	%	90-110%	514	1

QAQC Report

QC Batch No: **L795704**
Date/Time: 1/20/25 13:12
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Verification - CCV3

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	100	%	90-110%	10.0	1
As	100	%	90-110%	50.1	1
Ba	101	%	90-110%	101	1
Be	100	%	90-110%	50.1	1
Cd	101	%	90-110%	10.1	1
Co	103	%	90-110%	103	1
Cr	103	%	90-110%	103	1
Cu	110	%	90-110%	55.1	1
Ni	103	%	90-110%	51.4	1
Pb	101	%	90-110%	50.5	1
Sb	98.0	%	90-110%	97.7	1
Se	99.0	%	90-110%	99.2	1
Tl	98.0	%	90-110%	9.75	1
V	101	%	90-110%	507	1
Zn	105	%	90-110%	523	1

Continuing Calibration Verification - CCV4

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	99.0	%	90-110%	9.92	1
As	101	%	90-110%	50.3	1
Ba	100	%	90-110%	99.8	1
Be	102	%	90-110%	51.0	1
Cd	100	%	90-110%	9.95	1
Co	103	%	90-110%	103	1
Cr	101	%	90-110%	101	1
Cu	107	%	90-110%	53.7	1
Ni	102	%	90-110%	51.2	1
Pb	104	%	90-110%	51.9	1
Sb	96.0	%	90-110%	96.1	1
Se	99.0	%	90-110%	98.6	1
Tl	100	%	90-110%	9.99	1
V	99.0	%	90-110%	497	1
Zn	104	%	90-110%	520	1

QAQC Report

QC Batch No: **L795704**
Date/Time: 1/20/25 13:12
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Verification - CCV5

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	102	%	90-110%	10.2	1
As	104	%	90-110%	52.0	1
Ba	100	%	90-110%	100	1
Be	104	%	90-110%	52.1	1
Cd	103	%	90-110%	10.3	1
Co	105	%	90-110%	105	1
Cr	101	%	90-110%	101	1
Cu	110	%	90-110%	55.0	1
Ni	105	%	90-110%	52.3	1
Pb	104	%	90-110%	52.2	1
Sb	97.0	%	90-110%	97.3	1
Se	104	%	90-110%	104	1
Tl	101	%	90-110%	10.1	1
V	101	%	90-110%	505	1
Zn	105	%	90-110%	527	1

Continuing Calibration Verification - CCV6

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	102	%	90-110%	10.2	1
As	102	%	90-110%	51.0	1
Ba	102	%	90-110%	102	1
Be	100	%	90-110%	49.8	1
Cd	103	%	90-110%	10.3	1
Co	102	%	90-110%	102	1
Cr	100	%	90-110%	100	1
Cu	108	%	90-110%	54.0	1
Ni	102	%	90-110%	50.9	1
Pb	101	%	90-110%	50.5	1
Sb	98.0	%	90-110%	98.3	1
Se	101	%	90-110%	101	1
Tl	98.0	%	90-110%	9.82	1
V	99.0	%	90-110%	496	1
Zn	105	%	90-110%	526	1

QAQC Report

QC Batch No: **L795704**
Date/Time: 1/20/25 13:12
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Verification - CCV7

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	100	%	90-110%	10.0	1
As	102	%	90-110%	50.9	1
Ba	103	%	90-110%	103	1
Be	101	%	90-110%	50.4	1
Cd	102	%	90-110%	10.2	1
Co	104	%	90-110%	104	1
Cr	102	%	90-110%	102	1
Cu	108	%	90-110%	53.9	1
Ni	104	%	90-110%	52.0	1
Pb	104	%	90-110%	51.8	1
Sb	98.0	%	90-110%	97.8	1
Se	101	%	90-110%	101	1
Tl	100	%	90-110%	10.0	1
V	101	%	90-110%	505	1
Zn	106	%	90-110%	532	1

Continuing Calibration Verification - CCV8

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	101	%	90-110%	10.1	1
As	101	%	90-110%	50.3	1
Ba	100	%	90-110%	100	1
Be	101	%	90-110%	50.4	1
Cd	103	%	90-110%	10.3	1
Co	102	%	90-110%	102	1
Cr	98.0	%	90-110%	97.8	1
Cu	108	%	90-110%	54.0	1
Ni	102	%	90-110%	51.0	1
Pb	105	%	90-110%	52.6	1
Sb	96.0	%	90-110%	96.1	1
Se	100	%	90-110%	99.9	1
Tl	101	%	90-110%	10.1	1
V	99.0	%	90-110%	497	1
Zn	105	%	90-110%	525	1

QAQC Report

QC Batch No: **L795704**
Date/Time: 1/20/25 13:12
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Verification - CCV9

QC Measurement: % Recovery

Analyte	QC Result			Criteria	CCV Result	Dilution
Ag	103	%		90-110%	10.3	1
As	100	%		90-110%	50.2	1
Ba	101	%		90-110%	101	1
Be	100	%		90-110%	50.1	1
Cd	102	%		90-110%	10.2	1
Co	99.0	%		90-110%	98.9	1
Cr	97.0	%		90-110%	97.2	1
Cu	104	%		90-110%	52.1	1
Ni	100	%		90-110%	50.0	1
Pb	103	%		90-110%	51.5	1
Sb	96.0	%		90-110%	96.2	1
Se	100	%		90-110%	99.5	1
Tl	101	%		90-110%	10.1	1
V	97.0	%		90-110%	487	1
Zn	103	%		90-110%	515	1

Prep Batch: L795397

Dilution Test - Q 90109-DT-L795397

QC Measurement: % Recovery

Analyte	QC Result			Criteria	DT Result	Sample Conc.	Dilution
Sb	2620	%	*	90-110%	19.7	< 5.00	5

Initial Calibration Blank - ICB

QC Measurement: Limit

Analyte	QC Result	Criteria	ICB Result	Dilution
Ag	0.000	< 0.057	< 1.00	1
As	0.0065	< 0.297	< 1.00	1
Ba	0.002	< 0.453	< 1.00	1
Be	0.0026	< 0.102	< 1.00	1
Cd	0.0002	< 0.35	< 1.00	1
Co	0.000	< 0.06	< 1.00	1
Cr	0.002	< 0.346	< 1.00	1
Cu	0.0184	< 0.489	< 1.00	1
Ni	0	< 0.182	< 1.00	1
Pb	0.0007	< 0.264	< 1.00	1
Sb	0.169	< 0.618	< 1.00	1
Se	0	< 0.703	< 1.00	1

*** QC Fail**

QAQC Report

QC Batch No: **L795704**
Date/Time: 1/20/25 13:12
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Initial Calibration Blank - ICB

QC Measurement: Limit

Analyte	QC Result	Criteria	ICB Result	Dilution
Tl	0	< 0.061	< 1.00	1
V	0.004	< 0.767	< 5.00	1
Zn	0.004	< 4.67	< 10.0	1

Initial Calibration Verification - ICV

QC Measurement: % Recovery

Analyte	QC Result	Criteria	ICV Result	Dilution
Ag	99.0 %	90-110%	9.90	1
As	103 %	90-110%	51.4	1
Ba	102 %	90-110%	102	1
Be	101 %	90-110%	50.4	1
Cd	101 %	90-110%	10.1	1
Co	100 %	90-110%	100	1
Cr	102 %	90-110%	102	1
Cu	108 %	90-110%	53.9	1
Ni	103 %	90-110%	51.7	1
Pb	104 %	90-110%	52.0	1
Sb	97.0 %	90-110%	97.0	1
Se	101 %	90-110%	101	1
Tl	101 %	90-110%	10.1	1
V	102 %	90-110%	512	1
Zn	105 %	90-110%	525	1

Prep Batch: L795397

Lab Reagent Blank - LRB-L795397

QC Measurement: Limit

Analyte	QC Result	Criteria	LRB Result	Dilution
Ag	0.000	< 1	< 1.00	1
As	-0.2	< 1	< 1.00	1
Ba	0.103	< 1	< 1.00	1
Be	0.0154	< 1	< 1.00	1
Cd	0.0066	< 1	< 1.00	1
Co	0.079	< 1	< 1.00	1
Ni	0.181	< 1	< 1.00	1
Pb	0.0576	< 1	< 1.00	1
Sb	0.814	< 1	< 1.00	1
Se	0.038	< 1	< 1.00	1

QAQC Report

QC Batch No: **L795704**
Date/Time: 1/20/25 13:12
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Prep Batch: L795397

Lab Reagent Blank - LRB-L795397

QC Measurement: Limit

Analyte	QC Result	Criteria	LRB Result	Dilution
Tl	0.0009	< 1	< 1.00	1
V	-1.9	< 5	< 5.00	1
Zn	2.39	< 10	< 10.0	1

Prep Batch: L795397

Laboratory Control Sample - LCS-L795397

QC Measurement: % Recovery

Analyte	QC Result	Criteria	LCS Result	LCS Conc.	Dilution
Ag	102 %	80-120%	10.2	10.	1
As	99.0 %	80-120%	49.7	50.	1
Ba	103 %	80-120%	103	100.	1
Be	107 %	80-120%	53.3	50.	1
Cd	101 %	80-120%	10.1	10.	1
Co	108 %	80-120%	108	100.	1
Cr	107 %	80-120%	107	100.	1
Cu	114 %	80-120%	57.1	50.	1
Ni	110 %	80-120%	55.1	50.	1
Pb	103 %	80-120%	51.7	50.	1
Sb	113 %	80-120%	113	100.	1
Se	99.0 %	80-120%	98.5	100.	1
Tl	93.0 %	80-120%	9.30	10.	1
V	108 %	80-120%	542	500.	1
Zn	108 %	80-120%	542	500.	1

Prep Batch: L795397

Matrix Spike - Q 90109-MS-L795397

QC Measurement: % Recovery

Analyte	QC Result	Criteria	MS Result	MS Conc.	Sample Conc.	Dilution
Sb	112 %	75-125%	113	100.	< 1.00	1

Prep Batch: L795397

Matrix Spike Duplicate - Q 90109-MSD-L795397

QC Measurement: % Recovery

Analyte	QC Result		Criteria	MSD Result	MSD Conc.	Sample Conc.	Dilution
Ag	95.0 %		75-125%	9.52	10.	< 1.00	1
As	111 %		75-125%	55.6	50.	< 1.00	1
Ba	294 %	*	75-125%	294	100.	< 1.00	1
Be	97.0 %		75-125%	48.6	50.	< 1.00	1

*** QC Fail**

QAQC Report

QC Batch No: **L795704**
Date/Time: 1/20/25 13:12
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Prep Batch: L795397

Matrix Spike Duplicate - Q 90109-MSD-L795397

QC Measurement: % Recovery

Analyte	QC Result		Criteria	MSD Result	MSD Conc.	Sample Conc.	Dilution
Cd	100	%	75-125%	9.96	10.	< 1.00	1
Co	111	%	75-125%	111	100.	< 1.00	1
Cr	118	%	75-125%	118	100.	< 1.00	1
Pb	107	%	75-125%	53.7	50.	< 1.00	1
Sb	112	%	75-125%	113	100.	< 1.00	1
Se	104	%	75-125%	104	100.	< 1.00	1
Tl	91.0	%	75-125%	9.14	10.	< 1.00	1
V	118	%	75-125%	589	500.	< 5.00	1
Zn	107	%	75-125%	536	500.	< 10.0	1

Prep Batch: L795397

Matrix Spike Duplicate - Q 90109-MSD-L795397

QC Measurement: RPD

Analyte	QC Result		Criteria	MSD Result	MS Conc.	Dilution
Ag	1.91	%	< 20	9.52	9.34	1
As	3.01	%	< 20	55.6	57.3	1
Ba	0.682	%	< 20	294	292.	1
Be	2.04	%	< 20	48.6	49.6	1
Cd	0.806	%	< 20	9.96	9.88	1
Co	0.904	%	< 20	111	110.	1
Cr	0.843	%	< 20	118	119.	1
Pb	0.372	%	< 20	53.7	53.9	1
Sb	0.000	%	< 20	113	113.	1
Se	0.956	%	< 20	104	105.	1
Tl	1.41	%	< 20	9.14	9.27	1
V	1.35	%	< 20	589	597.	1
Zn	1.13	%	< 20	536	530.	1

Prep Batch: L795397

Post Digestion Spike - Q 90109-PDS-L795397

QC Measurement: % Recovery

Analyte	QC Result		Criteria	PDS Result	PDS Conc.	Dilution
Sb	94.0	%	75-125%	47.2	50.37556	1

QAQC Report

QC Batch No: **L795943**
Date/Time: 1/21/25 14:04
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Calibration Standard 1 - C1

QC Measurement: % Recovery

Analyte	QC Result	Criteria	C1 Result	Dilution
Ag	101 %	80-120%	< 1.00	1
As	99.0 %	80-120%	< 1.00	1
Ba	99.0 %	80-120%	< 1.00	1
Be	102 %	80-120%	< 1.00	1
Cd	104 %	80-120%	< 1.00	1
Co	98.0 %	80-120%	< 1.00	1
Cr	99.0 %	80-120%	< 1.00	1
Cu	110 %	80-120%	< 1.00	1
Mn	101 %	80-120%	1.01	1
Ni	99.0 %	80-120%	< 1.00	1
Pb	104 %	80-120%	< 1.00	1
Sb	85.0 %	80-120%	< 1.00	1
Se	100 %	80-120%	1.00	1
Tl	100 %	80-120%	< 1.00	1
V	93.0 %	80-120%	< 5.00	1
Zn	104 %	80-120%	< 10.0	1

Continuing Calibration Blank - CCB1

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0.0049	< 0.057	< 1.00	1
As	0.112	< 0.297	< 1.00	1
Ba	0.006	< 0.453	< 1.00	1
Be	0.0025	< 0.102	< 1.00	1
Cd	0.0269	< 0.35	< 1.00	1
Co	0.050	< 0.06	< 1.00	1
Cr	0	< 0.346	< 1.00	1
Cu	0.0979	< 0.489	< 1.00	1
Mn	0.068	< 0.422	< 1.00	1
Ni	0.0544	< 0.182	< 1.00	1
Pb	0.0049	< 0.264	< 1.00	1
Sb	0.171	< 0.618	< 1.00	1
Se	0.201	< 0.703	< 1.00	1
Tl	0	< 0.061	< 1.00	1
V	0.332	< 0.767	< 5.00	1
Zn	0.062	< 4.67	< 10.0	1

QAQC Report

QC Batch No: **L795943**
Date/Time: 1/21/25 14:04
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Blank - CCB10

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0.0281	< 0.297	< 1.00	1
Ba	0.078	< 0.453	< 1.00	1
Be	0.0005	< 0.102	< 1.00	1
Cd	0.0003	< 0.35	< 1.00	1
Co	0.002	< 0.06	< 1.00	1
Cr	0.015	< 0.346	< 1.00	1
Cu	0.0130	< 0.489	< 1.00	1
Mn	0.135	< 0.422	< 1.00	1
Ni	0.0069	< 0.182	< 1.00	1
Pb	0.0017	< 0.264	< 1.00	1
Sb	0.0217	< 0.618	< 1.00	1
Se	-0.2	< 0.703	< 1.00	1
Tl	0.0030	< 0.061	< 1.00	1
V	-0.4	< 0.767	< 5.00	1
Zn	0.024	< 4.67	< 10.0	1

Continuing Calibration Blank - CCB11

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0.0028	< 0.057	< 1.00	1
As	0.117	< 0.297	< 1.00	1
Ba	0.098	< 0.453	< 1.00	1
Be	0.0376	< 0.102	< 1.00	1
Cd	0.0073	< 0.35	< 1.00	1
Co	0.058	< 0.06	< 1.00	1
Cr	0	< 0.346	< 1.00	1
Cu	0.0470	< 0.489	< 1.00	1
Ni	0.0355	< 0.182	< 1.00	1
Pb	0.0305	< 0.264	< 1.00	1
Sb	0.289	< 0.618	< 1.00	1
Se	0.073	< 0.703	< 1.00	1
V	0.457	< 0.767	< 5.00	1
Zn	0.295	< 4.67	< 10.0	1

QAQC Report

QC Batch No: **L795943**
Date/Time: 1/21/25 14:04
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Blank - CCB12

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0.0326	< 0.297	< 1.00	1
Ba	0.040	< 0.453	< 1.00	1
Be	0.0012	< 0.102	< 1.00	1
Cd	0.0006	< 0.35	< 1.00	1
Co	0.002	< 0.06	< 1.00	1
Cr	0.010	< 0.346	< 1.00	1
Cu	0.0317	< 0.489	< 1.00	1
Mn	0.128	< 0.422	< 1.00	1
Ni	0.0086	< 0.182	< 1.00	1
Pb	0.0013	< 0.264	< 1.00	1
Sb	0.0433	< 0.618	< 1.00	1
Se	0.019	< 0.703	< 1.00	1
Tl	0.0095	< 0.061	< 1.00	1
V	-0.1	< 0.767	< 5.00	1
Zn	0.024	< 4.67	< 10.0	1

Continuing Calibration Blank - CCB13

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0.0045	< 0.057	< 1.00	1
Ba	0.030	< 0.453	< 1.00	1
Be	0.0018	< 0.102	< 1.00	1
Cd	0.0001	< 0.35	< 1.00	1
Co	0.004	< 0.06	< 1.00	1
Cr	0.001	< 0.346	< 1.00	1
Cu	0.265	< 0.489	< 1.00	1
Mn	0.038	< 0.422	< 1.00	1
Ni	0.0472	< 0.182	< 1.00	1
Pb	0.0032	< 0.264	< 1.00	1
Sb	0.0140	< 0.618	< 1.00	1
Se	0.443	< 0.703	< 1.00	1
Tl	0.0010	< 0.061	< 1.00	1
V	0.040	< 0.767	< 5.00	1
Zn	1.72	< 4.67	< 10.0	1

QAQC Report

QC Batch No: **L795943**
Date/Time: 1/21/25 14:04
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Blank - CCB14

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0.0045	< 0.057	< 1.00	1
As	0.116	< 0.297	< 1.00	1
Ba	0.091	< 0.453	< 1.00	1
Be	0.0407	< 0.102	< 1.00	1
Cd	0.0083	< 0.35	< 1.00	1
Cr	0.074	< 0.346	< 1.00	1
Cu	0.263	< 0.489	< 1.00	1
Mn	0.090	< 0.422	< 1.00	1
Ni	0.0539	< 0.182	< 1.00	1
Pb	0.0375	< 0.264	< 1.00	1
Sb	0.268	< 0.618	< 1.00	1
Se	0.462	< 0.703	< 1.00	1
V	0.478	< 0.767	< 5.00	1
Zn	0.530	< 4.67	< 10.0	1

Continuing Calibration Blank - CCB15

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0.0015	< 0.057	< 1.00	1
As	0.0633	< 0.297	< 1.00	1
Ba	0.018	< 0.453	< 1.00	1
Be	0.0076	< 0.102	< 1.00	1
Cd	0.0018	< 0.35	< 1.00	1
Co	0.012	< 0.06	< 1.00	1
Cr	0	< 0.346	< 1.00	1
Cu	0.0994	< 0.489	< 1.00	1
Mn	0.015	< 0.422	< 1.00	1
Ni	0.0136	< 0.182	< 1.00	1
Pb	0.0063	< 0.264	< 1.00	1
Se	0.134	< 0.703	< 1.00	1
Tl	0.0049	< 0.061	< 1.00	1
V	0.116	< 0.767	< 5.00	1
Zn	0.169	< 4.67	< 10.0	1

QAQC Report

QC Batch No: **L795943**
Date/Time: 1/21/25 14:04
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Blank - CCB2

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0.0573	< 0.297	< 1.00	1
Ba	0.048	< 0.453	< 1.00	1
Be	0.0013	< 0.102	< 1.00	1
Cd	0.0050	< 0.35	< 1.00	1
Co	0.010	< 0.06	< 1.00	1
Cr	-0.1	< 0.346	< 1.00	1
Cu	0.0119	< 0.489	< 1.00	1
Mn	0.020	< 0.422	< 1.00	1
Ni	0.0252	< 0.182	< 1.00	1
Pb	0.0972	< 0.264	< 1.00	1
Sb	0.0573	< 0.618	< 1.00	1
Se	0.084	< 0.703	< 1.00	1
Tl	0	< 0.061	< 1.00	1
V	0.185	< 0.767	< 5.00	1
Zn	0.086	< 4.67	< 10.0	1

Continuing Calibration Blank - CCB3

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0.0180	< 0.297	< 1.00	1
Ba	0.044	< 0.453	< 1.00	1
Be	0.0001	< 0.102	< 1.00	1
Cd	0.0011	< 0.35	< 1.00	1
Co	0.002	< 0.06	< 1.00	1
Cr	0	< 0.346	< 1.00	1
Cu	0.0237	< 0.489	< 1.00	1
Mn	0.011	< 0.422	< 1.00	1
Ni	0.0099	< 0.182	< 1.00	1
Pb	0.0137	< 0.264	< 1.00	1
Sb	0.0190	< 0.618	< 1.00	1
Se	0.109	< 0.703	< 1.00	1
Tl	0	< 0.061	< 1.00	1
V	-0.1	< 0.767	< 5.00	1
Zn	0.089	< 4.67	< 10.0	1

QAQC Report

QC Batch No: **L795943**
Date/Time: 1/21/25 14:04
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Blank - CCB4

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0.0219	< 0.297	< 1.00	1
Ba	0.018	< 0.453	< 1.00	1
Be	0.0007	< 0.102	< 1.00	1
Cd	0.0007	< 0.35	< 1.00	1
Co	0.003	< 0.06	< 1.00	1
Cr	-0.1	< 0.346	< 1.00	1
Cu	0.0189	< 0.489	< 1.00	1
Mn	0.130	< 0.422	< 1.00	1
Ni	0.0063	< 0.182	< 1.00	1
Pb	0.0022	< 0.264	< 1.00	1
Sb	0.114	< 0.618	< 1.00	1
Se	0.280	< 0.703	< 1.00	1
Tl	0.0022	< 0.061	< 1.00	1
V	0.118	< 0.767	< 5.00	1
Zn	0.019	< 4.67	< 10.0	1

Continuing Calibration Blank - CCB5

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0.0769	< 0.297	< 1.00	1
Ba	0.016	< 0.453	< 1.00	1
Be	0.0030	< 0.102	< 1.00	1
Cd	0	< 0.35	< 1.00	1
Co	0.004	< 0.06	< 1.00	1
Cr	-0.1	< 0.346	< 1.00	1
Cu	0.0122	< 0.489	< 1.00	1
Mn	0.207	< 0.422	< 1.00	1
Ni	0.0077	< 0.182	< 1.00	1
Pb	0.0034	< 0.264	< 1.00	1
Sb	0.169	< 0.618	< 1.00	1
Se	0.260	< 0.703	< 1.00	1
Tl	0.0021	< 0.061	< 1.00	1
V	0.181	< 0.767	< 5.00	1
Zn	0.028	< 4.67	< 10.0	1

QAQC Report

QC Batch No: **L795943**
Date/Time: 1/21/25 14:04
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Blank - CCB6

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0.0174	< 0.297	< 1.00	1
Ba	0.011	< 0.453	< 1.00	1
Be	0.0018	< 0.102	< 1.00	1
Cd	0.000	< 0.35	< 1.00	1
Co	0.002	< 0.06	< 1.00	1
Cr	0.004	< 0.346	< 1.00	1
Cu	0.0112	< 0.489	< 1.00	1
Mn	0.019	< 0.422	< 1.00	1
Ni	0.0086	< 0.182	< 1.00	1
Pb	0.0023	< 0.264	< 1.00	1
Sb	0.0488	< 0.618	< 1.00	1
Se	0.044	< 0.703	< 1.00	1
Tl	0.0018	< 0.061	< 1.00	1
V	-0.4	< 0.767	< 5.00	1
Zn	0.034	< 4.67	< 10.0	1

Continuing Calibration Blank - CCB7

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0.0305	< 0.297	< 1.00	1
Ba	0.029	< 0.453	< 1.00	1
Be	0.0006	< 0.102	< 1.00	1
Cd	0.0002	< 0.35	< 1.00	1
Co	0.001	< 0.06	< 1.00	1
Cr	0.000	< 0.346	< 1.00	1
Cu	0.0339	< 0.489	< 1.00	1
Mn	0.067	< 0.422	< 1.00	1
Ni	0.0104	< 0.182	< 1.00	1
Pb	0.0002	< 0.264	< 1.00	1
Sb	0.0249	< 0.618	< 1.00	1
Se	-0.1	< 0.703	< 1.00	1
Tl	0	< 0.061	< 1.00	1
V	-0.1	< 0.767	< 5.00	1
Zn	0.046	< 4.67	< 10.0	1

QAQC Report

QC Batch No: **L795943**
Date/Time: 1/21/25 14:04
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Blank - CCB8

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0.0195	< 0.297	< 1.00	1
Ba	0.003	< 0.453	< 1.00	1
Be	0.000	< 0.102	< 1.00	1
Cd	0.000	< 0.35	< 1.00	1
Co	0.000	< 0.06	< 1.00	1
Cr	0	< 0.346	< 1.00	1
Cu	0.0167	< 0.489	< 1.00	1
Mn	0.005	< 0.422	< 1.00	1
Ni	0.0065	< 0.182	< 1.00	1
Pb	0.0008	< 0.264	< 1.00	1
Sb	0.0056	< 0.618	< 1.00	1
Se	0.191	< 0.703	< 1.00	1
Tl	0	< 0.061	< 1.00	1
V	0.074	< 0.767	< 5.00	1
Zn	0.007	< 4.67	< 10.0	1

Continuing Calibration Blank - CCB9

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0.0189	< 0.297	< 1.00	1
Ba	0.164	< 0.453	< 1.00	1
Be	0.0054	< 0.102	< 1.00	1
Cd	0.0017	< 0.35	< 1.00	1
Co	0.011	< 0.06	< 1.00	1
Cr	0.037	< 0.346	< 1.00	1
Cu	0.0356	< 0.489	< 1.00	1
Ni	0.0193	< 0.182	< 1.00	1
Pb	0.0052	< 0.264	< 1.00	1
Sb	0.0565	< 0.618	< 1.00	1
Se	0.244	< 0.703	< 1.00	1
Tl	0.0304	< 0.061	< 1.00	1
V	-0.3	< 0.767	< 5.00	1
Zn	0.086	< 4.67	< 10.0	1

QAQC Report

QC Batch No: **L795943**
Date/Time: 1/21/25 14:04
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Verification - CCV1

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	96.0	%	90-110%	9.61	1
As	98.0	%	90-110%	48.8	1
Ba	95.0	%	90-110%	95.3	1
Be	102	%	90-110%	51.2	1
Cd	95.0	%	90-110%	9.49	1
Co	99.0	%	90-110%	98.8	1
Cr	97.0	%	90-110%	97.4	1
Cu	105	%	90-110%	52.4	1
Mn	98.0	%	90-110%	98.4	1
Ni	101	%	90-110%	50.3	1
Pb	100	%	90-110%	49.8	1
Sb	95.0	%	90-110%	95.3	1
Se	97.0	%	90-110%	97.2	1
Tl	98.0	%	90-110%	9.79	1
V	98.0	%	90-110%	491	1
Zn	102	%	90-110%	510	1

Continuing Calibration Verification - CCV10

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	100	%	90-110%	9.97	1
As	103	%	90-110%	51.3	1
Ba	99.0	%	90-110%	98.9	1
Be	104	%	90-110%	52.1	1
Cd	100	%	90-110%	10.0	1
Co	100	%	90-110%	99.7	1
Cr	99.0	%	90-110%	98.6	1
Cu	107	%	90-110%	53.3	1
Mn	100	%	90-110%	100	1
Ni	101	%	90-110%	50.5	1
Pb	102	%	90-110%	50.9	1
Sb	95.0	%	90-110%	95.1	1
Se	103	%	90-110%	103	1
Tl	100	%	90-110%	9.96	1
V	99.0	%	90-110%	495	1
Zn	105	%	90-110%	523	1

QAQC Report

QC Batch No: **L795943**
Date/Time: 1/21/25 14:04
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Verification - CCV11

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	101	%	90-110%	10.1	1
As	102	%	90-110%	50.9	1
Ba	100	%	90-110%	99.9	1
Be	107	%	90-110%	53.4	1
Cd	99.0	%	90-110%	9.90	1
Co	99.0	%	90-110%	99.1	1
Cr	99.0	%	90-110%	98.8	1
Cu	105	%	90-110%	52.7	1
Mn	100	%	90-110%	99.7	1
Ni	102	%	90-110%	51.1	1
Pb	102	%	90-110%	50.9	1
Sb	97.0	%	90-110%	97.3	1
Se	102	%	90-110%	102	1
Tl	100	%	90-110%	9.98	1
V	99.0	%	90-110%	494	1
Zn	104	%	90-110%	518	1

Continuing Calibration Verification - CCV12

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	98.0	%	90-110%	9.77	1
As	102	%	90-110%	51.1	1
Ba	98.0	%	90-110%	98.1	1
Be	104	%	90-110%	51.8	1
Cd	99.0	%	90-110%	9.85	1
Co	97.0	%	90-110%	97.1	1
Cr	98.0	%	90-110%	97.8	1
Cu	105	%	90-110%	52.5	1
Mn	98.0	%	90-110%	97.7	1
Ni	98.0	%	90-110%	49.0	1
Pb	102	%	90-110%	50.8	1
Sb	96.0	%	90-110%	95.9	1
Se	101	%	90-110%	101	1
Tl	98.0	%	90-110%	9.84	1
V	97.0	%	90-110%	487	1
Zn	101	%	90-110%	504	1

QAQC Report

QC Batch No: **L795943**
Date/Time: 1/21/25 14:04
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Verification - CCV13

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	99.0	%	90-110%	9.91	1
As	103	%	90-110%	51.5	1
Ba	100	%	90-110%	99.5	1
Be	102	%	90-110%	51.1	1
Cd	98.0	%	90-110%	9.84	1
Co	99.0	%	90-110%	98.5	1
Cr	98.0	%	90-110%	97.8	1
Cu	105	%	90-110%	52.3	1
Mn	98.0	%	90-110%	97.5	1
Ni	100	%	90-110%	50.0	1
Pb	100	%	90-110%	50.2	1
Sb	95.0	%	90-110%	95.1	1
Se	102	%	90-110%	102	1
Tl	99.0	%	90-110%	9.85	1
V	96.0	%	90-110%	481	1
Zn	102	%	90-110%	510	1

Continuing Calibration Verification - CCV14

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	99.0	%	90-110%	9.86	1
As	102	%	90-110%	50.8	1
Ba	99.0	%	90-110%	98.8	1
Be	104	%	90-110%	51.8	1
Cd	98.0	%	90-110%	9.80	1
Co	96.0	%	90-110%	96.2	1
Cr	96.0	%	90-110%	95.6	1
Cu	103	%	90-110%	51.3	1
Mn	95.0	%	90-110%	94.9	1
Ni	99.0	%	90-110%	49.7	1
Pb	100	%	90-110%	49.8	1
Sb	94.0	%	90-110%	94.3	1
Se	102	%	90-110%	102	1
Tl	98.0	%	90-110%	9.81	1
V	95.0	%	90-110%	474	1
Zn	101	%	90-110%	503	1

QAQC Report

QC Batch No: **L795943**
Date/Time: 1/21/25 14:04
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Verification - CCV15

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	98.0	%	90-110%	9.76	1
As	100	%	90-110%	50.2	1
Ba	98.0	%	90-110%	98.1	1
Be	103	%	90-110%	51.4	1
Cd	97.0	%	90-110%	9.73	1
Co	94.0	%	90-110%	94.0	1
Cr	93.0	%	90-110%	93.0	1
Cu	101	%	90-110%	50.7	1
Mn	94.0	%	90-110%	93.8	1
Ni	97.0	%	90-110%	48.3	1
Pb	98.0	%	90-110%	48.8	1
Sb	95.0	%	90-110%	94.6	1
Se	100	%	90-110%	100	1
Tl	96.0	%	90-110%	9.55	1
V	94.0	%	90-110%	471	1
Zn	100	%	90-110%	499	1

Continuing Calibration Verification - CCV2

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	98.0	%	90-110%	9.75	1
As	101	%	90-110%	50.4	1
Ba	98.0	%	90-110%	98.0	1
Be	102	%	90-110%	50.9	1
Cd	97.0	%	90-110%	9.74	1
Co	99.0	%	90-110%	99.2	1
Cr	100	%	90-110%	100	1
Cu	105	%	90-110%	52.5	1
Mn	101	%	90-110%	101	1
Ni	101	%	90-110%	50.3	1
Pb	102	%	90-110%	51.0	1
Sb	96.0	%	90-110%	96.3	1
Se	101	%	90-110%	101	1
Tl	98.0	%	90-110%	9.84	1
V	100	%	90-110%	502	1
Zn	104	%	90-110%	519	1

QAQC Report

QC Batch No: **L795943**
Date/Time: 1/21/25 14:04
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Verification - CCV3

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	99.0	%	90-110%	9.87	1
As	100	%	90-110%	50.0	1
Ba	98.0	%	90-110%	97.9	1
Be	102	%	90-110%	51.2	1
Cd	98.0	%	90-110%	9.82	1
Co	97.0	%	90-110%	96.9	1
Cr	97.0	%	90-110%	96.6	1
Cu	105	%	90-110%	52.3	1
Mn	98.0	%	90-110%	97.6	1
Ni	100	%	90-110%	50.2	1
Pb	101	%	90-110%	50.7	1
Sb	96.0	%	90-110%	95.9	1
Se	102	%	90-110%	102	1
Tl	97.0	%	90-110%	9.74	1
V	98.0	%	90-110%	489	1
Zn	99.0	%	90-110%	497	1

Continuing Calibration Verification - CCV4

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	101	%	90-110%	10.1	1
As	100	%	90-110%	49.9	1
Ba	100	%	90-110%	99.6	1
Be	102	%	90-110%	50.8	1
Cd	97.0	%	90-110%	9.73	1
Co	99.0	%	90-110%	99.1	1
Cr	97.0	%	90-110%	97.1	1
Cu	105	%	90-110%	52.5	1
Mn	99.0	%	90-110%	99.4	1
Ni	100	%	90-110%	49.8	1
Pb	101	%	90-110%	50.6	1
Sb	98.0	%	90-110%	97.8	1
Se	100	%	90-110%	100	1
Tl	99.0	%	90-110%	9.87	1
V	97.0	%	90-110%	486	1
Zn	101	%	90-110%	506	1

QAQC Report

QC Batch No: **L795943**
Date/Time: 1/21/25 14:04
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Verification - CCV5

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	103	%	90-110%	10.3	1
As	101	%	90-110%	50.4	1
Ba	103	%	90-110%	103	1
Be	105	%	90-110%	52.7	1
Cd	102	%	90-110%	10.2	1
Co	101	%	90-110%	101	1
Cr	100	%	90-110%	100	1
Cu	107	%	90-110%	53.3	1
Mn	101	%	90-110%	101	1
Ni	101	%	90-110%	50.7	1
Pb	104	%	90-110%	52.1	1
Sb	101	%	90-110%	101	1
Se	102	%	90-110%	102	1
Tl	102	%	90-110%	10.2	1
V	99.0	%	90-110%	495	1
Zn	104	%	90-110%	522	1

Continuing Calibration Verification - CCV6

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	101	%	90-110%	10.1	1
As	102	%	90-110%	51.0	1
Ba	100	%	90-110%	100	1
Be	104	%	90-110%	51.9	1
Cd	102	%	90-110%	10.2	1
Co	100	%	90-110%	100	1
Cr	98.0	%	90-110%	98.1	1
Cu	106	%	90-110%	53.1	1
Mn	99.0	%	90-110%	98.8	1
Ni	102	%	90-110%	51.1	1
Pb	103	%	90-110%	51.4	1
Sb	98.0	%	90-110%	98.2	1
Se	102	%	90-110%	102	1
Tl	100	%	90-110%	9.99	1
V	97.0	%	90-110%	487	1
Zn	103	%	90-110%	515	1

QAQC Report

QC Batch No: **L795943**
Date/Time: 1/21/25 14:04
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Verification - CCV7

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	100	%	90-110%	10.0	1
As	101	%	90-110%	50.6	1
Ba	98.0	%	90-110%	97.7	1
Be	107	%	90-110%	53.3	1
Cd	99.0	%	90-110%	9.94	1
Co	100	%	90-110%	100	1
Cr	98.0	%	90-110%	97.8	1
Cu	107	%	90-110%	53.3	1
Mn	99.0	%	90-110%	99.2	1
Ni	102	%	90-110%	50.9	1
Pb	103	%	90-110%	51.3	1
Sb	96.0	%	90-110%	96.3	1
Se	102	%	90-110%	102	1
Tl	99.0	%	90-110%	9.88	1
V	99.0	%	90-110%	493	1
Zn	103	%	90-110%	516	1

Continuing Calibration Verification - CCV8

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Ag	101	%	90-110%	10.1	1
As	103	%	90-110%	51.4	1
Ba	100	%	90-110%	99.6	1
Be	104	%	90-110%	51.8	1
Cd	101	%	90-110%	10.1	1
Co	101	%	90-110%	101	1
Cr	100	%	90-110%	99.5	1
Cu	107	%	90-110%	53.3	1
Mn	99.0	%	90-110%	99.1	1
Ni	102	%	90-110%	51.1	1
Pb	104	%	90-110%	51.9	1
Sb	98.0	%	90-110%	98.4	1
Se	101	%	90-110%	101	1
Tl	101	%	90-110%	10.1	1
V	99.0	%	90-110%	496	1
Zn	103	%	90-110%	514	1

QAQC Report

QC Batch No: **L795943**
Date/Time: 1/21/25 14:04
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Verification - CCV9

QC Measurement: % Recovery

Analyte	QC Result			Criteria	CCV Result	Dilution
Ag	101	%		90-110%	10.1	1
As	105	%		90-110%	52.4	1
Ba	99.0	%		90-110%	99.4	1
Be	107	%		90-110%	53.7	1
Cd	99.0	%		90-110%	9.86	1
Co	102	%		90-110%	102	1
Cr	100	%		90-110%	100	1
Cu	106	%		90-110%	53.1	1
Mn	101	%		90-110%	101	1
Ni	103	%		90-110%	51.7	1
Pb	101	%		90-110%	50.5	1
Sb	98.0	%		90-110%	97.5	1
Se	104	%		90-110%	104	1
Tl	99.0	%		90-110%	9.91	1
V	101	%		90-110%	504	1
Zn	104	%		90-110%	518	1

Prep Batch: L794658

Dilution Test - V 90266-DT-L794658

QC Measurement: % Recovery

Analyte	QC Result		Criteria	DT Result	Sample Conc.	Dilution
Mn	94.0	%	90-110%	25600	27300.	250

Prep Batch: L795668

Dilution Test - V 90604-DT-L795668

QC Measurement: % Recovery

Analyte	QC Result			Criteria	DT Result	Sample Conc.	Dilution
Ag	0.000	%	*	90-110%	< 0.285	< 5.00	5
As	220	%	*	90-110%	< 1.49	< 5.00	5
Ba	99.0	%		90-110%	69.0	69.4	5
Be	0.000	%	*	90-110%	< 0.510	< 5.00	5
Cd	0.000	%	*	90-110%	< 1.75	< 5.00	5
Co	95.0	%		90-110%	4.02	< 5.00	5
Cr	48.0	%	*	90-110%	< 1.73	< 5.00	5
Ni	95.0	%		90-110%	1.24	< 5.00	5
Pb	0.000	%	*	90-110%	< 1.32	< 5.00	5
Sb	0.000	%	*	90-110%	24.2	< 5.00	5
Se	0.000	%	*	90-110%	< 3.52	< 5.00	5

*** QC Fail**

QAQC Report

QC Batch No: **L795943**
Date/Time: 1/21/25 14:04
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Prep Batch: L795668

Dilution Test - V 90604-DT-L795668

QC Measurement: % Recovery

Analyte	QC Result			Criteria	DT Result	Sample Conc.	Dilution
Tl	0.000	%	*	90-110%	< 0.305	< 5.00	5
V	0.000	%	*	90-110%	< 3.84	< 25.0	5
Zn	0.000	%	*	90-110%	< 23.4	< 50.0	5

Initial Calibration Blank - ICB

QC Measurement: Limit

Analyte	QC Result	Criteria	ICB Result	Dilution
Ag	0	< 0.057	< 1.00	1
As	0.0336	< 0.297	< 1.00	1
Ba	0.002	< 0.453	< 1.00	1
Be	0.0027	< 0.102	< 1.00	1
Cd	0.0003	< 0.35	< 1.00	1
Co	0.003	< 0.06	< 1.00	1
Cr	0	< 0.346	< 1.00	1
Cu	0.0026	< 0.489	< 1.00	1
Mn	0.003	< 0.422	< 1.00	1
Ni	0.0071	< 0.182	< 1.00	1
Pb	0.0027	< 0.264	< 1.00	1
Sb	0.172	< 0.618	< 1.00	1
Se	0.049	< 0.703	< 1.00	1
Tl	0	< 0.061	< 1.00	1
V	0.083	< 0.767	< 5.00	1
Zn	0.021	< 4.67	< 10.0	1

Initial Calibration Verification - ICV

QC Measurement: % Recovery

Analyte	QC Result		Criteria	ICV Result	Dilution
Ag	100	%	90-110%	10.0	1
As	102	%	90-110%	50.9	1
Ba	98.0	%	90-110%	98.4	1
Be	101	%	90-110%	50.6	1
Cd	100	%	90-110%	9.99	1
Co	100	%	90-110%	100	1
Cr	100	%	90-110%	100	1
Cu	106	%	90-110%	53.1	1
Mn	102	%	90-110%	102	1

*** QC Fail**

QAQC Report

QC Batch No: **L795943**
Date/Time: 1/21/25 14:04
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Initial Calibration Verification - ICV

QC Measurement: % Recovery

Analyte	QC Result	Criteria	ICV Result	Dilution
Ni	101 %	90-110%	50.7	1
Pb	103 %	90-110%	51.6	1
Sb	97.0 %	90-110%	97.1	1
Se	101 %	90-110%	101	1
Tl	101 %	90-110%	10.1	1
V	102 %	90-110%	508	1
Zn	103 %	90-110%	515	1

Prep Batch: L795397

Lab Reagent Blank - LRB-L795397

QC Measurement: Limit

Analyte	QC Result	Criteria	LRB Result	Dilution
Cr	0.641	< 1	< 1.00	1
Cu	2.36	< 1	2.36	1

Prep Batch: L795668

Lab Reagent Blank - LRB-L795668

QC Measurement: Limit

Analyte	QC Result	Criteria	LRB Result	Dilution
Ag	0.000	< 1	< 1.00	1
As	-0.3	< 1	< 1.00	1
Ba	0.127	< 1	< 1.00	1
Be	0.0027	< 1	< 1.00	1
Cd	0.0018	< 1	< 1.00	1
Co	0.007	< 1	< 1.00	1
Cr	0.247	< 1	< 1.00	1
Ni	0.655	< 1	< 1.00	1
Pb	0.105	< 1	< 1.00	1
Sb	0.122	< 1	< 1.00	1
Se	0.000	< 1	< 1.00	1
Tl	0.0042	< 1	< 1.00	1
V	-1.1	< 5	< 5.00	1
Zn	4.41	< 10	< 10.0	1

*** QC Fail**

QAQC Report

QC Batch No: **L795943**
Date/Time: 1/21/25 14:04
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Prep Batch: L795640

Laboratory Control Sample - LCS-L795640

QC Measurement: % Recovery

Analyte	QC Result			Criteria	LCS Result	LCS Conc.	Dilution
Cr	106	%		80-120%	106	100.	1

Prep Batch: L795668

Laboratory Control Sample - LCS-L795668

QC Measurement: % Recovery

Analyte	QC Result			Criteria	LCS Result	LCS Conc.	Dilution
Ag	106	%		80-120%	10.6	10.	1
As	106	%		80-120%	53.0	50.	1
Ba	102	%		80-120%	102	100.	1
Be	114	%		80-120%	57.2	50.	1
Cd	106	%		80-120%	10.6	10.	1
Co	108	%		80-120%	108	100.	1
Cr	106	%		80-120%	106	100.	1
Cu	116	%		80-120%	57.8	50.	1
Ni	111	%		80-120%	55.5	50.	1
Pb	107	%		80-120%	53.5	50.	1
Sb	117	%		80-120%	117	100.	1
Se	107	%		80-120%	107	100.	1
Tl	98.0	%		80-120%	9.75	10.	1
V	104	%		80-120%	522	500.	1
Zn	109	%		80-120%	546	500.	1

Prep Batch: L794658

Matrix Spike - V 90266-MS-L794658

QC Measurement: % Recovery

Analyte	QC Result			Criteria	MS Result	MS Conc.	Sample Conc.	Dilution
Mn	-8000	%	*	75-125%	19300	100.	27300.	50

Prep Batch: L795397

Matrix Spike - Q 90109-MS-L795397

QC Measurement: % Recovery

Analyte	QC Result			Criteria	MS Result	MS Conc.	Sample Conc.	Dilution
Sb	124	%		75-125%	125	100.	< 5.00	5

*** QC Fail**

QAQC Report

QC Batch No: **L795943**
Date/Time: 1/21/25 14:04
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Prep Batch: L795668

Matrix Spike - V 90604-MS-L795668

QC Measurement: % Recovery

Analyte	QC Result			Criteria	MS Result	MS Conc.	Sample Conc.	Dilution
Ag	97.0	%		75-125%	9.72	10.	< 1.00	1
As	103	%		75-125%	51.8	50.	< 1.00	1
Ba	96.0	%		75-125%	165	100.	69.4	1
Be	106	%		75-125%	52.9	50.	< 1.00	1
Cd	98.0	%		75-125%	9.77	10.	< 1.00	1
Co	104	%		75-125%	108	100.	4.24	1
Cr	102	%		75-125%	103	100.	< 1.00	1
Ni	104	%		75-125%	53.2	50.	1.31	1
Pb	102	%		75-125%	51.2	50.	< 1.00	1
Sb	112	%		75-125%	112	100.	< 1.00	1
Se	102	%		75-125%	102	100.	< 1.00	1
Tl	91.0	%		75-125%	9.09	10.	< 1.00	1
V	103	%		75-125%	515	500.	< 5.00	1
Zn	102	%		75-125%	510	500.	< 10.0	1

Prep Batch: L794658

Matrix Spike Duplicate - V 90266-MSD-L794658

QC Measurement: % Recovery

Analyte	QC Result			Criteria	MSD Result	MSD Conc.	Sample Conc.	Dilution
Mn	-6600	%	*	75-125%	20700	100.	27300.	50

Prep Batch: L794658

Matrix Spike Duplicate - V 90266-MSD-L794658

QC Measurement: RPD

Analyte	QC Result			Criteria	MSD Result	MS Conc.	Dilution
Mn	7.00	%		< 20	20700	19300.	50

Prep Batch: L795397

Matrix Spike Duplicate - Q 90109-MSD-L795397

QC Measurement: % Recovery

Analyte	QC Result			Criteria	MSD Result	MSD Conc.	Sample Conc.	Dilution
Ag	99.0	%		75-125%	9.90	10.	< 5.00	5
Ba	270	%	*	75-125%	270	100.	< 5.00	5
Cd	98.0	%		75-125%	9.81	10.	< 5.00	5
Cu	144	%	*	75-125%	71.9	50.	< 5.00	5
Ni	138	%	*	75-125%	68.9	50.	< 5.00	5
Sb	112	%		75-125%	113	100.	< 5.00	5

*** QC Fail**

QAQC Report

QC Batch No: **L795943**
Date/Time: 1/21/25 14:04
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Prep Batch: L795397

Matrix Spike Duplicate - Q 90109-MSD-L795397

QC Measurement: RPD

Analyte	QC Result		Criteria	MSD Result	MS Conc.	Dilution
Ag	0.805	%	< 20	9.90	9.98	5
Ba	2.63	%	< 20	270	263.	5
Cd	4.87	%	< 20	9.81	10.3	5
Cu	6.16	%	< 20	71.9	67.6	5
Ni	1.76	%	< 20	68.9	67.7	5
Sb	10.1	%	< 20	113	125.	5

Prep Batch: L795668

Matrix Spike Duplicate - V 90604-MSD-L795668

QC Measurement: % Recovery

Analyte	QC Result		Criteria	MSD Result	MSD Conc.	Sample Conc.	Dilution
Ag	100	%	75-125%	10.0	10.	< 1.00	1
As	107	%	75-125%	53.7	50.	< 1.00	1
Ba	102	%	75-125%	171	100.	69.4	1
Be	108	%	75-125%	54.0	50.	< 1.00	1
Cd	100	%	75-125%	10.0	10.	< 1.00	1
Co	104	%	75-125%	108	100.	4.24	1
Cr	103	%	75-125%	104	100.	< 1.00	1
Ni	106	%	75-125%	54.3	50.	1.31	1
Pb	103	%	75-125%	51.7	50.	< 1.00	1
Sb	115	%	75-125%	115	100.	< 1.00	1
Se	104	%	75-125%	104	100.	< 1.00	1
Tl	94.0	%	75-125%	9.38	10.	< 1.00	1
V	106	%	75-125%	529	500.	< 5.00	1
Zn	103	%	75-125%	513	500.	< 10.0	1

Prep Batch: L795668

Matrix Spike Duplicate - V 90604-MSD-L795668

QC Measurement: RPD

Analyte	QC Result		Criteria	MSD Result	MS Conc.	Dilution
Ag	2.84	%	< 20	10.0	9.72	1
As	3.60	%	< 20	53.7	51.8	1
Ba	3.57	%	< 20	171	165.	1
Be	2.06	%	< 20	54.0	52.9	1
Cd	2.33	%	< 20	10.0	9.77	1
Co	0.000	%	< 20	108	108.	1
Cr	0.966	%	< 20	104	103.	1
Ni	2.05	%	< 20	54.3	53.2	1

QAQC Report

QC Batch No: **L795943**
Date/Time: 1/21/25 14:04
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Prep Batch: L795668

Matrix Spike Duplicate - V 90604-MSD-L795668

QC Measurement: RPD

Analyte	QC Result		Criteria	MSD Result	MS Conc.	Dilution
Pb	0.972	%	< 20	51.7	51.2	1
Sb	2.64	%	< 20	115	112.	1
Se	1.94	%	< 20	104	102.	1
Tl	3.14	%	< 20	9.38	9.09	1
V	2.68	%	< 20	529	515.	1
Zn	0.586	%	< 20	513	510.	1

Prep Batch: L794658

Post Digestion Spike - V 90266-PDS-L794658

QC Measurement: % Recovery

Analyte	QC Result		Criteria	PDS Result	PDS Conc.	Dilution
Mn	99.0	%	75-125%	319	322.669564	1

Prep Batch: L795668

Post Digestion Spike - V 90604-PDS-L795668

QC Measurement: % Recovery

Analyte	QC Result		Criteria	PDS Result	PDS Conc.	Dilution
Ag	94.0	%	75-125%	4.69	5.	1
As	98.0	%	75-125%	24.8	25.221692	1
Ba	98.0	%	75-125%	83.4	84.69348	1
Be	101	%	75-125%	25.2	25.	1
Cd	96.0	%	75-125%	4.82	5.	1
Co	97.0	%	75-125%	50.7	52.117517	1
Cr	100	%	75-125%	50.1	50.302461	1
Ni	100	%	75-125%	25.6	25.654809	1
Pb	95.0	%	75-125%	23.8	25.	1
Sb	88.0	%	75-125%	44.1	50.	1
Se	97.0	%	75-125%	48.7	50.	1
Tl	95.0	%	75-125%	4.75	5.	1
V	98.0	%	75-125%	244	250.	1
Zn	103	%	75-125%	258	250.	1

QAQC Report

QC Batch No: **L796405**
Date/Time: 1/23/25 14:27
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Calibration Standard 1 - C1

QC Measurement: % Recovery

Analyte	QC Result	Criteria	C1 Result	Dilution
Cu	115 %	80-120%	< 1.00	1

Continuing Calibration Blank - CCB1

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Cu	0.0664	< 0.489	< 1.00	1

Continuing Calibration Blank - CCB2

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Cu	0.0081	< 0.489	< 1.00	1

Continuing Calibration Blank - CCB3

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Cu	0.0198	< 0.489	< 1.00	1

Continuing Calibration Blank - CCB4

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Cu	0.0210	< 0.489	< 1.00	1

Continuing Calibration Blank - CCB5

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Cu	0.441	< 0.489	< 1.00	1

Continuing Calibration Blank - CCB6

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Cu	0.476	< 0.489	< 1.00	1

QAQC Report

QC Batch No: **L796405**
Date/Time: 1/23/25 14:27
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Blank - CCB7

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Cu	0.250	< 0.489	< 1.00	1

Continuing Calibration Blank - CCB8

QC Measurement: Limit

Analyte	QC Result	Criteria	CCB Result	Dilution
Cu	0.112	< 0.489	< 1.00	1

Continuing Calibration Verification - CCV1

QC Measurement: % Recovery

Analyte	QC Result	Criteria	CCV Result	Dilution
Cu	106 %	90-110%	53.1	1

Continuing Calibration Verification - CCV2

QC Measurement: % Recovery

Analyte	QC Result	Criteria	CCV Result	Dilution
Cu	107 %	90-110%	53.4	1

Continuing Calibration Verification - CCV3

QC Measurement: % Recovery

Analyte	QC Result	Criteria	CCV Result	Dilution
Cu	109 %	90-110%	54.7	1

Continuing Calibration Verification - CCV4

QC Measurement: % Recovery

Analyte	QC Result	Criteria	CCV Result	Dilution
Cu	108 %	90-110%	53.8	1

Continuing Calibration Verification - CCV5

QC Measurement: % Recovery

Analyte	QC Result	Criteria	CCV Result	Dilution
Cu	107 %	90-110%	53.3	1

QAQC Report

QC Batch No: **L796405**
Date/Time: 1/23/25 14:27
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Continuing Calibration Verification - CCV6

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Cu	107	%	90-110%	53.6	1

Continuing Calibration Verification - CCV7

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Cu	106	%	90-110%	52.8	1

Continuing Calibration Verification - CCV8

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Cu	106	%	90-110%	52.9	1

Continuing Calibration Verification - CCV9

QC Measurement: % Recovery

Analyte	QC Result		Criteria	CCV Result	Dilution
Cu	107	%	90-110%	53.4	1

Initial Calibration Blank - ICB

QC Measurement: Limit

Analyte	QC Result	Criteria	ICB Result	Dilution
Cu	0.0002	< 0.489	< 1.00	1

Initial Calibration Verification - ICV

QC Measurement: % Recovery

Analyte	QC Result		Criteria	ICV Result	Dilution
Cu	105	%	90-110%	52.7	1

Prep Batch: L796098

Lab Reagent Blank - LRB-L796098

QC Measurement: Limit

Analyte	QC Result	Criteria	LRB Result	Dilution
Cu	0.199	< 1	< 1.00	1

QAQC Report

QC Batch No: **L796405**
Date/Time: 1/23/25 14:27
Equipment: ICPMS3

Analyst: TJS
Method: SW-6020B

Prep Batch: L796098

Laboratory Control Sample - LCS-L796098

QC Measurement: % Recovery

Analyte	QC Result		Criteria	LCS Result	LCS Conc.	Dilution
Cu	111	%	80-120%	55.5	50.	1

Prep Batch: L796098

Laboratory Control Sample Dupl - LCSD-L796098

QC Measurement: % Recovery

Analyte	QC Result		Criteria	LCSD Result	LCSD Conc.	Dilution
Cu	113	%	80-120%	56.7	50.	1

Prep Batch: L796098

Laboratory Control Sample Dupl - LCSD-L796098

QC Measurement: RPD

Analyte	QC Result		Criteria	LCSD Result	Sample Conc.	Dilution
Cu	2.14	%	< 20	56.7	55.5	1

Waypoint ANALYTICAL

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ° Fax 901.213.2440
www.waypointanalytical.com

Shipment Receipt Form

Customer Number: **04511**
Customer Name: **Civil & Environmental Consultants, Inc.**
Report Number: **25-017-0105**

Shipping Method

◯ Fed Ex	◯ US Postal	◯ Lab	◯ Other :	
◯ UPS	◉ Client	◯ Courier	Thermometer ID:	T136

Shipping container/cooler uncompromised?	◉ Yes	◯ No	
Number of coolers/boxes received	1		
Custody seals intact on shipping container/cooler?	◯ Yes	◯ No	◉ Not Present
Custody seals intact on sample bottles?	◯ Yes	◯ No	◉ Not Present
Chain of Custody (COC) present?	◉ Yes	◯ No	
COC agrees with sample label(s)?	◉ Yes	◯ No	
COC properly completed	◉ Yes	◯ No	
Samples in proper containers?	◉ Yes	◯ No	
Sample containers intact?	◉ Yes	◯ No	
Sufficient sample volume for indicated test(s)?	◉ Yes	◯ No	
All samples received within holding time?	◉ Yes	◯ No	
Cooler temperature in compliance?	◉ Yes	◯ No	◯ Not Present
Cooler/Samples arrived at the laboratory on ice. Samples were considered acceptable as cooling process had begun.	◉ Yes	◯ No	
Water - Sample containers properly preserved	◉ Yes	◯ No	◯ N/A
Water - VOA vials free of headspace	◯ Yes	◯ No	◉ N/A
Trip Blanks received with VOAs	◯ Yes	◯ No	◉ N/A
Soil VOA method 5035 – compliance criteria met	◯ Yes	◯ No	◉ N/A

☐ High concentration container (48 hr) ☐ Low concentration EnCore samplers (48 hr)

☐ High concentration pre-weighed (methanol -14 d) ☐ Low conc pre-weighed vials (Sod Bis -14 d)

Special precautions or instructions included?	◯ Yes	◉ No

Comments:

Signature: Noah Shaw Date & Time: 01/17/2025 13:04:05

Client Name/Address	Client Project Manager/Contact	Billing Information	For Laboratory Use Only
CEC	Heath Bush	RUSH	

Project Description	Project/Site Location (City/State)		Method of Shipment	Matrix Key
groundwater	E-plex Collierville, TN	☑ RUSH – Additional charges apply ☐ Special Detection Limit(s) ☐ Date Results Needed	☐ Fed Ex ☐ UPS ☐ USPS ☐ Courier ☑ Client Drop Off Other	WW – Wastewater GW – Groundwater DW – Drinking Water S – Soil /Solid O – Oil P - Product M - Misc

Project Number	Project Manager Phone #	Project Manager Email	Purchase Order Number	Site/Facility ID #
328-417		hbush@cec.inc.com		

Waypoint ANALYTICAL
2790 Whitten Road
Memphis, TN 38133
(901) 213-2400

Unless noted, all containers per Table II of 40 CFR Part 136.

A	Cool < 10C Na2S2O3 (Micro Only)
B	Cool <= 6C
C	H2SO4 pH<2
D	None Required
E	NaOH pH>10
F	HNO3 pH<2
G	HCL pH<2
H	H3PO4 pH<2
I	Cool <= 6C NA2S2O3

Date	Time	Sample Identification	Number of Containers	Matrix (Refer to Key)	(G)rab or (C)omposite	Required Analysis / Preservative: Appx I Metals	Fluoride, Sulfate	Ammonia	Comments/Notes
1/17/24	1140	MW-3	3	GW	G	X	X	X	

25-017-0105
04511
01-17-2025
13:02:37
Civil & Environmental Consultants, Inc.
E-plex Collierville, TN

For Laboratory Use Only			Sampled by (Name – Print)	Client Remarks/Comments	
Ice: (Y) / N	Custody Seals: Y / (N)	Lab Comments	Joseph Daugherty	previous kit ID: 238414 / RUSH Analysis	
Blank/Cooler Temp: T13p 0.4			Relinquished by: (SIGNATURE)	Date Time: 1/17/24 1241	Received by: (SIGNATURE)
			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)
			Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)

Date Time	Date Time
	1/17/25 1241

Safeguard LITHO USA Form No. 811-2/E15CS000385 10/19

APPENDIX C

STATISTICAL ANALYSIS DOCUMENTATION

Shapiro-Francia Test of Normality

Parameter: Antimony

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Number of Measurements = 120

i	x(i)	m(i)	sum(m^2)	sum(mx)
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.97737	14.3114	0
4	0	-1.83843	17.6912	0
5	0	-1.7392	20.716	0
6	0	-1.65463	23.4538	0
7	0	-1.58047	25.9517	0
8	0	-1.50626	28.2205	0
9	0	-1.44663	30.3132	0
10	0	-1.39175	32.2502	0
11	0	-1.34075	34.0478	0
12	0	-1.28727	35.7049	0
13	0	-1.24264	37.249	0
14	0	-1.20036	38.6899	0
15	0	-1.16012	40.0358	0
16	0	-1.11699	41.2834	0
17	0	-1.08032	42.4505	0
18	0	-1.04505	43.5427	0
19	0	-1.00687	44.5564	0
20	0	-0.974114	45.5053	0
21	0	-0.942375	46.3934	0
22	0	-0.911562	47.2243	0
23	0	-0.877897	47.9951	0
24	0	-0.848786	48.7155	0
25	0	-0.820379	49.3885	0
26	0	-0.792618	50.0168	0
27	0	-0.7621	50.5975	0
28	0	-0.735557	51.1386	0
29	0	-0.709522	51.642	0
30	0	-0.68396	52.1098	0
31	0	-0.655726	52.5398	0
32	0	-0.631062	52.938	0
33	0	-0.606775	53.3062	0
34	0	-0.582841	53.6459	0
35	0	-0.556308	53.9554	0
36	0	-0.533048	54.2395	0
37	0	-0.510074	54.4997	0
38	0	-0.484544	54.7345	0
39	0	-0.462114	54.948	0
40	0	-0.439913	55.1416	0
41	0	-0.417928	55.3162	0
42	0	-0.393433	55.471	0
43	0	-0.371856	55.6093	0
44	0	-0.350451	55.7321	0
45	0	-0.329206	55.8405	0
46	0	-0.305481	55.9338	0
47	0	-0.284535	56.0148	0

48	0	-0.263715	56.0843	0
49	0	-0.243007	56.1434	0
50	0	-0.219834	56.1917	0
51	0	-0.199336	56.2314	0
52	0	-0.17892	56.2634	0
53	0	-0.156042	56.2878	0
54	0	-0.135774	56.3062	0
55	0	-0.115562	56.3196	0
56	0	-0.0953969	56.3287	0
57	0	-0.0727562	56.334	0
58	0	-0.0526632	56.3367	0
59	0	-0.0325917	56.3378	0
60	0	-0.0125328	56.338	0
61	0	0.0125328	56.3381	0
62	0	0.0325917	56.3392	0
63	0	0.0526632	56.342	0
64	0	0.0727562	56.3472	0
65	0	0.0953969	56.3563	0
66	0	0.115562	56.3697	0
67	0	0.135774	56.3881	0
68	0	0.156042	56.4125	0
69	0	0.17892	56.4445	0
70	0	0.199336	56.4842	0
71	0	0.219834	56.5326	0
72	0	0.243007	56.5916	0
73	0	0.263715	56.6612	0
74	0	0.284535	56.7421	0
75	0	0.305481	56.8354	0
76	0	0.329206	56.9438	0
77	0	0.350451	57.0666	0
78	0	0.371856	57.2049	0
79	0	0.393433	57.3597	0
80	0	0.417928	57.5344	0
81	0	0.439913	57.7279	0
82	0	0.462114	57.9414	0
83	0	0.484544	58.1762	0
84	0	0.510074	58.4364	0
85	0	0.533048	58.7205	0
86	0	0.556308	59.03	0
87	0	0.582841	59.3697	0
88	0	0.606775	59.7379	0
89	0	0.631062	60.1361	0
90	0	0.655726	60.5661	0
91	0	0.68396	61.0339	0
92	0	0.709522	61.5373	0
93	0	0.735557	62.0784	0
94	0	0.7621	62.6592	0
95	0	0.792618	63.2874	0
96	0	0.820379	63.9604	0
97	0	0.848786	64.6809	0
98	0	0.877897	65.4516	0
99	0	0.911562	66.2825	0
100	0	0.942375	67.1706	0
101	0	0.974114	68.1195	0
102	0	1.00687	69.1333	0
103	0	1.04505	70.2254	0
104	0	1.08032	71.3925	0

105	0	1.11699	72.6401	0
106	0	1.16012	73.986	0
107	0	1.20036	75.4269	0
108	0	1.24264	76.9711	0
109	0	1.28727	78.6281	0
110	0	1.34075	80.4257	0
111	0	1.39175	82.3627	0
112	0	1.44663	84.4554	0
113	0	1.50626	86.7243	0
114	0	1.58047	89.2221	0
115	0	1.65463	91.9599	0
116	0	1.7392	94.9847	0
117	0	1.83843	98.3645	0
118	0	1.97737	102.275	0
119	0.0013	2.14441	106.873	0.00278773
120	0.0019	2.40892	112.676	0.00736468

Data Set Standard Deviation = 0.000209334
Numerator = 5.42386e-005
Denominator = 0.000587567
W Statistic = 0.0923104 = 5.42386e-005 / 0.000587567

5% Critical value of 0.976 exceeds 0.0923104
Evidence of non-normality at 95% level of significance

1% Critical value of 0.967 exceeds 0.0923104
Evidence of non-normality at 99% level of significance

Shapiro-Francia Test of Normality

Parameter: Arsenic

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Number of Measurements = 120

i	x(i)	m(i)	sum(m^2)	sum(mx)
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.97737	14.3114	0
4	0	-1.83843	17.6912	0
5	0	-1.7392	20.716	0
6	0	-1.65463	23.4538	0
7	0	-1.58047	25.9517	0
8	0	-1.50626	28.2205	0
9	0	-1.44663	30.3132	0
10	0	-1.39175	32.2502	0
11	0	-1.34075	34.0478	0
12	0	-1.28727	35.7049	0
13	0	-1.24264	37.249	0
14	0	-1.20036	38.6899	0
15	0	-1.16012	40.0358	0
16	0	-1.11699	41.2834	0
17	0	-1.08032	42.4505	0
18	0	-1.04505	43.5427	0
19	0	-1.00687	44.5564	0
20	0	-0.974114	45.5053	0
21	0	-0.942375	46.3934	0
22	0	-0.911562	47.2243	0
23	0	-0.877897	47.9951	0
24	0	-0.848786	48.7155	0
25	0	-0.820379	49.3885	0
26	0	-0.792618	50.0168	0
27	0	-0.7621	50.5975	0
28	0	-0.735557	51.1386	0
29	0	-0.709522	51.642	0
30	0	-0.68396	52.1098	0
31	0	-0.655726	52.5398	0
32	0	-0.631062	52.938	0
33	0	-0.606775	53.3062	0
34	0	-0.582841	53.6459	0
35	0	-0.556308	53.9554	0
36	0	-0.533048	54.2395	0
37	0	-0.510074	54.4997	0
38	0	-0.484544	54.7345	0
39	0	-0.462114	54.948	0
40	0	-0.439913	55.1416	0
41	0	-0.417928	55.3162	0
42	0	-0.393433	55.471	0
43	0	-0.371856	55.6093	0
44	0	-0.350451	55.7321	0
45	0	-0.329206	55.8405	0
46	0	-0.305481	55.9338	0
47	0	-0.284535	56.0148	0

48	0	-0.263715	56.0843	0
49	0	-0.243007	56.1434	0
50	0	-0.219834	56.1917	0
51	0	-0.199336	56.2314	0
52	0	-0.17892	56.2634	0
53	0	-0.156042	56.2878	0
54	0	-0.135774	56.3062	0
55	0	-0.115562	56.3196	0
56	0	-0.0953969	56.3287	0
57	0	-0.0727562	56.334	0
58	0	-0.0526632	56.3367	0
59	0	-0.0325917	56.3378	0
60	0	-0.0125328	56.338	0
61	0	0.0125328	56.3381	0
62	0	0.0325917	56.3392	0
63	0	0.0526632	56.342	0
64	0	0.0727562	56.3472	0
65	0	0.0953969	56.3563	0
66	0	0.115562	56.3697	0
67	0	0.135774	56.3881	0
68	0	0.156042	56.4125	0
69	0	0.17892	56.4445	0
70	0	0.199336	56.4842	0
71	0	0.219834	56.5326	0
72	0	0.243007	56.5916	0
73	0	0.263715	56.6612	0
74	0	0.284535	56.7421	0
75	0	0.305481	56.8354	0
76	0	0.329206	56.9438	0
77	0	0.350451	57.0666	0
78	0	0.371856	57.2049	0
79	0	0.393433	57.3597	0
80	0	0.417928	57.5344	0
81	0	0.439913	57.7279	0
82	0	0.462114	57.9414	0
83	0	0.484544	58.1762	0
84	0	0.510074	58.4364	0
85	0	0.533048	58.7205	0
86	0	0.556308	59.03	0
87	0	0.582841	59.3697	0
88	0	0.606775	59.7379	0
89	0	0.631062	60.1361	0
90	0	0.655726	60.5661	0
91	0	0.68396	61.0339	0
92	0	0.709522	61.5373	0
93	0	0.735557	62.0784	0
94	0	0.7621	62.6592	0
95	0	0.792618	63.2874	0
96	0	0.820379	63.9604	0
97	0	0.848786	64.6809	0
98	0	0.877897	65.4516	0
99	0.001	0.911562	66.2825	0.000911562
100	0.0011	0.942375	67.1706	0.00194817
101	0.0013	0.974114	68.1195	0.00321452
102	0.0016	1.00687	69.1333	0.00482551
103	0.0017	1.04505	70.2254	0.00660209
104	0.0017	1.08032	71.3925	0.00843864

105	0.0018	1.11699	72.6401	0.0104492
106	0.0021	1.16012	73.986	0.0128855
107	0.0021	1.20036	75.4269	0.0154062
108	0.0021	1.24264	76.9711	0.0180158
109	0.0031	1.28727	78.6281	0.0220063
110	0.0033	1.34075	80.4257	0.0264308
111	0.0035	1.39175	82.3627	0.0313019
112	0.0036	1.44663	84.4554	0.0365098
113	0.0047	1.50626	86.7243	0.0435892
114	0.0049	1.58047	89.2221	0.0513335
115	0.0052	1.65463	91.9599	0.0599375
116	0.0056	1.7392	94.9847	0.0696771
117	0.0058	1.83843	98.3645	0.0803399
118	0.0064	1.97737	102.275	0.0929951
119	0.0094	2.14441	106.873	0.113153
120	0.0261	2.40892	112.676	0.176025

Data Set Standard Deviation = 0.00281487
Numerator = 0.030985
Denominator = 0.106241
W Statistic = 0.291647 = 0.030985 / 0.106241

5% Critical value of 0.976 exceeds 0.291647
Evidence of non-normality at 95% level of significance

1% Critical value of 0.967 exceeds 0.291647
Evidence of non-normality at 99% level of significance

Shapiro-Francia Test of Normality

Parameter: Barium

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Number of Measurements = 120

i	x(i)	m(i)	sum(m^2)	sum(mx)
1	0	-2.40892	5.80292	0
2	0.009	-2.14441	10.4014	-0.0192997
3	0.017	-1.97737	14.3114	-0.0529149
4	0.018	-1.83843	17.6912	-0.0860066
5	0.021	-1.7392	20.716	-0.12253
6	0.022	-1.65463	23.4538	-0.158932
7	0.023	-1.58047	25.9517	-0.195282
8	0.023	-1.50626	28.2205	-0.229926
9	0.023	-1.44663	30.3132	-0.263199
10	0.023	-1.39175	32.2502	-0.295209
11	0.024	-1.34075	34.0478	-0.327387
12	0.024	-1.28727	35.7049	-0.358282
13	0.024	-1.24264	37.249	-0.388105
14	0.026	-1.20036	38.6899	-0.419314
15	0.028	-1.16012	40.0358	-0.451798
16	0.028	-1.11699	41.2834	-0.483073
17	0.03	-1.08032	42.4505	-0.515483
18	0.03	-1.04505	43.5427	-0.546834
19	0.031	-1.00687	44.5564	-0.578047
20	0.031	-0.974114	45.5053	-0.608245
21	0.031	-0.942375	46.3934	-0.637458
22	0.031	-0.911562	47.2243	-0.665717
23	0.031	-0.877897	47.9951	-0.692932
24	0.031	-0.848786	48.7155	-0.719244
25	0.031	-0.820379	49.3885	-0.744676
26	0.033	-0.792618	50.0168	-0.770832
27	0.033	-0.7621	50.5975	-0.795981
28	0.034	-0.735557	51.1386	-0.82099
29	0.035	-0.709522	51.642	-0.845824
30	0.036	-0.68396	52.1098	-0.870446
31	0.037	-0.655726	52.5398	-0.894708
32	0.037	-0.631062	52.938	-0.918057
33	0.037	-0.606775	53.3062	-0.940508
34	0.039	-0.582841	53.6459	-0.963239
35	0.039	-0.556308	53.9554	-0.984935
36	0.04	-0.533048	54.2395	-1.00626
37	0.041	-0.510074	54.4997	-1.02717
38	0.042	-0.484544	54.7345	-1.04752
39	0.042	-0.462114	54.948	-1.06693
40	0.043	-0.439913	55.1416	-1.08585
41	0.044	-0.417928	55.3162	-1.10423
42	0.044	-0.393433	55.471	-1.12155
43	0.044	-0.371856	55.6093	-1.13791
44	0.044	-0.350451	55.7321	-1.15333
45	0.045	-0.329206	55.8405	-1.16814
46	0.046	-0.305481	55.9338	-1.18219
47	0.046	-0.284535	56.0148	-1.19528

48	0.046	-0.263715	56.0843	-1.20741
49	0.047	-0.243007	56.1434	-1.21883
50	0.047	-0.219834	56.1917	-1.22917
51	0.048	-0.199336	56.2314	-1.23873
52	0.049	-0.17892	56.2634	-1.2475
53	0.049	-0.156042	56.2878	-1.25515
54	0.051	-0.135774	56.3062	-1.26207
55	0.051	-0.115562	56.3196	-1.26797
56	0.052	-0.0953969	56.3287	-1.27293
57	0.053	-0.0727562	56.334	-1.27678
58	0.054	-0.0526632	56.3367	-1.27963
59	0.055	-0.0325917	56.3378	-1.28142
60	0.055	-0.0125328	56.338	-1.28211
61	0.055	0.0125328	56.3381	-1.28142
62	0.055	0.0325917	56.3392	-1.27963
63	0.058	0.0526632	56.342	-1.27657
64	0.059	0.0727562	56.3472	-1.27228
65	0.06	0.0953969	56.3563	-1.26656
66	0.061	0.115562	56.3697	-1.25951
67	0.061	0.135774	56.3881	-1.25122
68	0.061	0.156042	56.4125	-1.24171
69	0.063	0.17892	56.4445	-1.23043
70	0.063	0.199336	56.4842	-1.21788
71	0.064	0.219834	56.5326	-1.20381
72	0.067	0.243007	56.5916	-1.18752
73	0.0692	0.263715	56.6612	-1.16928
74	0.07	0.284535	56.7421	-1.14936
75	0.071	0.305481	56.8354	-1.12767
76	0.071	0.329206	56.9438	-1.1043
77	0.072	0.350451	57.0666	-1.07906
78	0.073	0.371856	57.2049	-1.05192
79	0.073	0.393433	57.3597	-1.0232
80	0.076	0.417928	57.5344	-0.991434
81	0.077	0.439913	57.7279	-0.957561
82	0.078	0.462114	57.9414	-0.921516
83	0.078	0.484544	58.1762	-0.883722
84	0.078	0.510074	58.4364	-0.843936
85	0.079	0.533048	58.7205	-0.801825
86	0.081	0.556308	59.03	-0.756764
87	0.081	0.582841	59.3697	-0.709554
88	0.081	0.606775	59.7379	-0.660405
89	0.081	0.631062	60.1361	-0.609289
90	0.083	0.655726	60.5661	-0.554864
91	0.084	0.68396	61.0339	-0.497411
92	0.084	0.709522	61.5373	-0.437811
93	0.086	0.735557	62.0784	-0.374553
94	0.088	0.7621	62.6592	-0.307489
95	0.089	0.792618	63.2874	-0.236946
96	0.09	0.820379	63.9604	-0.163111
97	0.09	0.848786	64.6809	-0.0867207
98	0.091	0.877897	65.4516	-0.00683214
99	0.092	0.911562	66.2825	0.0770315
100	0.095	0.942375	67.1706	0.166557
101	0.095	0.974114	68.1195	0.259098
102	0.097	1.00687	69.1333	0.356764
103	0.111	1.04505	70.2254	0.472765
104	0.112	1.08032	71.3925	0.59376

105	0.121	1.11699	72.6401	0.728916
106	0.123	1.16012	73.986	0.871611
107	0.124	1.20036	75.4269	1.02046
108	0.131	1.24264	76.9711	1.18324
109	0.132	1.28727	78.6281	1.35316
110	0.14	1.34075	80.4257	1.54087
111	0.145	1.39175	82.3627	1.74267
112	0.19	1.44663	84.4554	2.01753
113	0.194	1.50626	86.7243	2.30974
114	0.197	1.58047	89.2221	2.6211
115	0.2	1.65463	91.9599	2.95202
116	0.268	1.7392	94.9847	3.41813
117	0.278	1.83843	98.3645	3.92921
118	0.291	1.97737	102.275	4.50462
119	0.35	2.14441	106.873	5.25517
120	0.498	2.40892	112.676	6.45481

Data Set Standard Deviation = 0.0691461
Numerator = 41.6646
Denominator = 64.1083
W Statistic = 0.64991 = 41.6646 / 64.1083

5% Critical value of 0.976 exceeds 0.64991
Evidence of non-normality at 95% level of significance

1% Critical value of 0.967 exceeds 0.64991
Evidence of non-normality at 99% level of significance

Shapiro-Francia Test of Normality

Parameter: Cobalt

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Number of Measurements = 120

i	x(i)	m(i)	sum(m^2)	sum(mx)
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.97737	14.3114	0
4	0	-1.83843	17.6912	0
5	0	-1.7392	20.716	0
6	0	-1.65463	23.4538	0
7	0	-1.58047	25.9517	0
8	0	-1.50626	28.2205	0
9	0	-1.44663	30.3132	0
10	0	-1.39175	32.2502	0
11	0	-1.34075	34.0478	0
12	0	-1.28727	35.7049	0
13	0	-1.24264	37.249	0
14	0	-1.20036	38.6899	0
15	0	-1.16012	40.0358	0
16	0	-1.11699	41.2834	0
17	0	-1.08032	42.4505	0
18	0	-1.04505	43.5427	0
19	0	-1.00687	44.5564	0
20	0	-0.974114	45.5053	0
21	0	-0.942375	46.3934	0
22	0	-0.911562	47.2243	0
23	0	-0.877897	47.9951	0
24	0	-0.848786	48.7155	0
25	0	-0.820379	49.3885	0
26	0	-0.792618	50.0168	0
27	0	-0.7621	50.5975	0
28	0	-0.735557	51.1386	0
29	0	-0.709522	51.642	0
30	0	-0.68396	52.1098	0
31	0	-0.655726	52.5398	0
32	0	-0.631062	52.938	0
33	0	-0.606775	53.3062	0
34	0	-0.582841	53.6459	0
35	0	-0.556308	53.9554	0
36	0	-0.533048	54.2395	0
37	0	-0.510074	54.4997	0
38	0	-0.484544	54.7345	0
39	0	-0.462114	54.948	0
40	0	-0.439913	55.1416	0
41	0	-0.417928	55.3162	0
42	0	-0.393433	55.471	0
43	0	-0.371856	55.6093	0
44	0	-0.350451	55.7321	0
45	0	-0.329206	55.8405	0
46	0	-0.305481	55.9338	0
47	0	-0.284535	56.0148	0

48	0	-0.263715	56.0843	0
49	0	-0.243007	56.1434	0
50	0	-0.219834	56.1917	0
51	0	-0.199336	56.2314	0
52	0	-0.17892	56.2634	0
53	0	-0.156042	56.2878	0
54	0	-0.135774	56.3062	0
55	0	-0.115562	56.3196	0
56	0	-0.0953969	56.3287	0
57	0	-0.0727562	56.334	0
58	0	-0.0526632	56.3367	0
59	0	-0.0325917	56.3378	0
60	0	-0.0125328	56.338	0
61	0	0.0125328	56.3381	0
62	0	0.0325917	56.3392	0
63	0	0.0526632	56.342	0
64	0	0.0727562	56.3472	0
65	0	0.0953969	56.3563	0
66	0	0.115562	56.3697	0
67	0	0.135774	56.3881	0
68	0	0.156042	56.4125	0
69	0	0.17892	56.4445	0
70	0	0.199336	56.4842	0
71	0	0.219834	56.5326	0
72	0	0.243007	56.5916	0
73	0	0.263715	56.6612	0
74	0	0.284535	56.7421	0
75	0	0.305481	56.8354	0
76	0	0.329206	56.9438	0
77	0	0.350451	57.0666	0
78	0	0.371856	57.2049	0
79	0	0.393433	57.3597	0
80	0	0.417928	57.5344	0
81	0	0.439913	57.7279	0
82	0	0.462114	57.9414	0
83	0	0.484544	58.1762	0
84	0	0.510074	58.4364	0
85	0	0.533048	58.7205	0
86	0	0.556308	59.03	0
87	0	0.582841	59.3697	0
88	0.001	0.606775	59.7379	0.000606775
89	0.001	0.631062	60.1361	0.00123784
90	0.001	0.655726	60.5661	0.00189356
91	0.001	0.68396	61.0339	0.00257752
92	0.001	0.709522	61.5373	0.00328705
93	0.001	0.735557	62.0784	0.0040226
94	0.001	0.7621	62.6592	0.0047847
95	0.002	0.792618	63.2874	0.00636994
96	0.002	0.820379	63.9604	0.0080107
97	0.002	0.848786	64.6809	0.00970827
98	0.002	0.877897	65.4516	0.0114641
99	0.002	0.911562	66.2825	0.0132872
100	0.002	0.942375	67.1706	0.0151719
101	0.003	0.974114	68.1195	0.0180943
102	0.003	1.00687	69.1333	0.0211149
103	0.004	1.04505	70.2254	0.0252951
104	0.004	1.08032	71.3925	0.0296164

105	0.004	1.11699	72.6401	0.0340843
106	0.004	1.16012	73.986	0.0387248
107	0.004	1.20036	75.4269	0.0435262
108	0.005	1.24264	76.9711	0.0497394
109	0.005	1.28727	78.6281	0.0561758
110	0.006	1.34075	80.4257	0.0642203
111	0.006	1.39175	82.3627	0.0725708
112	0.00684	1.44663	84.4554	0.0824658
113	0.007	1.50626	86.7243	0.0930096
114	0.008	1.58047	89.2221	0.105653
115	0.017	1.65463	91.9599	0.133782
116	0.032	1.7392	94.9847	0.189436
117	0.035	1.83843	98.3645	0.253781
118	0.045	1.97737	102.275	0.342763
119	0.07	2.14441	106.873	0.492871
120	0.086	2.40892	112.676	0.700039

Data Set Standard Deviation = 0.0116335
Numerator = 0.490054
Denominator = 1.81466
W Statistic = 0.270053 = 0.490054 / 1.81466

5% Critical value of 0.976 exceeds 0.270053
Evidence of non-normality at 95% level of significance

1% Critical value of 0.967 exceeds 0.270053
Evidence of non-normality at 99% level of significance

Shapiro-Francia Test of Normality

Parameter: Copper

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Number of Measurements = 120

i	x(i)	m(i)	sum(m^2)	sum(mx)
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.97737	14.3114	0
4	0	-1.83843	17.6912	0
5	0	-1.7392	20.716	0
6	0	-1.65463	23.4538	0
7	0	-1.58047	25.9517	0
8	0	-1.50626	28.2205	0
9	0	-1.44663	30.3132	0
10	0	-1.39175	32.2502	0
11	0	-1.34075	34.0478	0
12	0	-1.28727	35.7049	0
13	0	-1.24264	37.249	0
14	0	-1.20036	38.6899	0
15	0	-1.16012	40.0358	0
16	0	-1.11699	41.2834	0
17	0	-1.08032	42.4505	0
18	0	-1.04505	43.5427	0
19	0	-1.00687	44.5564	0
20	0	-0.974114	45.5053	0
21	0	-0.942375	46.3934	0
22	0	-0.911562	47.2243	0
23	0	-0.877897	47.9951	0
24	0	-0.848786	48.7155	0
25	0	-0.820379	49.3885	0
26	0	-0.792618	50.0168	0
27	0	-0.7621	50.5975	0
28	0	-0.735557	51.1386	0
29	0	-0.709522	51.642	0
30	0.001	-0.68396	52.1098	-0.00068396
31	0.001	-0.655726	52.5398	-0.00133969
32	0.0011	-0.631062	52.938	-0.00203386
33	0.0011	-0.606775	53.3062	-0.00270131
34	0.0011	-0.582841	53.6459	-0.00334243
35	0.00114	-0.556308	53.9554	-0.00397662
36	0.0012	-0.533048	54.2395	-0.00461628
37	0.0016	-0.510074	54.4997	-0.0054324
38	0.0017	-0.484544	54.7345	-0.00625612
39	0.0017	-0.462114	54.948	-0.00704172
40	0.0017	-0.439913	55.1416	-0.00778957
41	0.0018	-0.417928	55.3162	-0.00854184
42	0.0018	-0.393433	55.471	-0.00925002
43	0.002	-0.371856	55.6093	-0.00999373
44	0.002	-0.350451	55.7321	-0.0106946
45	0.0025	-0.329206	55.8405	-0.0115176
46	0.0026	-0.305481	55.9338	-0.0123119
47	0.0028	-0.284535	56.0148	-0.0131086

48	0.0031	-0.263715	56.0843	-0.0139261
49	0.0031	-0.243007	56.1434	-0.0146794
50	0.0032	-0.219834	56.1917	-0.0153829
51	0.0035	-0.199336	56.2314	-0.0160806
52	0.0035	-0.17892	56.2634	-0.0167068
53	0.0048	-0.156042	56.2878	-0.0174558
54	0.0049	-0.135774	56.3062	-0.0181211
55	0.005	-0.115562	56.3196	-0.0186989
56	0.0051	-0.0953969	56.3287	-0.0191854
57	0.006	-0.0727562	56.334	-0.019622
58	0.0061	-0.0526632	56.3367	-0.0199432
59	0.0067	-0.0325917	56.3378	-0.0201616
60	0.008	-0.0125328	56.338	-0.0202618
61	0.008	0.0125328	56.3381	-0.0201616
62	0.0084	0.0325917	56.3392	-0.0198878
63	0.009	0.0526632	56.342	-0.0194138
64	0.009	0.0727562	56.3472	-0.018759
65	0.0101	0.0953969	56.3563	-0.0177955
66	0.011	0.115562	56.3697	-0.0165243
67	0.0116	0.135774	56.3881	-0.0149494
68	0.013	0.156042	56.4125	-0.0129208
69	0.0132	0.17892	56.4445	-0.0105591
70	0.0139	0.199336	56.4842	-0.0077883
71	0.015	0.219834	56.5326	-0.00449079
72	0.017	0.243007	56.5916	-0.000359676
73	0.018	0.263715	56.6612	0.00438719
74	0.018	0.284535	56.7421	0.00950883
75	0.02	0.305481	56.8354	0.0156184
76	0.022	0.329206	56.9438	0.022861
77	0.022	0.350451	57.0666	0.0305709
78	0.024	0.371856	57.2049	0.0394955
79	0.025	0.393433	57.3597	0.0493313
80	0.026	0.417928	57.5344	0.0601974
81	0.026	0.439913	57.7279	0.0716351
82	0.026	0.462114	57.9414	0.0836501
83	0.027	0.484544	58.1762	0.0967328
84	0.027	0.510074	58.4364	0.110505
85	0.028	0.533048	58.7205	0.12543
86	0.028	0.556308	59.03	0.141007
87	0.03	0.582841	59.3697	0.158492
88	0.031	0.606775	59.7379	0.177302
89	0.031	0.631062	60.1361	0.196865
90	0.031	0.655726	60.5661	0.217192
91	0.031	0.68396	61.0339	0.238395
92	0.031	0.709522	61.5373	0.26039
93	0.032	0.735557	62.0784	0.283928
94	0.032	0.7621	62.6592	0.308315
95	0.033	0.792618	63.2874	0.334472
96	0.038	0.820379	63.9604	0.365646
97	0.038	0.848786	64.6809	0.3979
98	0.038	0.877897	65.4516	0.43126
99	0.039	0.911562	66.2825	0.466811
100	0.039	0.942375	67.1706	0.503564
101	0.04	0.974114	68.1195	0.542528
102	0.041	1.00687	69.1333	0.58381
103	0.043	1.04505	70.2254	0.628747
104	0.046	1.08032	71.3925	0.678442

105	0.046	1.11699	72.6401	0.729823
106	0.046	1.16012	73.986	0.783189
107	0.048	1.20036	75.4269	0.840806
108	0.049	1.24264	76.9711	0.901695
109	0.05	1.28727	78.6281	0.966059
110	0.052	1.34075	80.4257	1.03578
111	0.054	1.39175	82.3627	1.11093
112	0.055	1.44663	84.4554	1.1905
113	0.055	1.50626	86.7243	1.27334
114	0.056	1.58047	89.2221	1.36185
115	0.057	1.65463	91.9599	1.45616
116	0.06	1.7392	94.9847	1.56051
117	0.063	1.83843	98.3645	1.67633
118	0.066	1.97737	102.275	1.80684
119	0.22	2.14441	106.873	2.27861
120	0.45	2.40892	112.676	3.36263

Data Set Standard Deviation = 0.0474618
Numerator = 11.3073
Denominator = 30.2041
W Statistic = 0.374361 = 11.3073 / 30.2041

5% Critical value of 0.976 exceeds 0.374361
Evidence of non-normality at 95% level of significance

1% Critical value of 0.967 exceeds 0.374361
Evidence of non-normality at 99% level of significance

Shapiro-Francia Test of Normality

Parameter: Mercury

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Number of Measurements = 120

i	x(i)	m(i)	sum(m^2)	sum(mx)
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.97737	14.3114	0
4	0	-1.83843	17.6912	0
5	0	-1.7392	20.716	0
6	0	-1.65463	23.4538	0
7	0	-1.58047	25.9517	0
8	0	-1.50626	28.2205	0
9	0	-1.44663	30.3132	0
10	0	-1.39175	32.2502	0
11	0	-1.34075	34.0478	0
12	0	-1.28727	35.7049	0
13	0	-1.24264	37.249	0
14	0	-1.20036	38.6899	0
15	0	-1.16012	40.0358	0
16	0	-1.11699	41.2834	0
17	0	-1.08032	42.4505	0
18	0	-1.04505	43.5427	0
19	0	-1.00687	44.5564	0
20	0	-0.974114	45.5053	0
21	0	-0.942375	46.3934	0
22	0	-0.911562	47.2243	0
23	0	-0.877897	47.9951	0
24	0	-0.848786	48.7155	0
25	0	-0.820379	49.3885	0
26	0	-0.792618	50.0168	0
27	0	-0.7621	50.5975	0
28	0	-0.735557	51.1386	0
29	0	-0.709522	51.642	0
30	0	-0.68396	52.1098	0
31	0	-0.655726	52.5398	0
32	0	-0.631062	52.938	0
33	0	-0.606775	53.3062	0
34	0	-0.582841	53.6459	0
35	0	-0.556308	53.9554	0
36	0	-0.533048	54.2395	0
37	0	-0.510074	54.4997	0
38	0	-0.484544	54.7345	0
39	0	-0.462114	54.948	0
40	0	-0.439913	55.1416	0
41	0	-0.417928	55.3162	0
42	0	-0.393433	55.471	0
43	0	-0.371856	55.6093	0
44	0	-0.350451	55.7321	0
45	0	-0.329206	55.8405	0
46	0	-0.305481	55.9338	0
47	0	-0.284535	56.0148	0

48	0	-0.263715	56.0843	0
49	0	-0.243007	56.1434	0
50	0	-0.219834	56.1917	0
51	0	-0.199336	56.2314	0
52	0	-0.17892	56.2634	0
53	0	-0.156042	56.2878	0
54	0	-0.135774	56.3062	0
55	0	-0.115562	56.3196	0
56	0	-0.0953969	56.3287	0
57	0	-0.0727562	56.334	0
58	0	-0.0526632	56.3367	0
59	0	-0.0325917	56.3378	0
60	0	-0.0125328	56.338	0
61	0	0.0125328	56.3381	0
62	0	0.0325917	56.3392	0
63	0	0.0526632	56.342	0
64	0	0.0727562	56.3472	0
65	0	0.0953969	56.3563	0
66	0	0.115562	56.3697	0
67	0	0.135774	56.3881	0
68	0	0.156042	56.4125	0
69	0	0.17892	56.4445	0
70	0	0.199336	56.4842	0
71	0	0.219834	56.5326	0
72	0	0.243007	56.5916	0
73	0	0.263715	56.6612	0
74	0	0.284535	56.7421	0
75	0	0.305481	56.8354	0
76	0	0.329206	56.9438	0
77	0	0.350451	57.0666	0
78	0	0.371856	57.2049	0
79	0	0.393433	57.3597	0
80	0	0.417928	57.5344	0
81	0	0.439913	57.7279	0
82	0	0.462114	57.9414	0
83	0	0.484544	58.1762	0
84	0	0.510074	58.4364	0
85	0	0.533048	58.7205	0
86	0	0.556308	59.03	0
87	0	0.582841	59.3697	0
88	0	0.606775	59.7379	0
89	0	0.631062	60.1361	0
90	0	0.655726	60.5661	0
91	0	0.68396	61.0339	0
92	0	0.709522	61.5373	0
93	0	0.735557	62.0784	0
94	0	0.7621	62.6592	0
95	0	0.792618	63.2874	0
96	0	0.820379	63.9604	0
97	0	0.848786	64.6809	0
98	0	0.877897	65.4516	0
99	0	0.911562	66.2825	0
100	0	0.942375	67.1706	0
101	0	0.974114	68.1195	0
102	0	1.00687	69.1333	0
103	0	1.04505	70.2254	0
104	0	1.08032	71.3925	0

105	0	1.11699	72.6401	0
106	0	1.16012	73.986	0
107	0	1.20036	75.4269	0
108	0	1.24264	76.9711	0
109	0	1.28727	78.6281	0
110	0.0002	1.34075	80.4257	0.000268151
111	0.00023	1.39175	82.3627	0.000588252
112	0.00023	1.44663	84.4554	0.000920978
113	0.00025	1.50626	86.7243	0.00129754
114	0.00025	1.58047	89.2221	0.00169266
115	0.00026	1.65463	91.9599	0.00212286
116	0.00029	1.7392	94.9847	0.00262723
117	0.00042	1.83843	98.3645	0.00339937
118	0.00051	1.97737	102.275	0.00440783
119	0.00119	2.14441	106.873	0.00695967
120	0.00136	2.40892	112.676	0.0102358

Data Set Standard Deviation = 0.000181039
Numerator = 0.000104772
Denominator = 0.000439462
W Statistic = 0.238409 = 0.000104772 / 0.000439462

5% Critical value of 0.976 exceeds 0.238409
Evidence of non-normality at 95% level of significance

1% Critical value of 0.967 exceeds 0.238409
Evidence of non-normality at 99% level of significance

Shapiro-Francia Test of Normality

Parameter: Nickel

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Number of Measurements = 120

i	x(i)	m(i)	sum(m^2)	sum(mx)
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.97737	14.3114	0
4	0	-1.83843	17.6912	0
5	0	-1.7392	20.716	0
6	0	-1.65463	23.4538	0
7	0	-1.58047	25.9517	0
8	0	-1.50626	28.2205	0
9	0	-1.44663	30.3132	0
10	0	-1.39175	32.2502	0
11	0	-1.34075	34.0478	0
12	0	-1.28727	35.7049	0
13	0	-1.24264	37.249	0
14	0	-1.20036	38.6899	0
15	0	-1.16012	40.0358	0
16	0	-1.11699	41.2834	0
17	0	-1.08032	42.4505	0
18	0	-1.04505	43.5427	0
19	0	-1.00687	44.5564	0
20	0	-0.974114	45.5053	0
21	0	-0.942375	46.3934	0
22	0	-0.911562	47.2243	0
23	0	-0.877897	47.9951	0
24	0	-0.848786	48.7155	0
25	0	-0.820379	49.3885	0
26	0	-0.792618	50.0168	0
27	0	-0.7621	50.5975	0
28	0	-0.735557	51.1386	0
29	0	-0.709522	51.642	0
30	0	-0.68396	52.1098	0
31	0	-0.655726	52.5398	0
32	0	-0.631062	52.938	0
33	0	-0.606775	53.3062	0
34	0	-0.582841	53.6459	0
35	0	-0.556308	53.9554	0
36	0	-0.533048	54.2395	0
37	0	-0.510074	54.4997	0
38	0	-0.484544	54.7345	0
39	0	-0.462114	54.948	0
40	0	-0.439913	55.1416	0
41	0	-0.417928	55.3162	0
42	0	-0.393433	55.471	0
43	0	-0.371856	55.6093	0
44	0	-0.350451	55.7321	0
45	0	-0.329206	55.8405	0
46	0	-0.305481	55.9338	0
47	0	-0.284535	56.0148	0

48	0	-0.263715	56.0843	0
49	0	-0.243007	56.1434	0
50	0	-0.219834	56.1917	0
51	0	-0.199336	56.2314	0
52	0	-0.17892	56.2634	0
53	0	-0.156042	56.2878	0
54	0	-0.135774	56.3062	0
55	0	-0.115562	56.3196	0
56	0.001	-0.0953969	56.3287	-9.53969e-005
57	0.0011	-0.0727562	56.334	-0.000175429
58	0.0011	-0.0526632	56.3367	-0.000233358
59	0.0012	-0.0325917	56.3378	-0.000272468
60	0.0013	-0.0125328	56.338	-0.000288761
61	0.0021	0.0125328	56.3381	-0.000262442
62	0.0023	0.0325917	56.3392	-0.000187481
63	0.0024	0.0526632	56.342	-6.10894e-005
64	0.00241	0.0727562	56.3472	0.000114253
65	0.0025	0.0953969	56.3563	0.000352745
66	0.0026	0.115562	56.3697	0.000653205
67	0.0026	0.135774	56.3881	0.00100622
68	0.0026	0.156042	56.4125	0.00141193
69	0.0026	0.17892	56.4445	0.00187712
70	0.003	0.199336	56.4842	0.00247513
71	0.003	0.219834	56.5326	0.00313463
72	0.0033	0.243007	56.5916	0.00393655
73	0.0033	0.263715	56.6612	0.00480681
74	0.0034	0.284535	56.7421	0.00577423
75	0.0035	0.305481	56.8354	0.00684342
76	0.0036	0.329206	56.9438	0.00802856
77	0.0036	0.350451	57.0666	0.00929018
78	0.0042	0.371856	57.2049	0.010852
79	0.0046	0.393433	57.3597	0.0126618
80	0.0049	0.417928	57.5344	0.0147096
81	0.005	0.439913	57.7279	0.0169092
82	0.0054	0.462114	57.9414	0.0194046
83	0.0055	0.484544	58.1762	0.0220696
84	0.0058	0.510074	58.4364	0.025028
85	0.006	0.533048	58.7205	0.0282263
86	0.006	0.556308	59.03	0.0315642
87	0.006	0.582841	59.3697	0.0350612
88	0.006	0.606775	59.7379	0.0387018
89	0.006	0.631062	60.1361	0.0424882
90	0.006	0.655726	60.5661	0.0464226
91	0.006	0.68396	61.0339	0.0505263
92	0.006	0.709522	61.5373	0.0547835
93	0.006	0.735557	62.0784	0.0591968
94	0.0063	0.7621	62.6592	0.063998
95	0.007	0.792618	63.2874	0.0695464
96	0.007	0.820379	63.9604	0.075289
97	0.0072	0.848786	64.6809	0.0814003
98	0.0077	0.877897	65.4516	0.0881601
99	0.008	0.911562	66.2825	0.0954526
100	0.008	0.942375	67.1706	0.102992
101	0.008	0.974114	68.1195	0.110784
102	0.008	1.00687	69.1333	0.118839
103	0.009	1.04505	70.2254	0.128245
104	0.009	1.08032	71.3925	0.137968

105	0.009	1.11699	72.6401	0.148021
106	0.009	1.16012	73.986	0.158462
107	0.009	1.20036	75.4269	0.169265
108	0.01	1.24264	76.9711	0.181691
109	0.01	1.28727	78.6281	0.194564
110	0.01	1.34075	80.4257	0.207972
111	0.01	1.39175	82.3627	0.221889
112	0.011	1.44663	84.4554	0.237802
113	0.012	1.50626	86.7243	0.255877
114	0.012	1.58047	89.2221	0.274843
115	0.012	1.65463	91.9599	0.294698
116	0.0137	1.7392	94.9847	0.318525
117	0.0139	1.83843	98.3645	0.344079
118	0.015	1.97737	102.275	0.37374
119	0.018	2.14441	106.873	0.412339
120	0.027	2.40892	112.676	0.47738

Data Set Standard Deviation = 0.00470229
Numerator = 0.227892
Denominator = 0.296481
W Statistic = 0.768656 = 0.227892 / 0.296481

5% Critical value of 0.976 exceeds 0.768656
Evidence of non-normality at 95% level of significance

1% Critical value of 0.967 exceeds 0.768656
Evidence of non-normality at 99% level of significance

Shapiro-Francia Test of Normality

Parameter: Sulfate

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Number of Measurements = 120

i	x(i)	m(i)	sum(m^2)	sum(mx)
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.97737	14.3114	0
4	0	-1.83843	17.6912	0
5	0	-1.7392	20.716	0
6	0	-1.65463	23.4538	0
7	0	-1.58047	25.9517	0
8	0	-1.50626	28.2205	0
9	0	-1.44663	30.3132	0
10	0	-1.39175	32.2502	0
11	0	-1.34075	34.0478	0
12	0	-1.28727	35.7049	0
13	0	-1.24264	37.249	0
14	0	-1.20036	38.6899	0
15	0	-1.16012	40.0358	0
16	0	-1.11699	41.2834	0
17	0	-1.08032	42.4505	0
18	0	-1.04505	43.5427	0
19	0	-1.00687	44.5564	0
20	0	-0.974114	45.5053	0
21	0	-0.942375	46.3934	0
22	0	-0.911562	47.2243	0
23	0	-0.877897	47.9951	0
24	0	-0.848786	48.7155	0
25	0	-0.820379	49.3885	0
26	0	-0.792618	50.0168	0
27	0	-0.7621	50.5975	0
28	1.58	-0.735557	51.1386	-1.16218
29	1.74	-0.709522	51.642	-2.39675
30	2	-0.68396	52.1098	-3.76467
31	2.77	-0.655726	52.5398	-5.58103
32	2.87	-0.631062	52.938	-7.39218
33	3	-0.606775	53.3062	-9.2125
34	3.33	-0.582841	53.6459	-11.1534
35	3.37	-0.556308	53.9554	-13.0281
36	4	-0.533048	54.2395	-15.1603
37	4.65	-0.510074	54.4997	-17.5322
38	5	-0.484544	54.7345	-19.9549
39	5.09	-0.462114	54.948	-22.307
40	5.76	-0.439913	55.1416	-24.8409
41	5.99	-0.417928	55.3162	-27.3443
42	6.31	-0.393433	55.471	-29.8269
43	6.38	-0.371856	55.6093	-32.1993
44	6.41	-0.350451	55.7321	-34.4457
45	6.49	-0.329206	55.8405	-36.5823
46	6.64	-0.305481	55.9338	-38.6107
47	7	-0.284535	56.0148	-40.6024

48	7	-0.263715	56.0843	-42.4484
49	7.33	-0.243007	56.1434	-44.2297
50	8	-0.219834	56.1917	-45.9883
51	8	-0.199336	56.2314	-47.583
52	8	-0.17892	56.2634	-49.0144
53	8	-0.156042	56.2878	-50.2627
54	8.53	-0.135774	56.3062	-51.4209
55	8.89	-0.115562	56.3196	-52.4482
56	9	-0.0953969	56.3287	-53.3068
57	9	-0.0727562	56.334	-53.9616
58	9	-0.0526632	56.3367	-54.4356
59	9	-0.0325917	56.3378	-54.7289
60	9	-0.0125328	56.338	-54.8417
61	9	0.0125328	56.3381	-54.7289
62	9	0.0325917	56.3392	-54.4356
63	9	0.0526632	56.342	-53.9616
64	9	0.0727562	56.3472	-53.3068
65	9.02	0.0953969	56.3563	-52.4463
66	9.09	0.115562	56.3697	-51.3958
67	9.52	0.135774	56.3881	-50.1033
68	9.53	0.156042	56.4125	-48.6162
69	9.62	0.17892	56.4445	-46.895
70	9.73	0.199336	56.4842	-44.9554
71	10	0.219834	56.5326	-42.7571
72	10	0.243007	56.5916	-40.327
73	10	0.263715	56.6612	-37.6899
74	10	0.284535	56.7421	-34.8445
75	10	0.305481	56.8354	-31.7897
76	10	0.329206	56.9438	-28.4977
77	10	0.350451	57.0666	-24.9931
78	10	0.371856	57.2049	-21.2746
79	10	0.393433	57.3597	-17.3403
80	10.1	0.417928	57.5344	-13.1192
81	10.6	0.439913	57.7279	-8.45611
82	10.7	0.462114	57.9414	-3.51149
83	10.8	0.484544	58.1762	1.72158
84	11	0.510074	58.4364	7.3324
85	11	0.533048	58.7205	13.1959
86	11	0.556308	59.03	19.3153
87	11	0.582841	59.3697	25.7266
88	11	0.606775	59.7379	32.4011
89	11	0.631062	60.1361	39.3428
90	11	0.655726	60.5661	46.5558
91	11	0.68396	61.0339	54.0793
92	11	0.709522	61.5373	61.8841
93	11	0.735557	62.0784	69.9752
94	11.1	0.7621	62.6592	78.4345
95	11.1	0.792618	63.2874	87.2326
96	12	0.820379	63.9604	97.0771
97	12	0.848786	64.6809	107.263
98	12	0.877897	65.4516	117.797
99	12	0.911562	66.2825	128.736
100	13	0.942375	67.1706	140.987
101	13	0.974114	68.1195	153.65
102	13.8	1.00687	69.1333	167.545
103	14	1.04505	70.2254	182.176
104	15	1.08032	71.3925	198.381

105	15	1.11699	72.6401	215.135
106	15	1.16012	73.986	232.537
107	15.9	1.20036	75.4269	251.623
108	16	1.24264	76.9711	271.505
109	16	1.28727	78.6281	292.102
110	16	1.34075	80.4257	313.554
111	16.8	1.39175	82.3627	336.935
112	17	1.44663	84.4554	361.528
113	17.6	1.50626	86.7243	388.038
114	18	1.58047	89.2221	416.486
115	23	1.65463	91.9599	454.543
116	26.1	1.7392	94.9847	499.936
117	28	1.83843	98.3645	551.412
118	32	1.97737	102.275	614.688
119	84	2.14441	106.873	794.818
120	98	2.40892	112.676	1030.89

Data Set Standard Deviation = 12.413
Numerator = 1.06274e+006
Denominator = 2.06602e+006
W Statistic = 0.51439 = 1.06274e+006 / 2.06602e+006

5% Critical value of 0.976 exceeds 0.51439
Evidence of non-normality at 95% level of significance

1% Critical value of 0.967 exceeds 0.51439
Evidence of non-normality at 99% level of significance

Shapiro-Francia Test of Normality

Parameter: Zinc

All Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Number of Measurements = 120

i	x(i)	m(i)	sum(m^2)	sum(mx)
1	0	-2.40892	5.80292	0
2	0	-2.14441	10.4014	0
3	0	-1.97737	14.3114	0
4	0	-1.83843	17.6912	0
5	0	-1.7392	20.716	0
6	0	-1.65463	23.4538	0
7	0	-1.58047	25.9517	0
8	0	-1.50626	28.2205	0
9	0	-1.44663	30.3132	0
10	0	-1.39175	32.2502	0
11	0	-1.34075	34.0478	0
12	0	-1.28727	35.7049	0
13	0	-1.24264	37.249	0
14	0	-1.20036	38.6899	0
15	0	-1.16012	40.0358	0
16	0	-1.11699	41.2834	0
17	0	-1.08032	42.4505	0
18	0	-1.04505	43.5427	0
19	0	-1.00687	44.5564	0
20	0	-0.974114	45.5053	0
21	0	-0.942375	46.3934	0
22	0	-0.911562	47.2243	0
23	0.0101	-0.877897	47.9951	-0.00886676
24	0.011	-0.848786	48.7155	-0.0182034
25	0.0114	-0.820379	49.3885	-0.0275557
26	0.012	-0.792618	50.0168	-0.0370671
27	0.0122	-0.7621	50.5975	-0.0463648
28	0.0125	-0.735557	51.1386	-0.0555592
29	0.0136	-0.709522	51.642	-0.0652087
30	0.0149	-0.68396	52.1098	-0.0753997
31	0.015	-0.655726	52.5398	-0.0852356
32	0.017	-0.631062	52.938	-0.0959637
33	0.018	-0.606775	53.3062	-0.106886
34	0.0208	-0.582841	53.6459	-0.119009
35	0.0208	-0.556308	53.9554	-0.13058
36	0.021	-0.533048	54.2395	-0.141774
37	0.022	-0.510074	54.4997	-0.152996
38	0.0238	-0.484544	54.7345	-0.164528
39	0.0246	-0.462114	54.948	-0.175896
40	0.028	-0.439913	55.1416	-0.188213
41	0.0298	-0.417928	55.3162	-0.200668
42	0.0312	-0.393433	55.471	-0.212943
43	0.034	-0.371856	55.6093	-0.225586
44	0.051	-0.350451	55.7321	-0.243459
45	0.053	-0.329206	55.8405	-0.260907
46	0.054	-0.305481	55.9338	-0.277403
47	0.06	-0.284535	56.0148	-0.294475

48	0.061	-0.263715	56.0843	-0.310561
49	0.061	-0.243007	56.1434	-0.325385
50	0.061	-0.219834	56.1917	-0.338795
51	0.066	-0.199336	56.2314	-0.351951
52	0.067	-0.17892	56.2634	-0.363939
53	0.069	-0.156042	56.2878	-0.374705
54	0.071	-0.135774	56.3062	-0.384345
55	0.076	-0.115562	56.3196	-0.393128
56	0.086	-0.0953969	56.3287	-0.401332
57	0.088	-0.0727562	56.334	-0.407735
58	0.091	-0.0526632	56.3367	-0.412527
59	0.091	-0.0325917	56.3378	-0.415493
60	0.099	-0.0125328	56.338	-0.416734
61	0.1	0.0125328	56.3381	-0.41548
62	0.1	0.0325917	56.3392	-0.412221
63	0.101	0.0526632	56.342	-0.406902
64	0.103	0.0727562	56.3472	-0.399408
65	0.103	0.0953969	56.3563	-0.389582
66	0.107	0.115562	56.3697	-0.377217
67	0.109	0.135774	56.3881	-0.362418
68	0.112	0.156042	56.4125	-0.344941
69	0.114	0.17892	56.4445	-0.324544
70	0.115	0.199336	56.4842	-0.301621
71	0.117	0.219834	56.5326	-0.2759
72	0.121	0.243007	56.5916	-0.246496
73	0.121	0.263715	56.6612	-0.214587
74	0.124	0.284535	56.7421	-0.179304
75	0.129	0.305481	56.8354	-0.139897
76	0.141	0.329206	56.9438	-0.0934793
77	0.141	0.350451	57.0666	-0.0440657
78	0.15	0.371856	57.2049	0.0117127
79	0.155	0.393433	57.3597	0.0726948
80	0.16	0.417928	57.5344	0.139563
81	0.164	0.439913	57.7279	0.211709
82	0.173	0.462114	57.9414	0.291655
83	0.184	0.484544	58.1762	0.380811
84	0.222	0.510074	58.4364	0.494047
85	0.222	0.533048	58.7205	0.612384
86	0.247	0.556308	59.03	0.749792
87	0.272	0.582841	59.3697	0.908325
88	0.274	0.606775	59.7379	1.07458
89	0.324	0.631062	60.1361	1.27905
90	0.355	0.655726	60.5661	1.51183
91	0.37	0.68396	61.0339	1.76489
92	0.372	0.709522	61.5373	2.02884
93	0.374	0.735557	62.0784	2.30393
94	0.446	0.7621	62.6592	2.64383
95	0.505	0.792618	63.2874	3.0441
96	0.543	0.820379	63.9604	3.48957
97	0.544	0.848786	64.6809	3.95131
98	0.67	0.877897	65.4516	4.5395
99	0.732	0.911562	66.2825	5.20676
100	0.753	0.942375	67.1706	5.91637
101	0.807	0.974114	68.1195	6.70248
102	0.887	1.00687	69.1333	7.59557
103	0.92	1.04505	70.2254	8.55702
104	1	1.08032	71.3925	9.63734

105	1.002	1.11699	72.6401	10.7566
106	1.028	1.16012	73.986	11.9492
107	1.11	1.20036	75.4269	13.2816
108	1.11	1.24264	76.9711	14.6609
109	1.221	1.28727	78.6281	16.2327
110	1.742	1.34075	80.4257	18.5682
111	1.821	1.39175	82.3627	21.1026
112	2.011	1.44663	84.4554	24.0118
113	2.109	1.50626	86.7243	27.1885
114	10.7	1.58047	89.2221	44.0995
115	11.1	1.65463	91.9599	62.4658
116	11.8	1.7392	94.9847	82.9884
117	13.1	1.83843	98.3645	107.072
118	14.8	1.97737	102.275	136.337
119	17.1	2.14441	106.873	173.006
120	30.8	2.40892	112.676	247.201

Data Set Standard Deviation = 3.97286
Numerator = 61108.3
Denominator = 211633
W Statistic = 0.288746 = 61108.3 / 211633

5% Critical value of 0.976 exceeds 0.288746
Evidence of non-normality at 95% level of significance

1% Critical value of 0.967 exceeds 0.288746
Evidence of non-normality at 99% level of significance

Kruskal-Wallis Non-Parametric Test

Parameter: Antimony

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Kruskal Wallis Ranks

Background Locations

Loc. ID	Date	Value	Rank
MW-1	7/1/2014	ND<0	59.5
	8/1/2015	ND<0	59.5
	12/1/2015	ND<0	59.5
	8/1/2016	ND<0	59.5
	12/1/2016	ND<0	59.5
	6/1/2017	ND<0	59.5
	12/1/2017	ND<0	59.5
	7/1/2018	ND<0	59.5
	12/1/2018	ND<0	59.5
	7/1/2019	ND<0	59.5
	1/1/2020	ND<0	59.5
	7/1/2020	ND<0	59.5
	5/1/2021	ND<0	59.5
	12/14/2021	ND<0	59.5
	6/7/2022	ND<0	59.5
	11/16/2022	ND<0	59.5
	5/26/2023	ND<0	59.5
	11/10/2023	ND<0	59.5
	5/16/2024	ND<0	59.5
	11/21/2024	0.0019	120

Rank Sum = 1250.5
Rank Mean = 62.525

Background Rank Sum = 1250.5
Background Rank Mean = 62.525

Compliance Locations

Loc. ID	Date	Value	Rank
MW-2	7/1/2014	ND<0	59.5
	8/1/2015	ND<0	59.5
	12/1/2015	ND<0	59.5
	8/1/2016	ND<0	59.5
	12/1/2016	ND<0	59.5
	6/1/2017	ND<0	59.5
	12/1/2017	ND<0	59.5
	7/1/2018	ND<0	59.5
	12/1/2018	ND<0	59.5
	7/1/2019	ND<0	59.5
	1/1/2020	ND<0	59.5
	7/1/2020	ND<0	59.5
	5/1/2021	ND<0	59.5
	12/14/2021	ND<0	59.5
	6/7/2022	ND<0	59.5
	11/16/2022	ND<0	59.5
	5/26/2023	ND<0	59.5

	11/10/2023	ND<0	59.5
	5/16/2024	ND<0	59.5
	11/21/2024	ND<0	59.5

Rank Sum = 1190
Rank Mean = 59.5

MW-3	7/1/2014	ND<0	59.5
	8/1/2015	ND<0	59.5
	12/1/2015	ND<0	59.5
	8/1/2016	ND<0	59.5
	12/1/2016	ND<0	59.5
	6/1/2017	ND<0	59.5
	12/1/2017	ND<0	59.5
	7/1/2018	ND<0	59.5
	12/1/2018	ND<0	59.5
	7/1/2019	ND<0	59.5
	1/1/2020	ND<0	59.5
	7/1/2020	ND<0	59.5
	5/1/2021	ND<0	59.5
	12/14/2021	ND<0	59.5
	6/7/2022	ND<0	59.5
	11/16/2022	ND<0	59.5
	5/26/2023	ND<0	59.5
	11/10/2023	ND<0	59.5
	5/16/2024	ND<0	59.5
	1/17/2025	0.0013	119

Rank Sum = 1249.5
Rank Mean = 62.475

MW-4	7/1/2014	ND<0	59.5
	8/1/2015	ND<0	59.5
	12/1/2015	ND<0	59.5
	8/1/2016	ND<0	59.5
	12/1/2016	ND<0	59.5
	6/1/2017	ND<0	59.5
	12/1/2017	ND<0	59.5
	7/1/2018	ND<0	59.5
	12/1/2018	ND<0	59.5
	7/1/2019	ND<0	59.5
	1/1/2020	ND<0	59.5
	7/1/2020	ND<0	59.5
	5/1/2021	ND<0	59.5
	12/14/2021	ND<0	59.5
	6/7/2022	ND<0	59.5
	11/16/2022	ND<0	59.5
	5/26/2023	ND<0	59.5
	11/10/2023	ND<0	59.5
	5/16/2024	ND<0	59.5
	11/21/2024	ND<0	59.5

Rank Sum = 1190
Rank Mean = 59.5

MW-5	7/1/2014	ND<0	59.5
	8/1/2015	ND<0	59.5
	12/1/2015	ND<0	59.5
	8/1/2016	ND<0	59.5
	12/1/2016	ND<0	59.5

	6/1/2017	ND<0	59.5
	12/1/2017	ND<0	59.5
	7/1/2018	ND<0	59.5
	12/1/2018	ND<0	59.5
	7/1/2019	ND<0	59.5
	1/1/2020	ND<0	59.5
	7/1/2020	ND<0	59.5
	5/1/2021	ND<0	59.5
	12/14/2021	ND<0	59.5
	6/7/2022	ND<0	59.5
	11/16/2022	ND<0	59.5
	5/26/2023	ND<0	59.5
	11/10/2023	ND<0	59.5
	5/16/2024	ND<0	59.5
	11/21/2024	ND<0	59.5

Rank Sum = 1190
Rank Mean = 59.5

MW-6	7/1/2014	ND<0	59.5
	8/1/2015	ND<0	59.5
	12/1/2015	ND<0	59.5
	8/1/2016	ND<0	59.5
	12/1/2016	ND<0	59.5
	6/1/2017	ND<0	59.5
	12/1/2017	ND<0	59.5
	7/1/2018	ND<0	59.5
	12/1/2018	ND<0	59.5
	7/1/2019	ND<0	59.5
	1/1/2020	ND<0	59.5
	7/1/2020	ND<0	59.5
	5/1/2021	ND<0	59.5
	12/14/2021	ND<0	59.5
	6/7/2022	ND<0	59.5
	11/16/2022	ND<0	59.5
	5/26/2023	ND<0	59.5
	11/10/2023	ND<0	59.5
	5/16/2024	ND<0	59.5
	11/21/2024	ND<0	59.5

Rank Sum = 1190
Rank Mean = 59.5

Calculation Results:

Kruskal-Wallis H Statistic = 0.198368
Kruskal-Wallis H Statistic (adjusted for tied non-detects) = 4.03403
95% Confidence comparison value is 11.0705 at 5 degrees of freedom
0.198368 < 11.0705 indicating no significant group difference at 5% significance level
4.03403 < 11.0705 indicating no significant group difference at 5% significance level when adjusted for ties

Kruskal-Wallis Non-Parametric Test

Parameter: Arsenic

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Kruskal Wallis Ranks

Background Locations

Loc. ID	Date	Value	Rank
MW-1	7/1/2014	ND<0	49.5
	8/1/2015	ND<0	49.5
	12/1/2015	ND<0	49.5
	8/1/2016	ND<0	49.5
	12/1/2016	ND<0	49.5
	6/1/2017	ND<0	49.5
	12/1/2017	ND<0	49.5
	7/1/2018	ND<0	49.5
	12/1/2018	ND<0	49.5
	7/1/2019	ND<0	49.5
	1/1/2020	ND<0	49.5
	7/1/2020	ND<0	49.5
	5/1/2021	ND<0	49.5
	12/14/2021	ND<0	49.5
	6/7/2022	ND<0	49.5
	11/16/2022	0.0058	117
	5/26/2023	0.0047	113
	11/10/2023	0.0049	114
	5/16/2024	0.0017	103
	11/21/2024	ND<0	49.5

Rank Sum = 1239
Rank Mean = 61.95

Background Rank Sum = 1239
Background Rank Mean = 61.95

Compliance Locations

Loc. ID	Date	Value	Rank
MW-2	7/1/2014	ND<0	49.5
	8/1/2015	ND<0	49.5
	12/1/2015	ND<0	49.5
	8/1/2016	ND<0	49.5
	12/1/2016	ND<0	49.5
	6/1/2017	ND<0	49.5
	12/1/2017	ND<0	49.5
	7/1/2018	ND<0	49.5
	12/1/2018	ND<0	49.5
	7/1/2019	ND<0	49.5
	1/1/2020	ND<0	49.5
	7/1/2020	ND<0	49.5
	5/1/2021	ND<0	49.5
	12/14/2021	ND<0	49.5
	6/7/2022	ND<0	49.5
	11/16/2022	0.0018	105
	5/26/2023	ND<0	49.5

	11/10/2023	0.0033	110
	5/16/2024	ND<0	49.5
	11/21/2024	ND<0	49.5

Rank Sum = 1106
Rank Mean = 55.3

MW-3	7/1/2014	ND<0	49.5
	8/1/2015	ND<0	49.5
	12/1/2015	ND<0	49.5
	8/1/2016	ND<0	49.5
	12/1/2016	ND<0	49.5
	6/1/2017	ND<0	49.5
	12/1/2017	ND<0	49.5
	7/1/2018	ND<0	49.5
	12/1/2018	ND<0	49.5
	7/1/2019	ND<0	49.5
	1/1/2020	ND<0	49.5
	7/1/2020	ND<0	49.5
	5/1/2021	ND<0	49.5
	12/14/2021	ND<0	49.5
	6/7/2022	ND<0	49.5
	11/16/2022	0.001	99
	5/26/2023	0.0011	100
	11/10/2023	ND<0	49.5
	5/16/2024	ND<0	49.5
	1/17/2025	0.0021	106

Rank Sum = 1146.5
Rank Mean = 57.325

MW-4	7/1/2014	ND<0	49.5
	8/1/2015	ND<0	49.5
	12/1/2015	ND<0	49.5
	8/1/2016	ND<0	49.5
	12/1/2016	ND<0	49.5
	6/1/2017	ND<0	49.5
	12/1/2017	ND<0	49.5
	7/1/2018	ND<0	49.5
	12/1/2018	ND<0	49.5
	7/1/2019	ND<0	49.5
	1/1/2020	ND<0	49.5
	7/1/2020	ND<0	49.5
	5/1/2021	ND<0	49.5
	12/14/2021	0.0052	115
	6/7/2022	0.0035	111
	11/16/2022	0.0261	120
	5/26/2023	0.0094	119
	11/10/2023	0.0056	116
	5/16/2024	0.0064	118
	11/21/2024	0.0021	107

Rank Sum = 1449.5
Rank Mean = 72.475

MW-5	7/1/2014	ND<0	49.5
	8/1/2015	ND<0	49.5
	12/1/2015	ND<0	49.5
	8/1/2016	ND<0	49.5
	12/1/2016	ND<0	49.5

	6/1/2017	ND<0	49.5
	12/1/2017	ND<0	49.5
	7/1/2018	ND<0	49.5
	12/1/2018	ND<0	49.5
	7/1/2019	ND<0	49.5
	1/1/2020	ND<0	49.5
	7/1/2020	ND<0	49.5
	5/1/2021	ND<0	49.5
	12/14/2021	0.0013	101
	6/7/2022	ND<0	49.5
	11/16/2022	ND<0	49.5
	5/26/2023	0.0021	108
	11/10/2023	0.0031	109
	5/16/2024	ND<0	49.5
	11/21/2024	ND<0	49.5

Rank Sum = 1159.5
Rank Mean = 57.975

MW-6	7/1/2014	ND<0	49.5
	8/1/2015	ND<0	49.5
	12/1/2015	ND<0	49.5
	8/1/2016	ND<0	49.5
	12/1/2016	ND<0	49.5
	6/1/2017	ND<0	49.5
	12/1/2017	ND<0	49.5
	7/1/2018	ND<0	49.5
	12/1/2018	ND<0	49.5
	7/1/2019	ND<0	49.5
	1/1/2020	ND<0	49.5
	7/1/2020	ND<0	49.5
	5/1/2021	ND<0	49.5
	12/14/2021	ND<0	49.5
	6/7/2022	ND<0	49.5
	11/16/2022	0.0036	112
	5/26/2023	0.0017	104
	11/10/2023	0.0016	102
	5/16/2024	ND<0	49.5
	11/21/2024	ND<0	49.5

Rank Sum = 1159.5
Rank Mean = 57.975

Calculation Results:

Kruskal-Wallis H Statistic = 3.22934
Kruskal-Wallis H Statistic (adjusted for tied non-detects) = 7.09203
95% Confidence comparison value is 11.0705 at 5 degrees of freedom
3.22934 < 11.0705 indicating no significant group difference at 5% significance level
7.09203 < 11.0705 indicating no significant group difference at 5% significance level when adjusted for ties

Kruskal-Wallis Non-Parametric Test

Parameter: Barium

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Kruskal Wallis Ranks

Background Locations

Loc. ID	Date	Value	Rank
MW-1	7/1/2014	0.023	7
	8/1/2015	0.024	11
	12/1/2015	0.018	4
	8/1/2016	0.2	115
	12/1/2016	0.051	54
	6/1/2017	0.081	86
	12/1/2017	0.095	100
	7/1/2018	0.111	103
	12/1/2018	0.121	105
	7/1/2019	0.268	116
	1/1/2020	0.291	118
	7/1/2020	0.498	120
	5/1/2021	0.14	110
	12/14/2021	0.037	31
	6/7/2022	0.031	19
	11/16/2022	0.073	78
	5/26/2023	0.09	96
	11/10/2023	0.077	81
	5/16/2024	0.046	46
	11/21/2024	0.045	45

Rank Sum = 1445
Rank Mean = 72.25

Background Rank Sum = 1445
Background Rank Mean = 72.25

Compliance Locations

Loc. ID	Date	Value	Rank
MW-2	7/1/2014	0.026	14
	8/1/2015	0.035	29
	12/1/2015	0.043	40
	8/1/2016	0.35	119
	12/1/2016	0.044	41
	6/1/2017	0.061	66
	12/1/2017	0.073	79
	7/1/2018	0.078	82
	12/1/2018	0.081	87
	7/1/2019	0.076	80
	1/1/2020	0.081	88
	7/1/2020	0.097	102
	5/1/2021	0.031	20
	12/14/2021	0.03	17
	6/7/2022	ND<0	1
	11/16/2022	0.048	51
	5/26/2023	0.031	21

	11/10/2023	0.061	67
	5/16/2024	0.021	5
	11/21/2024	0.024	12

Rank Sum = 1021
Rank Mean = 51.05

MW-3	7/1/2014	0.039	34
	8/1/2015	0.042	38
	12/1/2015	0.031	22
	8/1/2016	0.039	35
	12/1/2016	0.033	26
	6/1/2017	0.028	15
	12/1/2017	0.031	23
	7/1/2018	0.084	91
	12/1/2018	0.064	71
	7/1/2019	0.055	59
	1/1/2020	0.078	83
	7/1/2020	0.09	97
	5/1/2021	0.084	92
	12/14/2021	0.037	32
	6/7/2022	0.123	106
	11/16/2022	0.055	60
	5/26/2023	0.124	107
	11/10/2023	0.024	13
	5/16/2024	0.028	16
	1/17/2025	0.0692	73

Rank Sum = 1093
Rank Mean = 54.65

MW-4	7/1/2014	0.037	33
	8/1/2015	0.063	69
	12/1/2015	0.044	42
	8/1/2016	0.086	93
	12/1/2016	0.081	89
	6/1/2017	0.07	74
	12/1/2017	0.083	90
	7/1/2018	0.095	101
	12/1/2018	0.055	61
	7/1/2019	0.053	57
	1/1/2020	0.079	85
	7/1/2020	0.091	98
	5/1/2021	0.19	112
	12/14/2021	0.131	108
	6/7/2022	0.194	113
	11/16/2022	0.278	117
	5/26/2023	0.197	114
	11/10/2023	0.145	111
	5/16/2024	0.132	109
	11/21/2024	0.112	104

Rank Sum = 1780
Rank Mean = 89

MW-5	7/1/2014	0.023	8
	8/1/2015	0.03	18
	12/1/2015	0.071	75
	8/1/2016	0.023	9
	12/1/2016	0.036	30

	6/1/2017	0.044	43
	12/1/2017	0.055	62
	7/1/2018	0.06	65
	12/1/2018	0.059	64
	7/1/2019	0.052	56
	1/1/2020	0.072	77
	7/1/2020	0.088	94
	5/1/2021	0.031	24
	12/14/2021	0.058	63
	6/7/2022	0.049	52
	11/16/2022	0.051	55
	5/26/2023	0.054	58
	11/10/2023	0.067	72
	5/16/2024	0.047	49
	11/21/2024	0.046	47

Rank Sum = 1021
Rank Mean = 51.05

MW-6	7/1/2014	0.017	3
	8/1/2015	0.022	6
	12/1/2015	0.009	2
	8/1/2016	0.023	10
	12/1/2016	0.061	68
	6/1/2017	0.034	28
	12/1/2017	0.044	44
	7/1/2018	0.063	70
	12/1/2018	0.071	76
	7/1/2019	0.092	99
	1/1/2020	0.089	95
	7/1/2020	0.078	84
	5/1/2021	0.031	25
	12/14/2021	0.033	27
	6/7/2022	0.049	53
	11/16/2022	0.042	39
	5/26/2023	0.047	50
	11/10/2023	0.04	36
	5/16/2024	0.046	48
	11/21/2024	0.041	37

Rank Sum = 900
Rank Mean = 45

Calculation Results:

Kruskal-Wallis H Statistic = 23.1965
Kruskal-Wallis H Statistic (adjusted for tied non-detects) = 23.1965
95% Confidence comparison value is 11.0705 at 5 degrees of freedom
23.1965 > 11.0705 indicating a significant group difference at 5% significance level
23.1965 > 11.0705 indicating a significant group difference at 5% significance level when adjusted for ties

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Individual Well Comparisons at 1% Significance Level per Comparison

1% Z score is 2.32634
Mean background rank is 72.25

Well	Mean Rank	Dif from Bkg	Critical Value
MW-2	51.05	-21.2	25.5898
MW-3	54.65	-17.6	25.5898
MW-4	89	16.75	25.5898

MW-5	51.05	-21.2	25.5898
MW-6	45	-27.25	25.5898

Individual Well Comparisons at Groupwise 5% Significance Level (1% Significance Level per comparison)

1% Z score is 2.32634

Mean background rank is 72.25

Well	Mean Rank	Dif from Bkg	Critical Value
MW-2	51.05	-21.2	25.5898
MW-3	54.65	-17.6	25.5898
MW-4	89	16.75	25.5898
MW-5	51.05	-21.2	25.5898
MW-6	45	-27.25	25.5898

Kruskal-Wallis Non-Parametric Test

Parameter: Cobalt

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Kruskal Wallis Ranks

Background Locations

Loc. ID	Date	Value	Rank
MW-1	7/1/2014	ND<0	44
	8/1/2015	ND<0	44
	12/1/2015	ND<0	44
	8/1/2016	ND<0	44
	12/1/2016	ND<0	44
	6/1/2017	ND<0	44
	12/1/2017	ND<0	44
	7/1/2018	ND<0	44
	12/1/2018	ND<0	44
	7/1/2019	ND<0	44
	1/1/2020	ND<0	44
	7/1/2020	ND<0	44
	5/1/2021	0.086	120
	12/14/2021	0.045	118
	6/7/2022	ND<0	44
	11/16/2022	0.07	119
	5/26/2023	0.035	117
	11/10/2023	0.032	116
	5/16/2024	0.017	115
	11/21/2024	0.005	108

Rank Sum = 1385
Rank Mean = 69.25

Background Rank Sum = 1385
Background Rank Mean = 69.25

Compliance Locations

Loc. ID	Date	Value	Rank
MW-2	7/1/2014	ND<0	44
	8/1/2015	ND<0	44
	12/1/2015	ND<0	44
	8/1/2016	ND<0	44
	12/1/2016	ND<0	44
	6/1/2017	ND<0	44
	12/1/2017	ND<0	44
	7/1/2018	ND<0	44
	12/1/2018	ND<0	44
	7/1/2019	ND<0	44
	1/1/2020	ND<0	44
	7/1/2020	ND<0	44
	5/1/2021	ND<0	44
	12/14/2021	ND<0	44
	6/7/2022	ND<0	44
	11/16/2022	0.001	88
	5/26/2023	ND<0	44

	11/10/2023	0.002	95
	5/16/2024	ND<0	44
	11/21/2024	ND<0	44

Rank Sum = 975
Rank Mean = 48.75

MW-3	7/1/2014	ND<0	44
	8/1/2015	ND<0	44
	12/1/2015	ND<0	44
	8/1/2016	ND<0	44
	12/1/2016	ND<0	44
	6/1/2017	ND<0	44
	12/1/2017	ND<0	44
	7/1/2018	ND<0	44
	12/1/2018	ND<0	44
	7/1/2019	ND<0	44
	1/1/2020	ND<0	44
	7/1/2020	ND<0	44
	5/1/2021	0.004	103
	12/14/2021	0.001	89
	6/7/2022	0.004	104
	11/16/2022	0.002	96
	5/26/2023	0.005	109
	11/10/2023	ND<0	44
	5/16/2024	ND<0	44
	1/17/2025	0.00684	112

Rank Sum = 1229
Rank Mean = 61.45

MW-4	7/1/2014	ND<0	44
	8/1/2015	ND<0	44
	12/1/2015	ND<0	44
	8/1/2016	ND<0	44
	12/1/2016	ND<0	44
	6/1/2017	ND<0	44
	12/1/2017	ND<0	44
	7/1/2018	ND<0	44
	12/1/2018	ND<0	44
	7/1/2019	ND<0	44
	1/1/2020	ND<0	44
	7/1/2020	ND<0	44
	5/1/2021	0.008	114
	12/14/2021	0.001	90
	6/7/2022	0.006	110
	11/16/2022	0.003	101
	5/26/2023	0.007	113
	11/10/2023	0.002	97
	5/16/2024	0.004	105
	11/21/2024	0.001	91

Rank Sum = 1349
Rank Mean = 67.45

MW-5	7/1/2014	ND<0	44
	8/1/2015	ND<0	44
	12/1/2015	ND<0	44
	8/1/2016	ND<0	44
	12/1/2016	ND<0	44

	6/1/2017	ND<0	44
	12/1/2017	ND<0	44
	7/1/2018	ND<0	44
	12/1/2018	ND<0	44
	7/1/2019	ND<0	44
	1/1/2020	ND<0	44
	7/1/2020	ND<0	44
	5/1/2021	ND<0	44
	12/14/2021	0.002	98
	6/7/2022	ND<0	44
	11/16/2022	0.001	92
	5/26/2023	0.003	102
	11/10/2023	0.004	106
	5/16/2024	ND<0	44
	11/21/2024	ND<0	44

Rank Sum = 1102
Rank Mean = 55.1

MW-6	7/1/2014	ND<0	44
	8/1/2015	ND<0	44
	12/1/2015	ND<0	44
	8/1/2016	ND<0	44
	12/1/2016	ND<0	44
	6/1/2017	ND<0	44
	12/1/2017	ND<0	44
	7/1/2018	ND<0	44
	12/1/2018	ND<0	44
	7/1/2019	ND<0	44
	1/1/2020	ND<0	44
	7/1/2020	ND<0	44
	5/1/2021	0.002	99
	12/14/2021	ND<0	44
	6/7/2022	0.006	111
	11/16/2022	0.002	100
	5/26/2023	0.004	107
	11/10/2023	0.001	93
	5/16/2024	0.001	94
	11/21/2024	ND<0	44

Rank Sum = 1220
Rank Mean = 61

Calculation Results:

Kruskal-Wallis H Statistic = 4.84694
Kruskal-Wallis H Statistic (adjusted for tied non-detects) = 7.83096
95% Confidence comparison value is 11.0705 at 5 degrees of freedom
4.84694 < 11.0705 indicating no significant group difference at 5% significance level
7.83096 < 11.0705 indicating no significant group difference at 5% significance level when adjusted for ties

Kruskal-Wallis Non-Parametric Test

Parameter: Copper

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Kruskal Wallis Ranks

Background Locations

Loc. ID	Date	Value	Rank
MW-1	7/1/2014	0.066	118
	8/1/2015	0.011	66
	12/1/2015	ND<0	15
	8/1/2016	0.031	88
	12/1/2016	0.038	96
	6/1/2017	ND<0	15
	12/1/2017	0.055	112
	7/1/2018	0.041	102
	12/1/2018	0.046	104
	7/1/2019	0.05	109
	1/1/2020	0.056	114
	7/1/2020	0.063	117
	5/1/2021	0.015	71
	12/14/2021	0.0017	38
	6/7/2022	0.0011	32
	11/16/2022	0.0031	48
	5/26/2023	0.0139	70
	11/10/2023	0.0051	56
	5/16/2024	0.0101	65
	11/21/2024	0.0026	46

Rank Sum = 1482
Rank Mean = 74.1

Background Rank Sum = 1482
Background Rank Mean = 74.1

Compliance Locations

Loc. ID	Date	Value	Rank
MW-2	7/1/2014	0.06	116
	8/1/2015	0.009	63
	12/1/2015	ND<0	15
	8/1/2016	0.038	97
	12/1/2016	0.039	99
	6/1/2017	0.22	119
	12/1/2017	0.02	75
	7/1/2018	0.026	80
	12/1/2018	0.018	73
	7/1/2019	ND<0	15
	1/1/2020	ND<0	15
	7/1/2020	ND<0	15
	5/1/2021	0.024	78
	12/14/2021	ND<0	15
	6/7/2022	ND<0	15
	11/16/2022	0.0061	58
	5/26/2023	0.0028	47

	11/10/2023	0.0116	67
	5/16/2024	0.0084	62
	11/21/2024	0.0035	51

Rank Sum = 1175
Rank Mean = 58.75

MW-3	7/1/2014	0.054	111
	8/1/2015	0.008	60
	12/1/2015	ND<0	15
	8/1/2016	0.45	120
	12/1/2016	0.043	103
	6/1/2017	0.031	89
	12/1/2017	0.033	95
	7/1/2018	0.049	108
	12/1/2018	0.04	101
	7/1/2019	ND<0	15
	1/1/2020	ND<0	15
	7/1/2020	ND<0	15
	5/1/2021	0.031	90
	12/14/2021	0.0132	69
	6/7/2022	0.001	30
	11/16/2022	0.0035	52
	5/26/2023	ND<0	15
	11/10/2023	ND<0	15
	5/16/2024	0.0048	53
	1/17/2025	0.00114	35

Rank Sum = 1206
Rank Mean = 60.3

MW-4	7/1/2014	0.055	113
	8/1/2015	0.009	64
	12/1/2015	ND<0	15
	8/1/2016	0.017	72
	12/1/2016	0.022	76
	6/1/2017	0.031	91
	12/1/2017	0.039	100
	7/1/2018	0.052	110
	12/1/2018	0.032	93
	7/1/2019	0.032	94
	1/1/2020	ND<0	15
	7/1/2020	ND<0	15
	5/1/2021	0.057	115
	12/14/2021	0.0012	36
	6/7/2022	0.0011	33
	11/16/2022	0.0018	41
	5/26/2023	ND<0	15
	11/10/2023	0.0011	34
	5/16/2024	0.0049	54
	11/21/2024	0.002	43

Rank Sum = 1229
Rank Mean = 61.45

MW-5	7/1/2014	0.026	81
	8/1/2015	0.006	57
	12/1/2015	ND<0	15
	8/1/2016	0.028	85
	12/1/2016	0.026	82

	6/1/2017	0.025	79
	12/1/2017	0.027	83
	7/1/2018	0.031	92
	12/1/2018	0.028	86
	7/1/2019	ND<0	15
	1/1/2020	ND<0	15
	7/1/2020	ND<0	15
	5/1/2021	0.013	68
	12/14/2021	0.0016	37
	6/7/2022	ND<0	15
	11/16/2022	ND<0	15
	5/26/2023	0.0017	39
	11/10/2023	0.0067	59
	5/16/2024	0.0031	49
	11/21/2024	0.0025	45

Rank Sum = 1032
Rank Mean = 51.6

MW-6	7/1/2014	0.046	105
	8/1/2015	0.008	61
	12/1/2015	0.005	55
	8/1/2016	0.046	106
	12/1/2016	0.048	107
	6/1/2017	0.027	84
	12/1/2017	0.03	87
	7/1/2018	0.038	98
	12/1/2018	0.022	77
	7/1/2019	ND<0	15
	1/1/2020	ND<0	15
	7/1/2020	ND<0	15
	5/1/2021	0.018	74
	12/14/2021	0.0018	42
	6/7/2022	ND<0	15
	11/16/2022	0.0017	40
	5/26/2023	ND<0	15
	11/10/2023	0.001	31
	5/16/2024	0.0032	50
	11/21/2024	0.002	44

Rank Sum = 1136
Rank Mean = 56.8

Calculation Results:

Kruskal-Wallis H Statistic = 4.65893
Kruskal-Wallis H Statistic (adjusted for tied non-detects) = 4.72555
95% Confidence comparison value is 11.0705 at 5 degrees of freedom
4.65893 < 11.0705 indicating no significant group difference at 5% significance level
4.72555 < 11.0705 indicating no significant group difference at 5% significance level when adjusted for ties

Kruskal-Wallis Non-Parametric Test

Parameter: Mercury

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Kruskal Wallis Ranks

Background Locations

Loc. ID	Date	Value	Rank
MW-1	7/1/2014	ND<0	55
	8/1/2015	ND<0	55
	12/1/2015	ND<0	55
	8/1/2016	ND<0	55
	12/1/2016	ND<0	55
	6/1/2017	ND<0	55
	12/1/2017	ND<0	55
	7/1/2018	ND<0	55
	12/1/2018	ND<0	55
	7/1/2019	ND<0	55
	1/1/2020	ND<0	55
	7/1/2020	ND<0	55
	5/1/2021	ND<0	55
	12/14/2021	ND<0	55
	6/7/2022	ND<0	55
	11/16/2022	0.0002	110
	5/26/2023	0.00042	117
	11/10/2023	ND<0	55
	5/16/2024	ND<0	55
	11/21/2024	ND<0	55

Rank Sum = 1217
Rank Mean = 60.85

Background Rank Sum = 1217
Background Rank Mean = 60.85

Compliance Locations

Loc. ID	Date	Value	Rank
MW-2	7/1/2014	ND<0	55
	8/1/2015	ND<0	55
	12/1/2015	ND<0	55
	8/1/2016	ND<0	55
	12/1/2016	ND<0	55
	6/1/2017	ND<0	55
	12/1/2017	ND<0	55
	7/1/2018	ND<0	55
	12/1/2018	ND<0	55
	7/1/2019	ND<0	55
	1/1/2020	ND<0	55
	7/1/2020	ND<0	55
	5/1/2021	ND<0	55
	12/14/2021	ND<0	55
	6/7/2022	ND<0	55
	11/16/2022	ND<0	55
	5/26/2023	0.00026	115

	11/10/2023	0.00029	116
	5/16/2024	ND<0	55
	11/21/2024	ND<0	55

Rank Sum = 1221
Rank Mean = 61.05

MW-3	7/1/2014	ND<0	55
	8/1/2015	ND<0	55
	12/1/2015	ND<0	55
	8/1/2016	ND<0	55
	12/1/2016	ND<0	55
	6/1/2017	ND<0	55
	12/1/2017	ND<0	55
	7/1/2018	ND<0	55
	12/1/2018	ND<0	55
	7/1/2019	ND<0	55
	1/1/2020	ND<0	55
	7/1/2020	ND<0	55
	5/1/2021	ND<0	55
	12/14/2021	ND<0	55
	6/7/2022	ND<0	55
	11/16/2022	ND<0	55
	5/26/2023	ND<0	55
	11/10/2023	ND<0	55
	5/16/2024	ND<0	55
	1/17/2025	ND<0	55

Rank Sum = 1100
Rank Mean = 55

MW-4	7/1/2014	ND<0	55
	8/1/2015	ND<0	55
	12/1/2015	ND<0	55
	8/1/2016	ND<0	55
	12/1/2016	ND<0	55
	6/1/2017	ND<0	55
	12/1/2017	ND<0	55
	7/1/2018	ND<0	55
	12/1/2018	ND<0	55
	7/1/2019	ND<0	55
	1/1/2020	ND<0	55
	7/1/2020	ND<0	55
	5/1/2021	ND<0	55
	12/14/2021	ND<0	55
	6/7/2022	ND<0	55
	11/16/2022	ND<0	55
	5/26/2023	ND<0	55
	11/10/2023	ND<0	55
	5/16/2024	ND<0	55
	11/21/2024	ND<0	55

Rank Sum = 1100
Rank Mean = 55

MW-5	7/1/2014	ND<0	55
	8/1/2015	ND<0	55
	12/1/2015	ND<0	55
	8/1/2016	ND<0	55
	12/1/2016	ND<0	55

	6/1/2017	ND<0	55
	12/1/2017	ND<0	55
	7/1/2018	ND<0	55
	12/1/2018	ND<0	55
	7/1/2019	ND<0	55
	1/1/2020	ND<0	55
	7/1/2020	ND<0	55
	5/1/2021	ND<0	55
	12/14/2021	0.00023	111
	6/7/2022	ND<0	55
	11/16/2022	ND<0	55
	5/26/2023	ND<0	55
	11/10/2023	0.00023	112
	5/16/2024	ND<0	55
	11/21/2024	ND<0	55

Rank Sum = 1213
Rank Mean = 60.65

MW-6	7/1/2014	ND<0	55
	8/1/2015	ND<0	55
	12/1/2015	ND<0	55
	8/1/2016	ND<0	55
	12/1/2016	ND<0	55
	6/1/2017	ND<0	55
	12/1/2017	ND<0	55
	7/1/2018	ND<0	55
	12/1/2018	ND<0	55
	7/1/2019	ND<0	55
	1/1/2020	ND<0	55
	7/1/2020	ND<0	55
	5/1/2021	ND<0	55
	12/14/2021	0.00025	113
	6/7/2022	ND<0	55
	11/16/2022	ND<0	55
	5/26/2023	0.00119	119
	11/10/2023	0.00136	120
	5/16/2024	0.00051	118
	11/21/2024	0.00025	114

Rank Sum = 1409
Rank Mean = 70.45

Calculation Results:

Kruskal-Wallis H Statistic = 2.6438
Kruskal-Wallis H Statistic (adjusted for tied non-detects) = 10.551
95% Confidence comparison value is 11.0705 at 5 degrees of freedom
2.6438 < 11.0705 indicating no significant group difference at 5% significance level
10.551 < 11.0705 indicating no significant group difference at 5% significance level when adjusted for ties

Kruskal-Wallis Non-Parametric Test

Parameter: Nickel

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Kruskal Wallis Ranks

Background Locations

Loc. ID	Date	Value	Rank
MW-1	7/1/2014	0.008	99
	8/1/2015	ND<0	28
	12/1/2015	ND<0	28
	8/1/2016	0.008	100
	12/1/2016	0.012	113
	6/1/2017	0.027	120
	12/1/2017	0.009	103
	7/1/2018	0.01	108
	12/1/2018	0.01	109
	7/1/2019	0.018	119
	1/1/2020	0.011	112
	7/1/2020	0.01	110
	5/1/2021	0.0035	75
	12/14/2021	0.0026	66
	6/7/2022	ND<0	28
	11/16/2022	0.0049	80
	5/26/2023	0.0042	78
	11/10/2023	0.0034	74
	5/16/2024	0.0063	94
	11/21/2024	0.0021	61

Rank Sum = 1705
Rank Mean = 85.25

Background Rank Sum = 1705
Background Rank Mean = 85.25

Compliance Locations

Loc. ID	Date	Value	Rank
MW-2	7/1/2014	0.015	118
	8/1/2015	ND<0	28
	12/1/2015	ND<0	28
	8/1/2016	ND<0	28
	12/1/2016	0.012	114
	6/1/2017	0.01	111
	12/1/2017	ND<0	28
	7/1/2018	0.009	104
	12/1/2018	0.006	85
	7/1/2019	0.006	86
	1/1/2020	0.005	81
	7/1/2020	ND<0	28
	5/1/2021	0.003	70
	12/14/2021	ND<0	28
	6/7/2022	ND<0	28
	11/16/2022	0.0036	76
	5/26/2023	ND<0	28

	11/10/2023	0.0058	84
	5/16/2024	0.0026	67
	11/21/2024	ND<0	28

Rank Sum = 1248
Rank Mean = 62.4

MW-3	7/1/2014	0.008	101
	8/1/2015	ND<0	28
	12/1/2015	ND<0	28
	8/1/2016	ND<0	28
	12/1/2016	ND<0	28
	6/1/2017	ND<0	28
	12/1/2017	ND<0	28
	7/1/2018	0.009	105
	12/1/2018	0.009	106
	7/1/2019	0.009	107
	1/1/2020	0.006	87
	7/1/2020	0.007	95
	5/1/2021	0.008	102
	12/14/2021	ND<0	28
	6/7/2022	0.0137	116
	11/16/2022	0.003	71
	5/26/2023	0.0139	117
	11/10/2023	ND<0	28
	5/16/2024	0.0024	63
	1/17/2025	0.00241	64

Rank Sum = 1358
Rank Mean = 67.9

MW-4	7/1/2014	0.007	96
	8/1/2015	ND<0	28
	12/1/2015	ND<0	28
	8/1/2016	ND<0	28
	12/1/2016	ND<0	28
	6/1/2017	ND<0	28
	12/1/2017	ND<0	28
	7/1/2018	ND<0	28
	12/1/2018	ND<0	28
	7/1/2019	ND<0	28
	1/1/2020	ND<0	28
	7/1/2020	ND<0	28
	5/1/2021	0.006	88
	12/14/2021	0.0026	68
	6/7/2022	0.0046	79
	11/16/2022	0.0072	97
	5/26/2023	0.0054	82
	11/10/2023	0.0033	72
	5/16/2024	0.0077	98
	11/21/2024	0.0033	73

Rank Sum = 1061
Rank Mean = 53.05

MW-5	7/1/2014	ND<0	28
	8/1/2015	ND<0	28
	12/1/2015	ND<0	28
	8/1/2016	ND<0	28
	12/1/2016	ND<0	28

	6/1/2017	ND<0	28
	12/1/2017	ND<0	28
	7/1/2018	ND<0	28
	12/1/2018	ND<0	28
	7/1/2019	ND<0	28
	1/1/2020	ND<0	28
	7/1/2020	ND<0	28
	5/1/2021	ND<0	28
	12/14/2021	0.0013	60
	6/7/2022	ND<0	28
	11/16/2022	0.0011	57
	5/26/2023	0.0011	58
	11/10/2023	0.0023	62
	5/16/2024	0.0036	77
	11/21/2024	0.001	56

Rank Sum = 762
Rank Mean = 38.1

MW-6	7/1/2014	ND<0	28
	8/1/2015	ND<0	28
	12/1/2015	ND<0	28
	8/1/2016	0.012	115
	12/1/2016	0.006	89
	6/1/2017	0.006	90
	12/1/2017	0.006	91
	7/1/2018	0.006	92
	12/1/2018	0.006	93
	7/1/2019	ND<0	28
	1/1/2020	ND<0	28
	7/1/2020	ND<0	28
	5/1/2021	ND<0	28
	12/14/2021	ND<0	28
	6/7/2022	0.0025	65
	11/16/2022	0.0026	69
	5/26/2023	ND<0	28
	11/10/2023	ND<0	28
	5/16/2024	0.0055	83
	11/21/2024	0.0012	59

Rank Sum = 1126
Rank Mean = 56.3

Calculation Results:

Kruskal-Wallis H Statistic = 20.5923
Kruskal-Wallis H Statistic (adjusted for tied non-detects) = 22.7856
95% Confidence comparison value is 11.0705 at 5 degrees of freedom
20.5923 > 11.0705 indicating a significant group difference at 5% significance level
22.7856 > 11.0705 indicating a significant group difference at 5% significance level when adjusted for ties

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Individual Well Comparisons at 1% Significance Level per Comparison

1% Z score is 2.32634
Mean background rank is 85.25

Well	Mean Rank	Dif from Bkg	Critical Value
MW-2	62.4	-22.85	25.5898
MW-3	67.9	-17.35	25.5898
MW-4	53.05	-32.2	25.5898

MW-5	38.1	-47.15	25.5898
MW-6	56.3	-28.95	25.5898

Individual Well Comparisons at Groupwise 5% Significance Level (1% Significance Level per comparison)

1% Z score is 2.32634

Mean background rank is 85.25

Well	Mean Rank	Dif from Bkg	Critical Value
MW-2	62.4	-22.85	25.5898
MW-3	67.9	-17.35	25.5898
MW-4	53.05	-32.2	25.5898
MW-5	38.1	-47.15	25.5898
MW-6	56.3	-28.95	25.5898

Kruskal-Wallis Non-Parametric Test

Parameter: Sulfate

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Kruskal Wallis Ranks

Background Locations

Loc. ID	Date	Value	Rank
MW-1	7/1/2014	ND<0	14
	8/1/2015	ND<0	14
	12/1/2015	ND<0	14
	8/1/2016	7	47
	12/1/2016	8	50
	6/1/2017	12	96
	12/1/2017	9	56
	7/1/2018	10	71
	12/1/2018	14	103
	7/1/2019	15	104
	1/1/2020	16	108
	7/1/2020	32	118
	5/1/2021	16	109
	12/14/2021	5.09	39
	6/7/2022	3.33	34
	11/16/2022	3.37	35
	5/26/2023	1.58	28
	11/10/2023	2.87	32
	5/16/2024	2.77	31
	11/21/2024	10.8	83

Rank Sum = 1186
Rank Mean = 59.3

Background Rank Sum = 1186
Background Rank Mean = 59.3

Compliance Locations

Loc. ID	Date	Value	Rank
MW-2	7/1/2014	ND<0	14
	8/1/2015	ND<0	14
	12/1/2015	ND<0	14
	8/1/2016	3	33
	12/1/2016	5	38
	6/1/2017	8	51
	12/1/2017	11	84
	7/1/2018	10	72
	12/1/2018	10	73
	7/1/2019	9	57
	1/1/2020	9	58
	7/1/2020	12	97
	5/1/2021	ND<0	14
	12/14/2021	1.74	29
	6/7/2022	ND<0	14
	11/16/2022	ND<0	14
	5/26/2023	ND<0	14

	11/10/2023	ND<0	14
	5/16/2024	ND<0	14
	11/21/2024	ND<0	14

Rank Sum = 732
Rank Mean = 36.6

MW-3	7/1/2014	ND<0	14
	8/1/2015	ND<0	14
	12/1/2015	ND<0	14
	8/1/2016	2	30
	12/1/2016	4	36
	6/1/2017	7	48
	12/1/2017	8	52
	7/1/2018	11	85
	12/1/2018	10	74
	7/1/2019	11	86
	1/1/2020	11	87
	7/1/2020	9	59
	5/1/2021	ND<0	14
	12/14/2021	15.9	107
	6/7/2022	10.6	81
	11/16/2022	16.8	111
	5/26/2023	13.8	102
	11/10/2023	5.76	40
	5/16/2024	17.6	113
	1/17/2025	23	115

Rank Sum = 1282
Rank Mean = 64.1

MW-4	7/1/2014	ND<0	14
	8/1/2015	ND<0	14
	12/1/2015	ND<0	14
	8/1/2016	13	100
	12/1/2016	9	60
	6/1/2017	9	61
	12/1/2017	10	75
	7/1/2018	12	98
	12/1/2018	11	88
	7/1/2019	9	62
	1/1/2020	15	105
	7/1/2020	11	89
	5/1/2021	ND<0	14
	12/14/2021	6.64	46
	6/7/2022	5.99	41
	11/16/2022	6.49	45
	5/26/2023	4.65	37
	11/10/2023	6.31	42
	5/16/2024	7.33	49
	11/21/2024	6.38	43

Rank Sum = 1097
Rank Mean = 54.85

MW-5	7/1/2014	ND<0	14
	8/1/2015	ND<0	14
	12/1/2015	ND<0	14
	8/1/2016	98	120
	12/1/2016	84	119

	6/1/2017	28	117
	12/1/2017	17	112
	7/1/2018	16	110
	12/1/2018	13	101
	7/1/2019	10	76
	1/1/2020	15	106
	7/1/2020	18	114
	5/1/2021	11	90
	12/14/2021	8.53	54
	6/7/2022	11.1	94
	11/16/2022	6.41	44
	5/26/2023	9.73	70
	11/10/2023	9.52	67
	5/16/2024	9.62	69
	11/21/2024	26.1	116

Rank Sum = 1621
Rank Mean = 81.05

MW-6	7/1/2014	ND<0	14
	8/1/2015	ND<0	14
	12/1/2015	ND<0	14
	8/1/2016	9	63
	12/1/2016	10	77
	6/1/2017	11	91
	12/1/2017	10	78
	7/1/2018	11	92
	12/1/2018	10	79
	7/1/2019	9	64
	1/1/2020	11	93
	7/1/2020	12	99
	5/1/2021	8	53
	12/14/2021	8.89	55
	6/7/2022	11.1	95
	11/16/2022	9.02	65
	5/26/2023	10.1	80
	11/10/2023	9.09	66
	5/16/2024	10.7	82
	11/21/2024	9.53	68

Rank Sum = 1342
Rank Mean = 67.1

Calculation Results:

Kruskal-Wallis H Statistic = 17.9074
Kruskal-Wallis H Statistic (adjusted for tied non-detects) = 18.1134
95% Confidence comparison value is 11.0705 at 5 degrees of freedom
17.9074 > 11.0705 indicating a significant group difference at 5% significance level
18.1134 > 11.0705 indicating a significant group difference at 5% significance level when adjusted for ties

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Individual Well Comparisons at 1% Significance Level per Comparison

1% Z score is 2.32634
Mean background rank is 59.3

Well	Mean Rank	Dif from Bkg	Critical Value
MW-2	36.6	-22.7	25.5898
MW-3	64.1	4.8	25.5898
MW-4	54.85	-4.45	25.5898

MW-5	81.05	21.75	25.5898
MW-6	67.1	7.8	25.5898

Individual Well Comparisons at Groupwise 5% Significance Level (1% Significance Level per comparison)

1% Z score is 2.32634

Mean background rank is 59.3

Well	Mean Rank	Dif from Bkg	Critical Value
MW-2	36.6	-22.7	25.5898
MW-3	64.1	4.8	25.5898
MW-4	54.85	-4.45	25.5898
MW-5	81.05	21.75	25.5898
MW-6	67.1	7.8	25.5898

Kruskal-Wallis Non-Parametric Test

Parameter: Zinc

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Kruskal Wallis Ranks

Background Locations

Loc. ID	Date	Value	Rank
MW-1	7/1/2014	0.088	57
	8/1/2015	0.066	51
	12/1/2015	0.017	32
	8/1/2016	0.101	63
	12/1/2016	0.124	74
	6/1/2017	1.028	106
	12/1/2017	1.11	107
	7/1/2018	1.742	110
	12/1/2018	1.821	111
	7/1/2019	1.221	109
	1/1/2020	2.011	112
	7/1/2020	2.109	113
	5/1/2021	0.071	54
	12/14/2021	ND<0	11.5
	6/7/2022	ND<0	11.5
	11/16/2022	14.8	118
	5/26/2023	0.0298	41
	11/10/2023	0.015	31
	5/16/2024	30.8	120
	11/21/2024	0.0208	34

Rank Sum = 1466
Rank Mean = 73.3

Background Rank Sum = 1466
Background Rank Mean = 73.3

Compliance Locations

Loc. ID	Date	Value	Rank
MW-2	7/1/2014	0.155	79
	8/1/2015	0.061	48
	12/1/2015	0.018	33
	8/1/2016	0.086	56
	12/1/2016	0.091	58
	6/1/2017	0.121	72
	12/1/2017	0.141	76
	7/1/2018	0.732	99
	12/1/2018	0.887	102
	7/1/2019	0.92	103
	1/1/2020	0.753	100
	7/1/2020	0.807	101
	5/1/2021	0.054	46
	12/14/2021	0.011	24
	6/7/2022	ND<0	11.5
	11/16/2022	17.1	119
	5/26/2023	0.0125	28

	11/10/2023	0.0246	39
	5/16/2024	13.1	117
	11/21/2024	0.0312	42

Rank Sum = 1353.5
Rank Mean = 67.675

MW-3	7/1/2014	0.028	40
	8/1/2015	0.061	49
	12/1/2015	0.021	36
	8/1/2016	0.164	81
	12/1/2016	0.141	77
	6/1/2017	0.173	82
	12/1/2017	1.002	105
	7/1/2018	1	104
	12/1/2018	1.11	108
	7/1/2019	0.107	66
	1/1/2020	0.324	89
	7/1/2020	0.543	96
	5/1/2021	0.061	50
	12/14/2021	0.012	26
	6/7/2022	0.0114	25
	11/16/2022	ND<0	11.5
	5/26/2023	0.0149	30
	11/10/2023	ND<0	11.5
	5/16/2024	11.1	115
	1/17/2025	0.0101	23

Rank Sum = 1225
Rank Mean = 61.25

MW-4	7/1/2014	0.103	64
	8/1/2015	0.06	47
	12/1/2015	0.034	43
	8/1/2016	0.091	59
	12/1/2016	0.112	68
	6/1/2017	0.121	73
	12/1/2017	0.115	70
	7/1/2018	0.129	75
	12/1/2018	0.099	60
	7/1/2019	0.117	71
	1/1/2020	0.505	95
	7/1/2020	0.67	98
	5/1/2021	0.067	52
	12/14/2021	ND<0	11.5
	6/7/2022	ND<0	11.5
	11/16/2022	ND<0	11.5
	5/26/2023	ND<0	11.5
	11/10/2023	ND<0	11.5
	5/16/2024	10.7	114
	11/21/2024	0.0136	29

Rank Sum = 1075.5
Rank Mean = 53.775

MW-5	7/1/2014	0.051	44
	8/1/2015	0.053	45
	12/1/2015	0.022	37
	8/1/2016	0.222	84
	12/1/2016	0.184	83

	6/1/2017	0.15	78
	12/1/2017	0.109	67
	7/1/2018	0.274	88
	12/1/2018	0.374	93
	7/1/2019	0.222	85
	1/1/2020	0.446	94
	7/1/2020	0.544	97
	5/1/2021	ND<0	11.5
	12/14/2021	ND<0	11.5
	6/7/2022	ND<0	11.5
	11/16/2022	ND<0	11.5
	5/26/2023	ND<0	11.5
	11/10/2023	0.0122	27
	5/16/2024	11.8	116
	11/21/2024	0.0238	38

Rank Sum = 1133.5
Rank Mean = 56.675

MW-6	7/1/2014	0.076	55
	8/1/2015	0.069	53
	12/1/2015	0.1	61
	8/1/2016	0.16	80
	12/1/2016	0.1	62
	6/1/2017	0.114	69
	12/1/2017	0.272	87
	7/1/2018	0.37	91
	12/1/2018	0.355	90
	7/1/2019	0.103	65
	1/1/2020	0.247	86
	7/1/2020	0.372	92
	5/1/2021	ND<0	11.5
	12/14/2021	ND<0	11.5
	6/7/2022	ND<0	11.5
	11/16/2022	ND<0	11.5
	5/26/2023	ND<0	11.5
	11/10/2023	ND<0	11.5
	5/16/2024	ND<0	11.5
	11/21/2024	0.0208	35

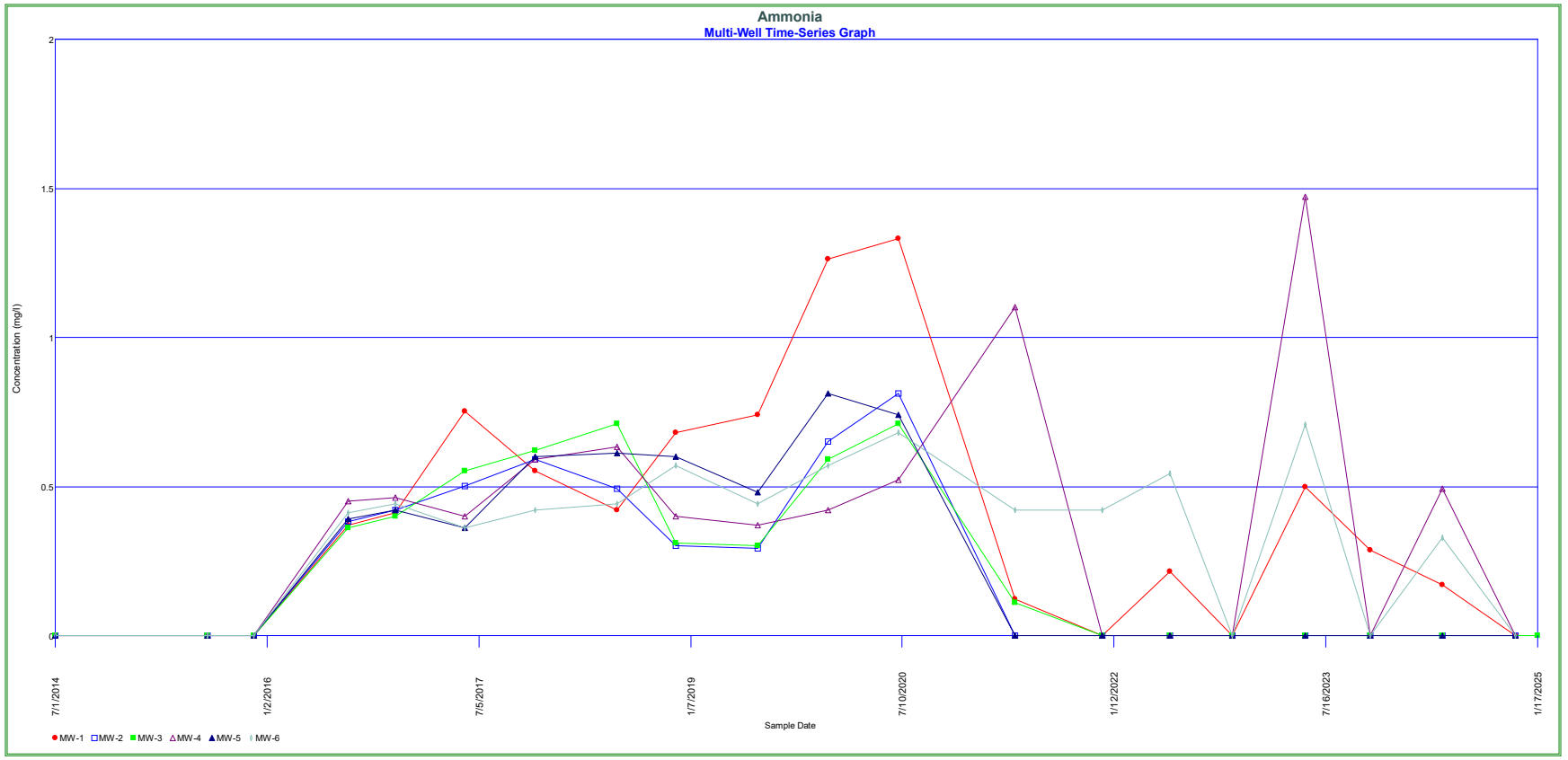
Rank Sum = 1006.5
Rank Mean = 50.325

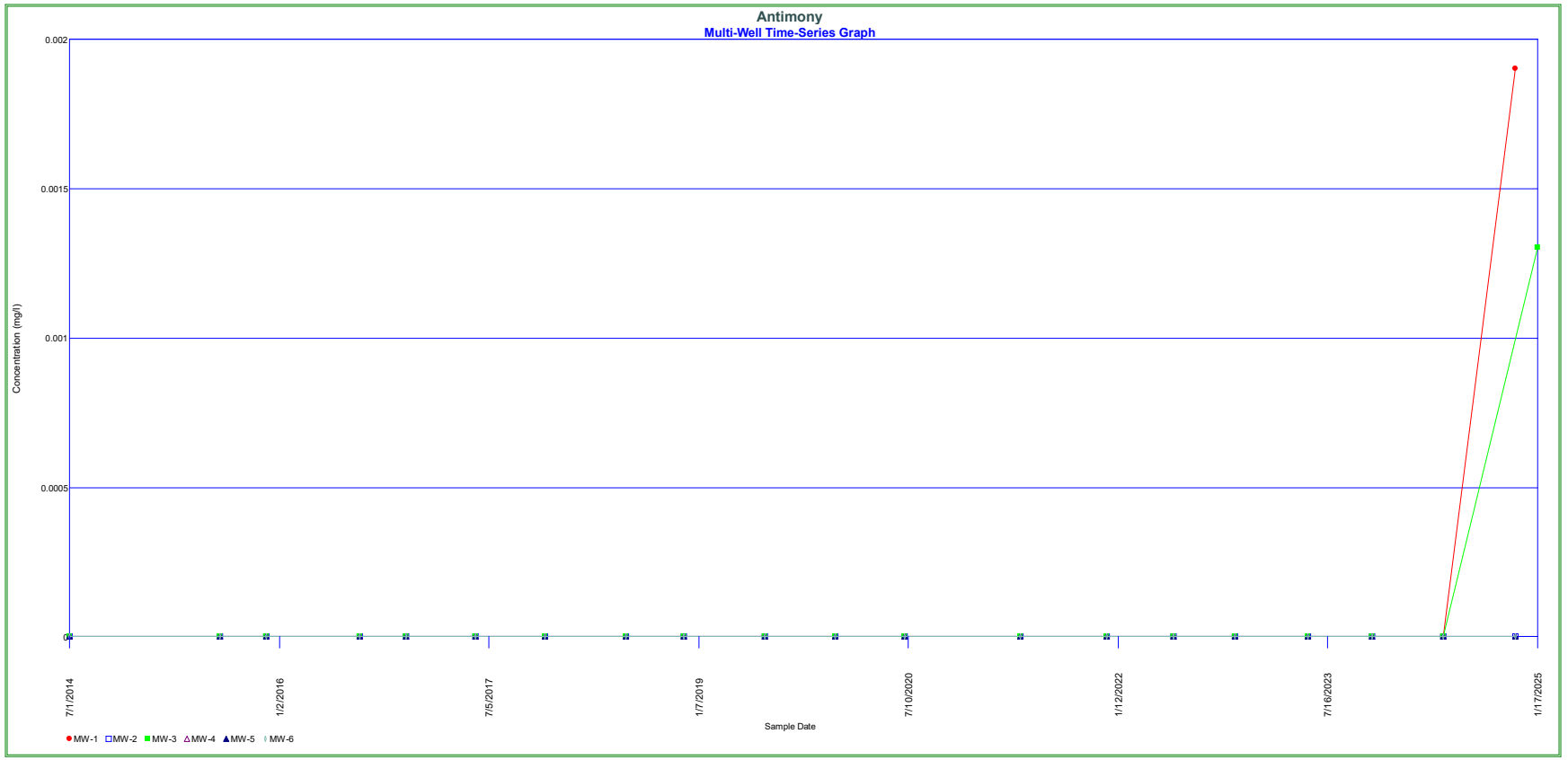
Calculation Results:

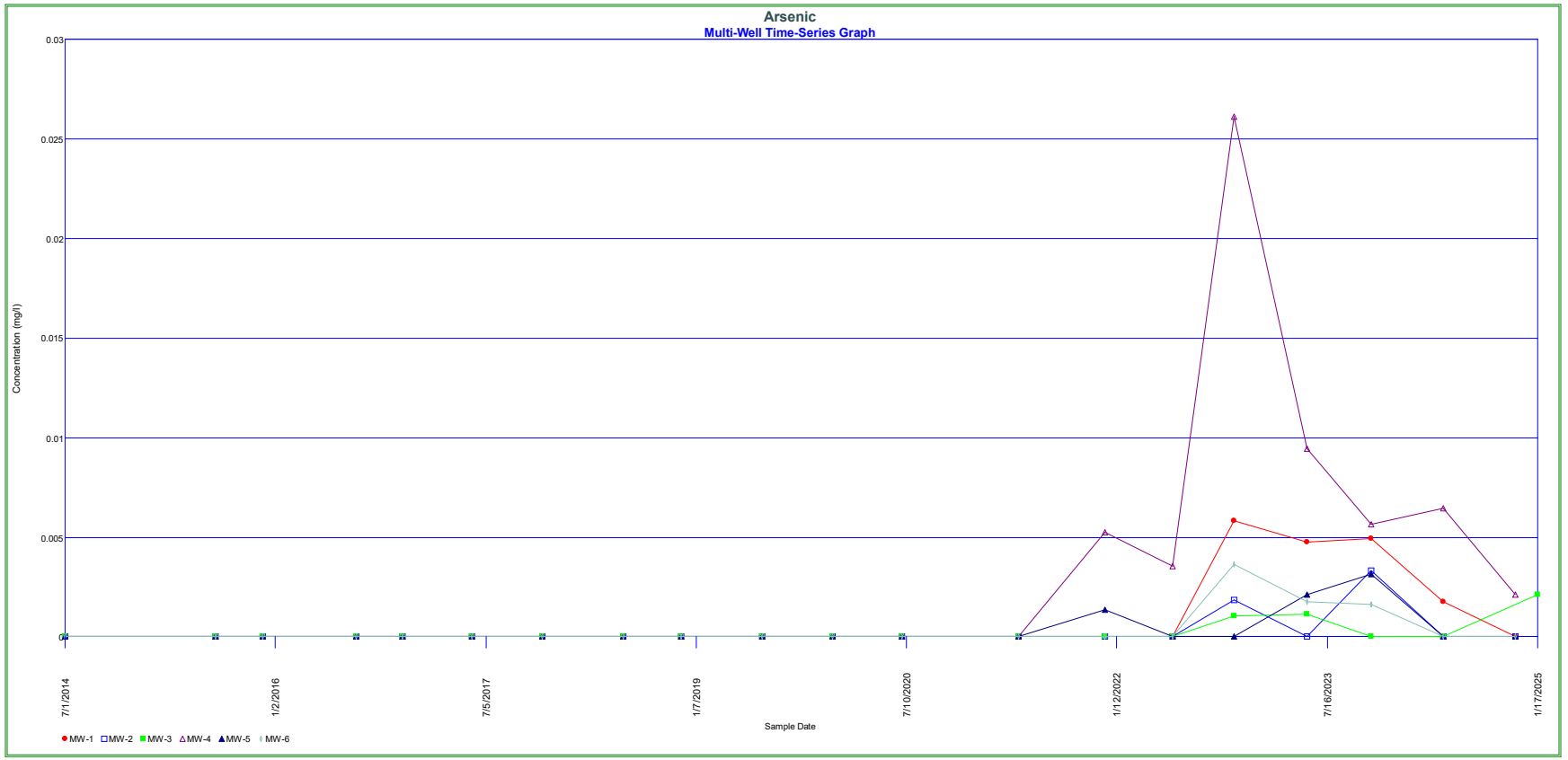
Kruskal-Wallis H Statistic = 6.26893
Kruskal-Wallis H Statistic (adjusted for tied non-detects) = 6.30772
95% Confidence comparison value is 11.0705 at 5 degrees of freedom
6.26893 < 11.0705 indicating no significant group difference at 5% significance level
6.30772 < 11.0705 indicating no significant group difference at 5% significance level when adjusted for ties

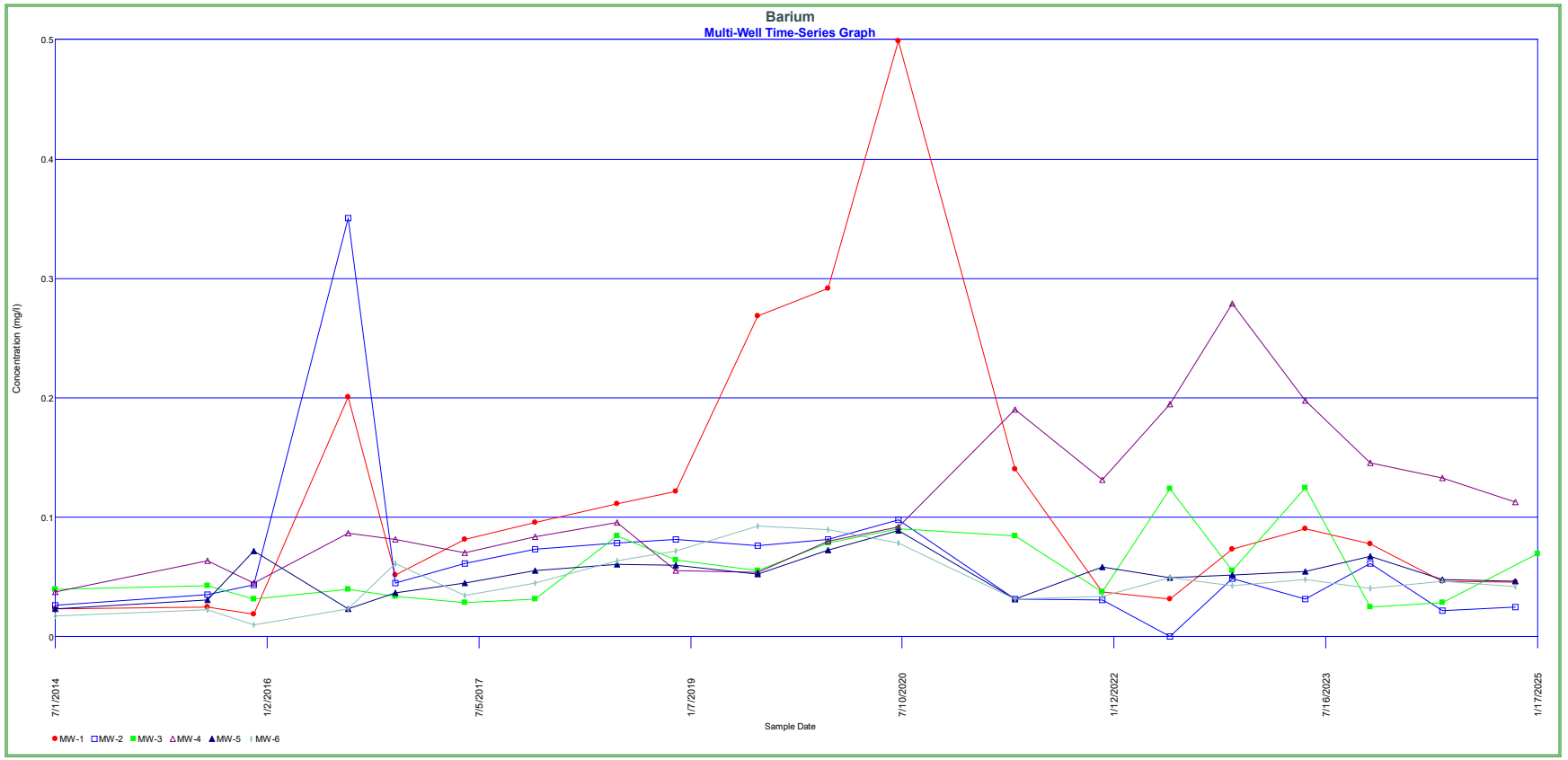
APPENDIX D

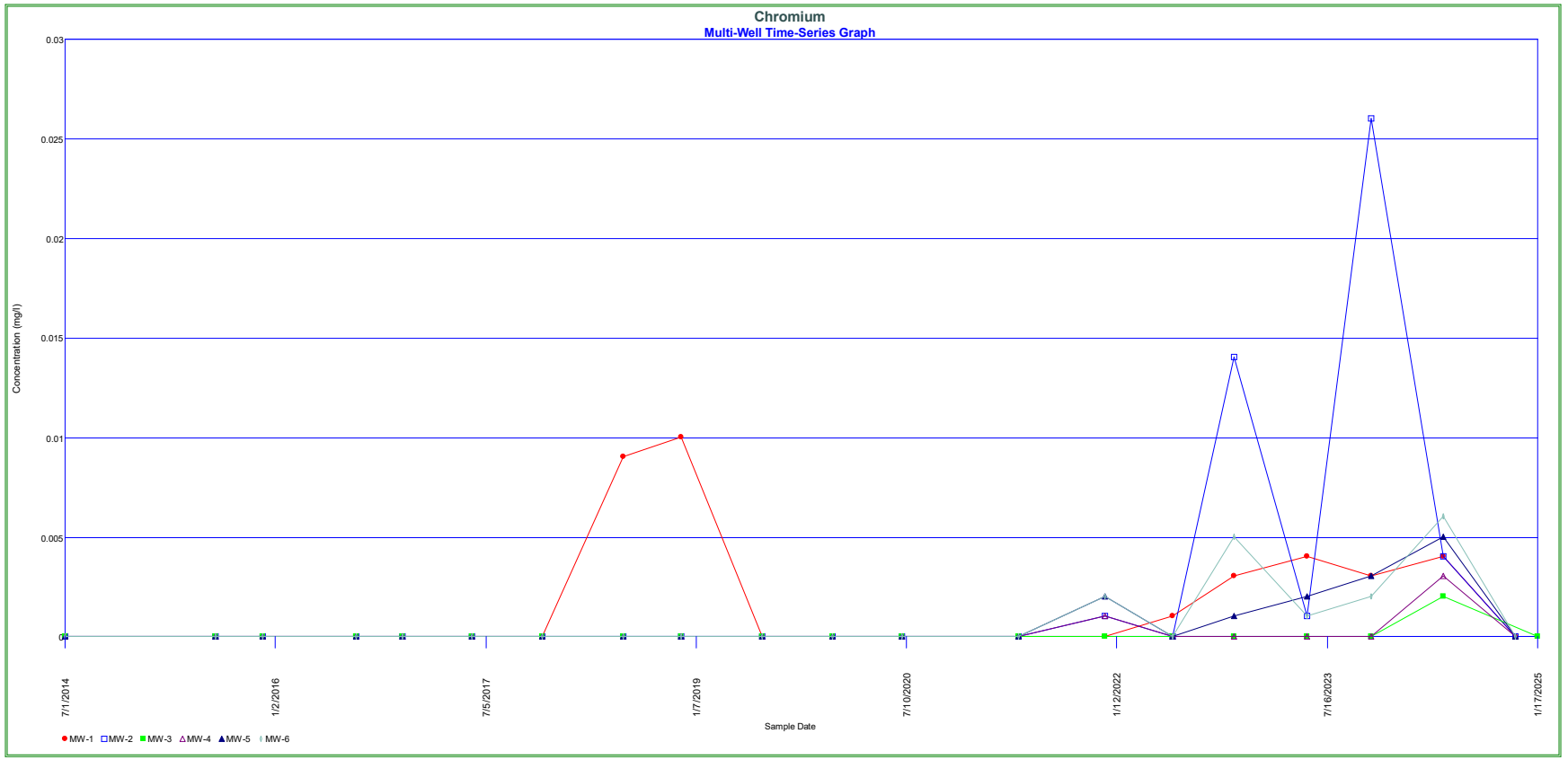
TREND GRAPHS

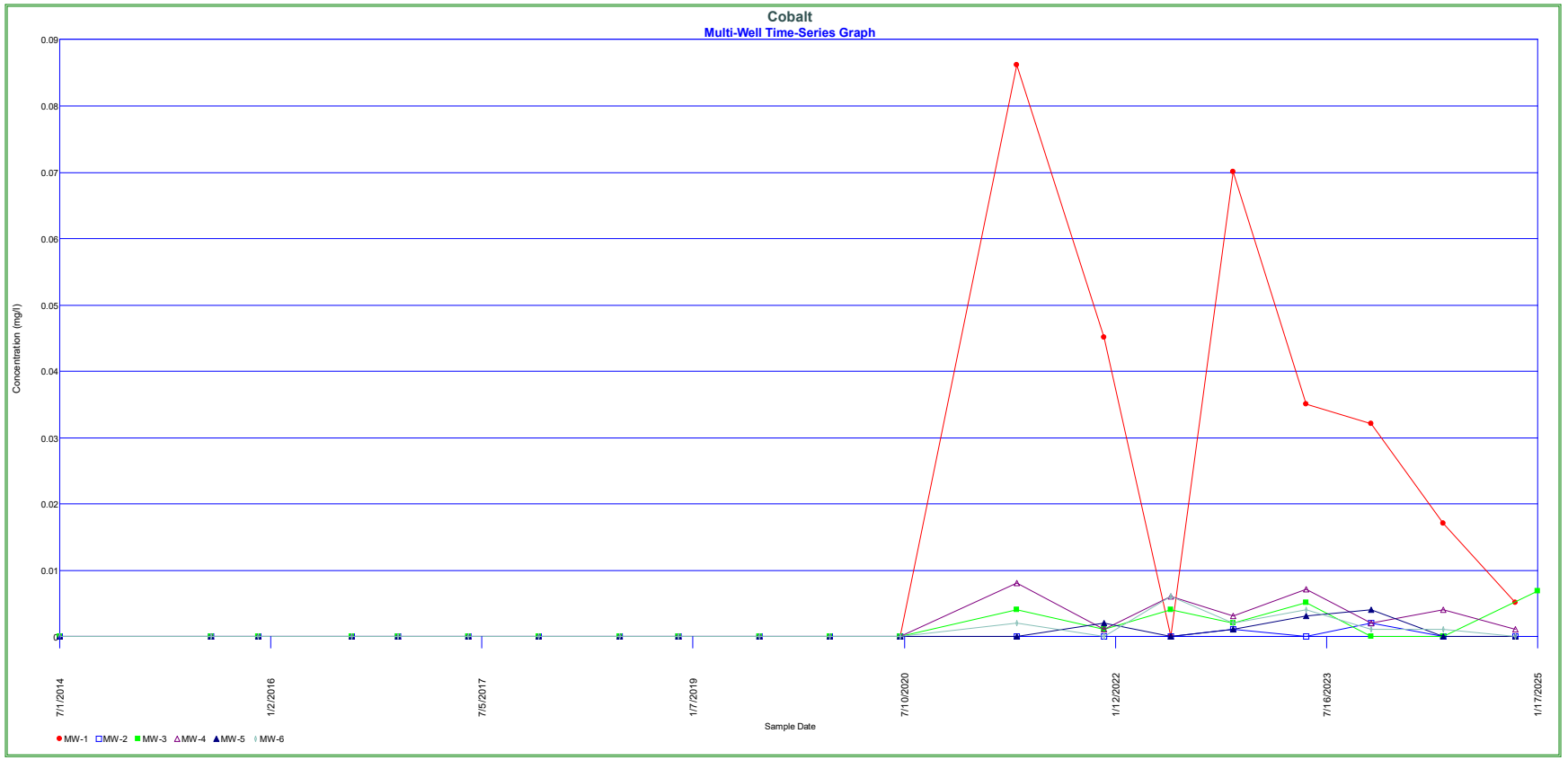

Ammonia
Multi-Well Time-Series Graph
Concentration (mg/l)
2
1.5
1
0.5
0
7/1/2014
1/2/2016
7/5/2017
1/7/2019
7/10/2020
1/12/2022
7/16/2023
1/17/2025
Sample Date
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6

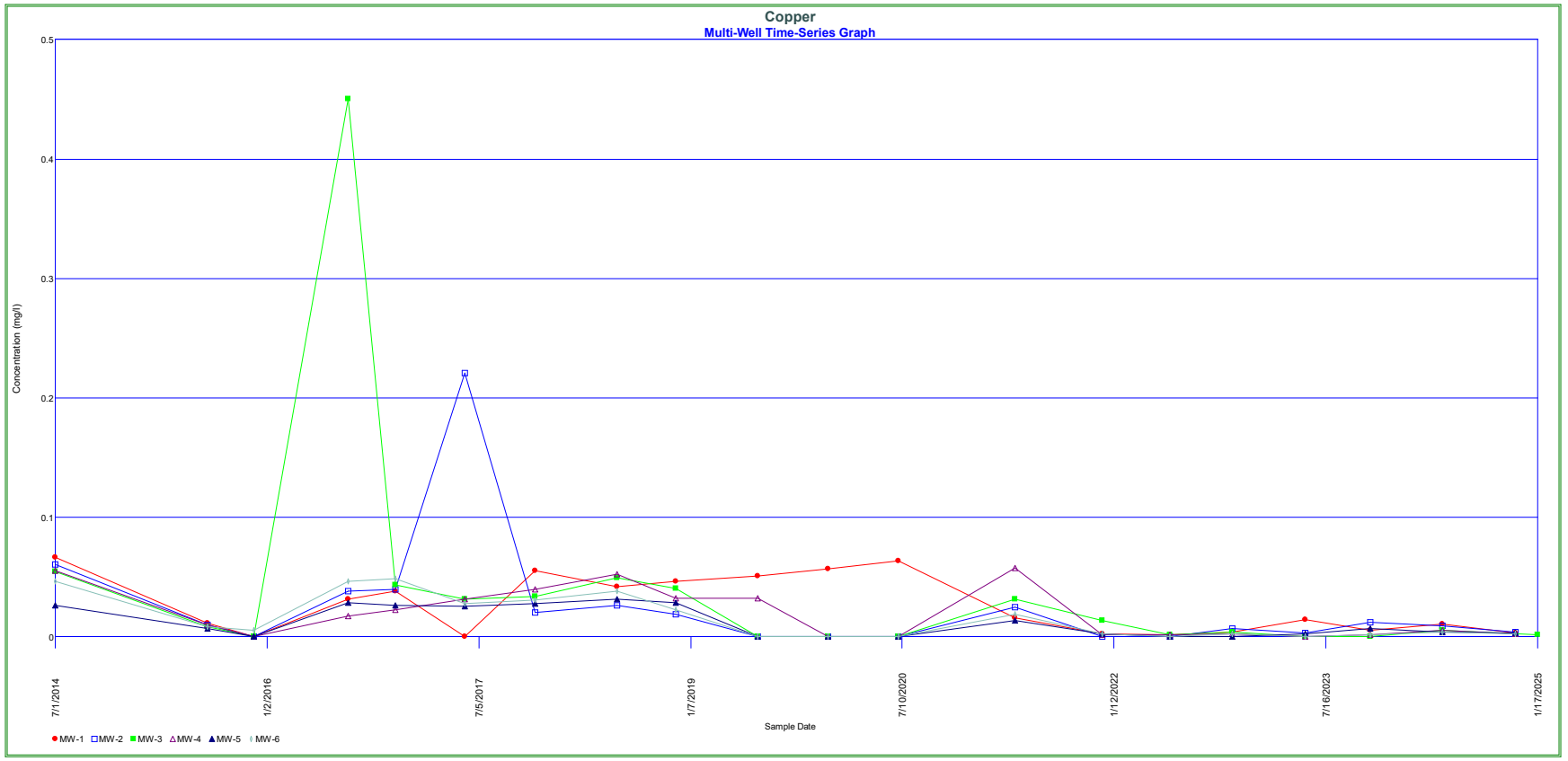

Antimony
Multi-Well Time-Series Graph
0.002
0.0015
0.001
0.0005
0
Concentration (mg/l)
7/1/2014
1/2/2016
7/5/2017
1/7/2019
7/10/2020
1/12/2022
7/16/2023
1/17/2025
Sample Date
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6

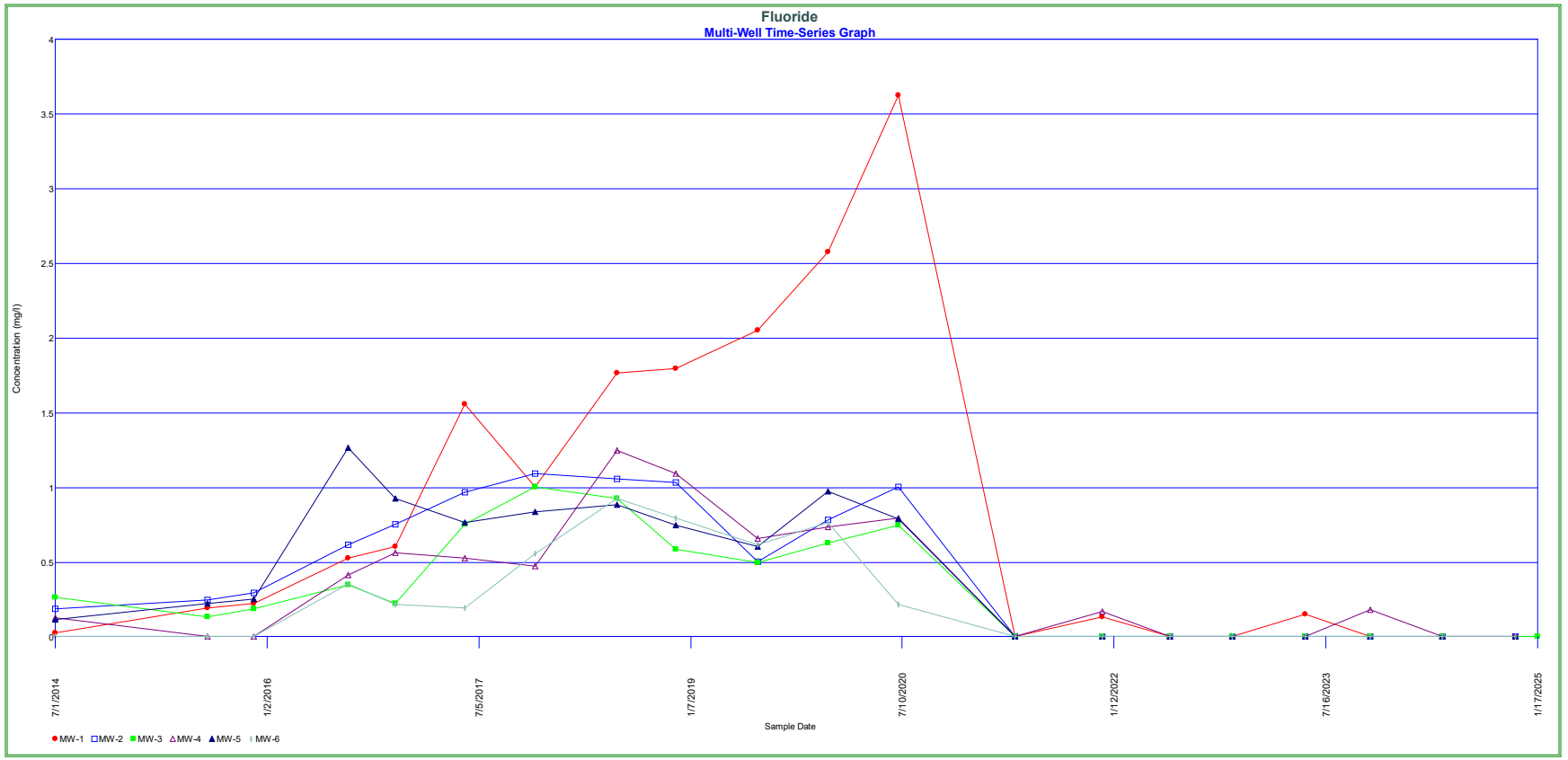

Arsenic
Multi-Well Time-Series Graph
0.03
0.025
0.02
0.015
0.01
0.005
0
Concentration (mg/l)
7/1/2014
1/2/2016
7/5/2017
1/7/2019
7/10/2020
1/12/2022
7/16/2023
1/17/2025
Sample Date
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6

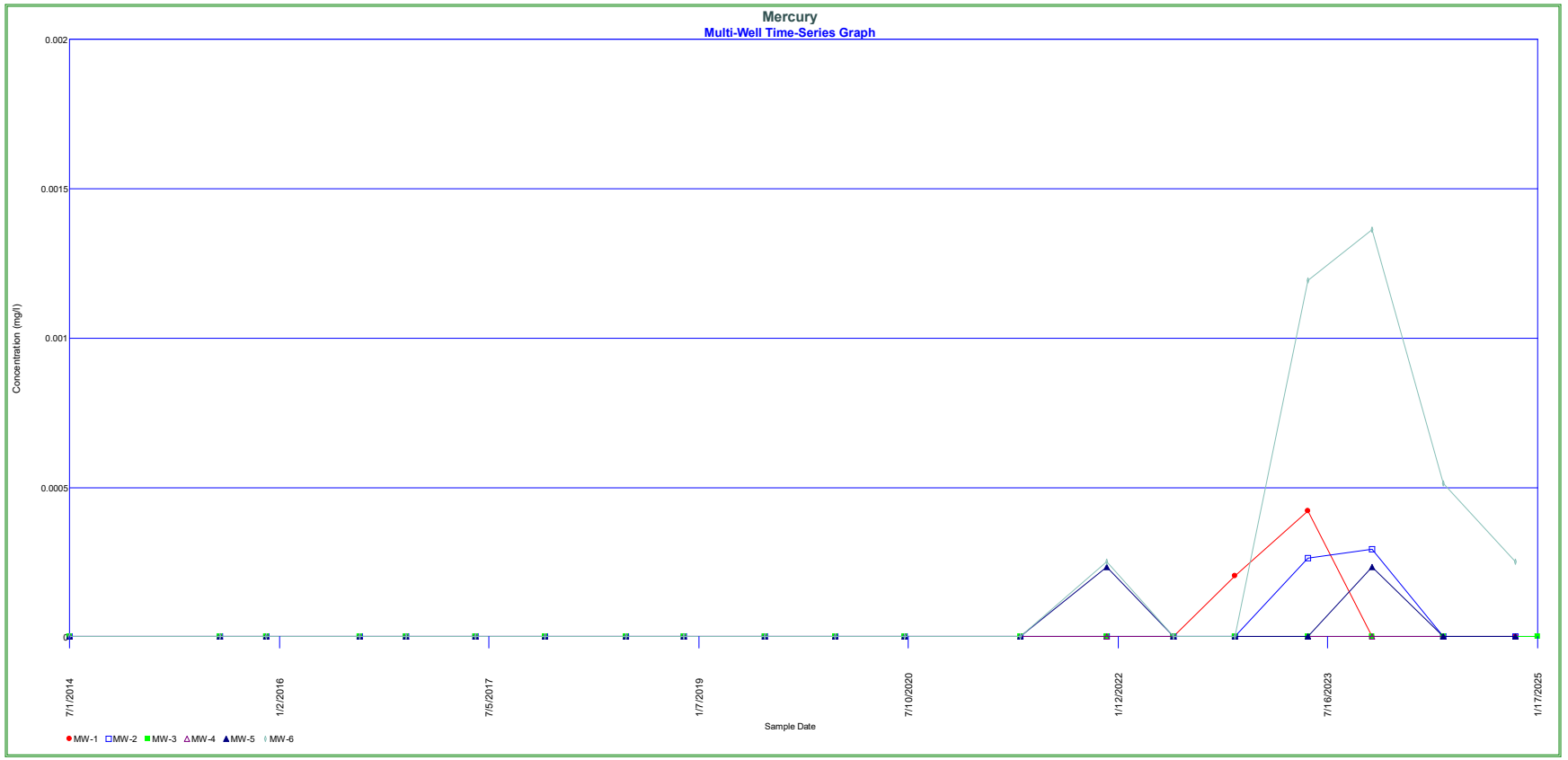

Barium
Multi-Well Time-Series Graph
Concentration (mg/l)
0.5
0.4
0.3
0.2
0.1
0
7/1/2014
1/2/2016
7/5/2017
1/7/2019
7/10/2020
1/12/2022
7/16/2023
1/17/2025
Sample Date
MW-1 MW-2 MW-3 MW-4 MW-5 MW-6

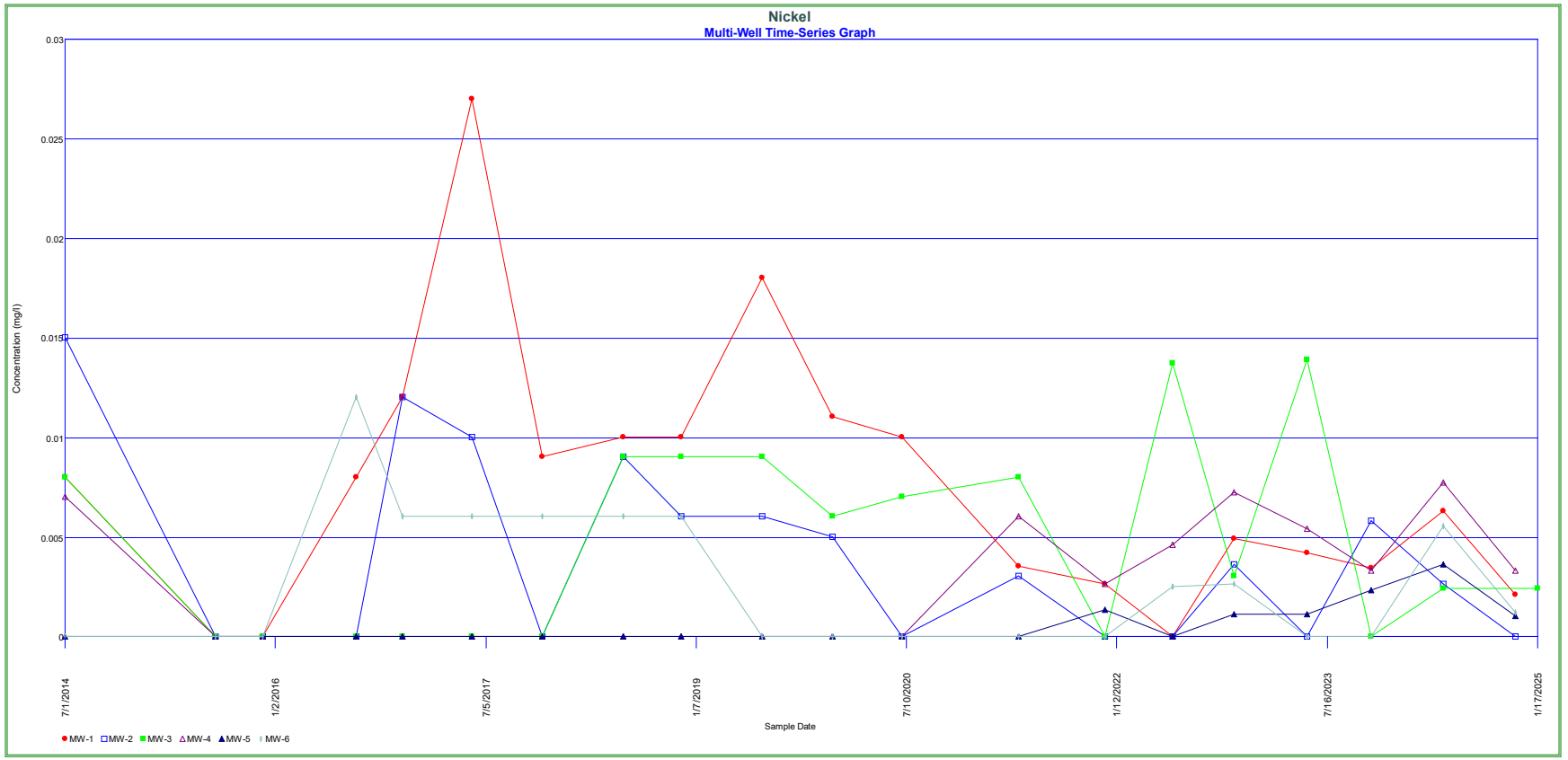

Chromium
Multi-Well Time-Series Graph
0.03
0.025
0.02
0.015
0.01
0.005
0
Concentration (mg/l)
7/1/2014
1/2/2016
7/5/2017
1/7/2019
7/10/2020
1/12/2022
7/16/2023
1/17/2025
Sample Date
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6

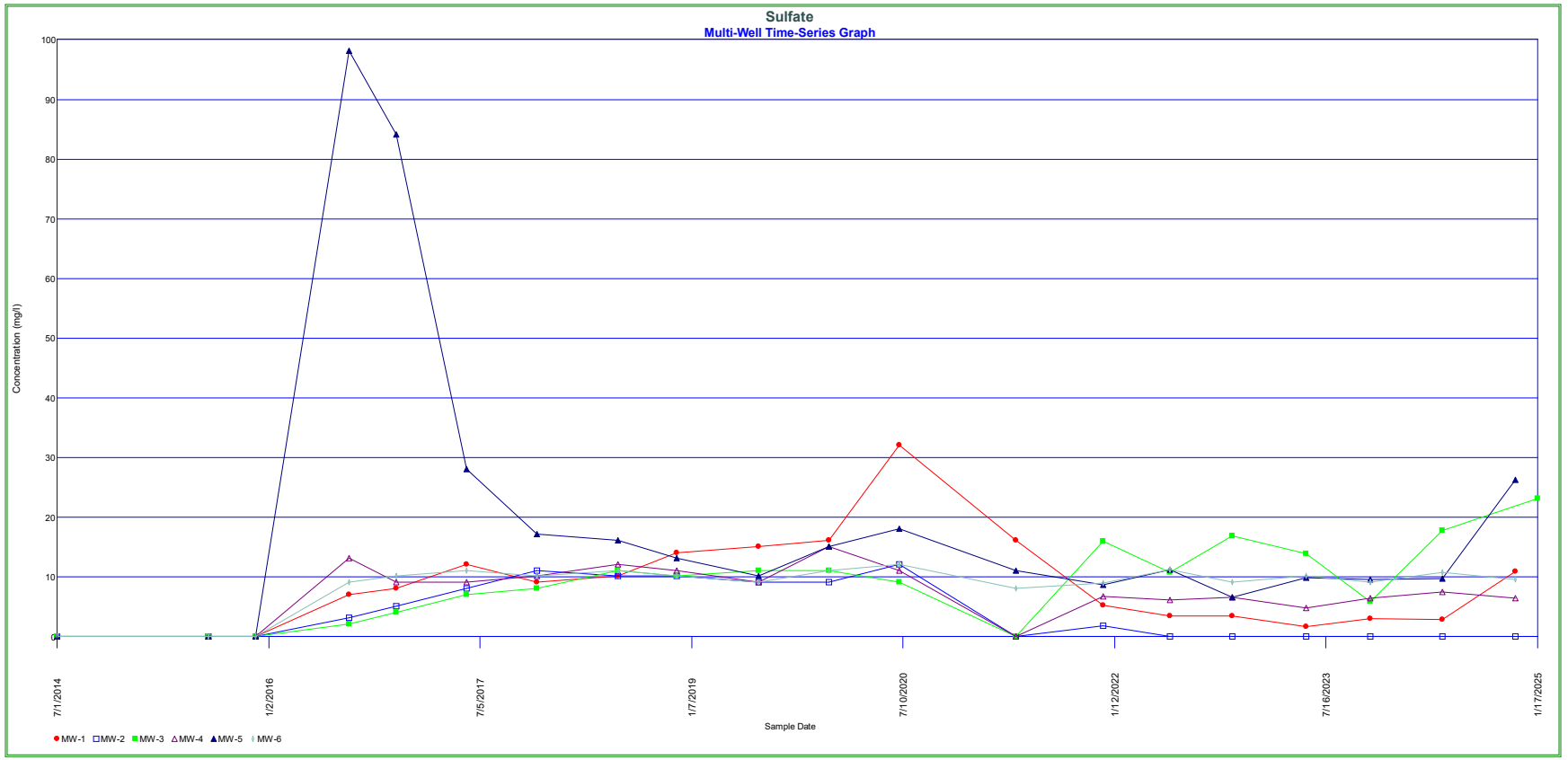

Cobalt
Multi-Well Time-Series Graph
Concentration (mg/l)
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
7/1/2014
1/2/2016
7/5/2017
1/7/2019
7/10/2020
1/12/2022
7/16/2023
1/17/2025
Sample Date
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6

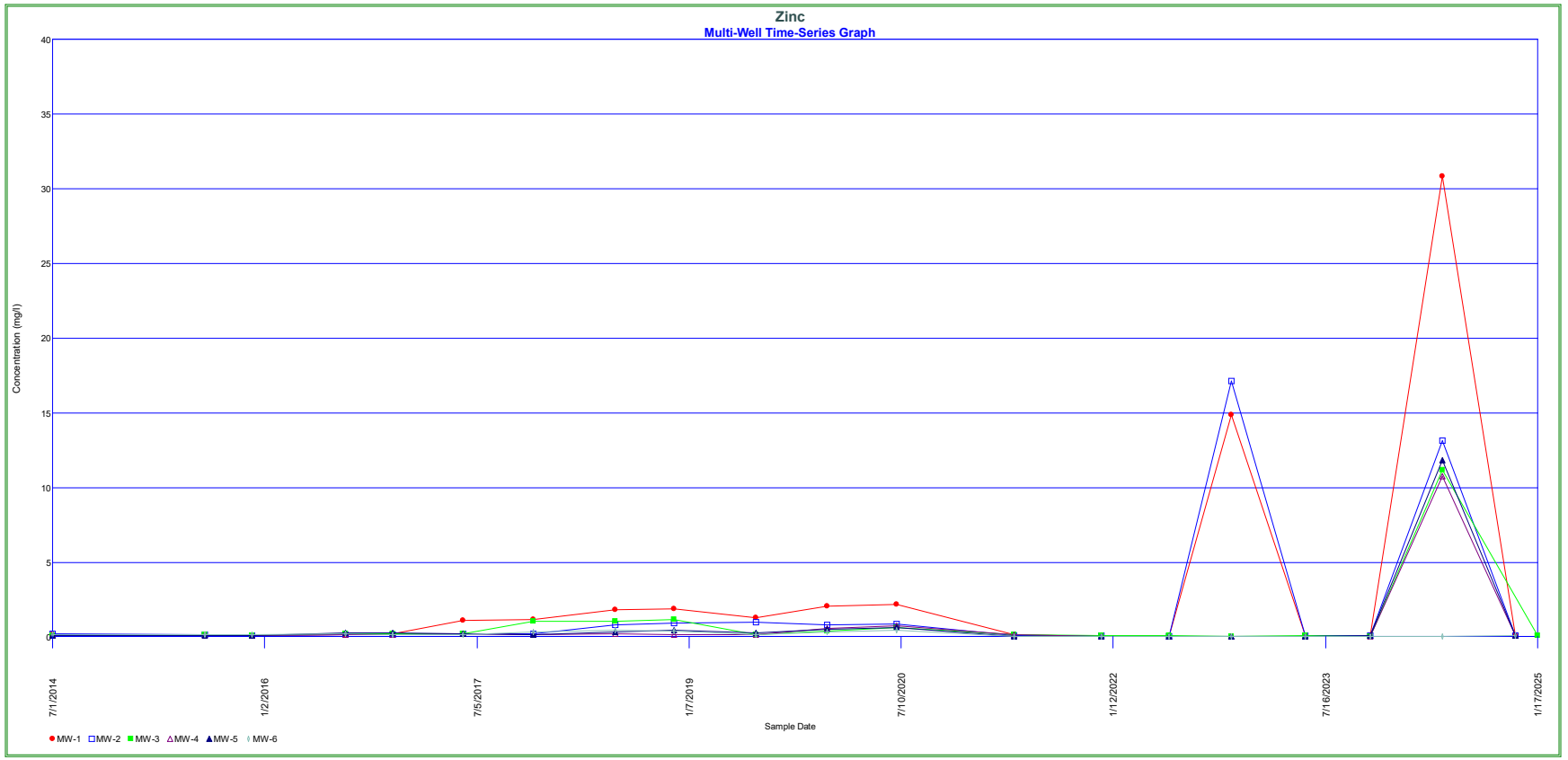

Copper
Multi-Well Time-Series Graph
Concentration (mg/l)
0.5
0.4
0.3
0.2
0.1
0
7/1/2014
1/2/2016
7/5/2017
1/7/2019
7/10/2020
1/12/2022
7/16/2023
1/17/2025
Sample Date
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6


Fluoride
Multi-Well Time-Series Graph
Concentration (mg/l)
4
3.5
3
2.5
2
1.5
1
0.5
0
7/1/2014
1/2/2016
7/5/2017
1/7/2019
7/10/2020
1/12/2022
7/16/2023
1/17/2025
Sample Date
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6


Mercury
Multi-Well Time-Series Graph
0.002
0.0015
0.001
0.0005
0
Concentration (mg/l)
7/1/2014
1/2/2016
7/5/2017
1/7/2019
7/10/2020
1/12/2022
7/16/2023
1/17/2025
Sample Date
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6


Nickel
Multi-Well Time-Series Graph
Concentration (mg/l)
0.03
0.025
0.02
0.015
0.01
0.005
0
7/1/2014
1/2/2016
7/5/2017
1/7/2019
7/10/2020
1/12/2022
7/16/2023
1/17/2025
Sample Date
MW-1 MW-2 MW-3 MW-4 MW-5 MW-6


Sulfate
Multi-Well Time-Series Graph
Concentration (mg/l)
100
90
80
70
60
50
40
30
20
10
0
7/1/2014
1/2/2016
7/5/2017
1/7/2019
7/10/2020
1/12/2022
7/16/2023
1/17/2025
Sample Date
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6


Zinc
Multi-Well Time-Series Graph
Concentration (mg/l)
40
35
30
25
20
15
10
5
0
7/1/2014
1/2/2016
7/5/2017
1/7/2019
7/10/2020
1/12/2022
7/16/2023
1/17/2025
Sample Date
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6