Q4 2022 Quarterly Groundwater Monitoring Report Data Gap Monitoring Well No. WUABFFMW01

Kirtland Air Force Base Bulk Fuels Facility
Albuquerque, New Mexico

Prepared for:

Albuquerque Bernalillo County Water Utility Authority
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Acronyms and Abbreviations

°C	degrees Celsius
°F	degrees Fahrenheit
µg/L	micrograms per liter
µS/cm	microSiemens per centimeter
AES	Advanced Environmental Solutions
ASTM	ASTM International
BFF	Bulk Fuels Facility
bgs	below ground surface
btoc	below top of casing
DMPDB	dual membrane passive diffusion sampler (also abbreviated DMB or DMS)
DI	deionized water
DL	detection limit
DOD	Department of Defense
DOE	Department of Energy
EA	EA Engineering, Science, and Technology, Inc., PBC
EDB	1,2-dibromoethane, aka ethylene dibromide
ELAP	Environmental Laboratory Accreditation Program
EPA	Environmental Protection Agency
Eurofins	Eurofins Lancaster Laboratories Environment Testing, LLC
ft	foot/feet
gal	gallon(s)
gpm	gallons per minute
INTERA	INTERA Incorporated
KAFB	Kirtland Air Force Base
LF	low-flow purge sampling method
LNAPL	light non-aqueous phase liquid
LOD	limit of detection
LOQ	limit of quantitation
LTM	long-term monitoring
MCLs	Maximum Contaminant Levels
NAVD88	North American Vertical Datum of 1988
NMED	New Mexico Environment Department
NMWQCC	New Mexico Water Quality Control Commission
NTUs	nephelometric turbidity units
ORP	oxidation-reduction potential
PAHs	polycyclic aromatic hydrocarbons

PDB	passive diffusion bag
QSM	*Department of Defense (DOD) Department of Energy (DOE) Consolidated Quality Systems Manual (QSM) for Environmental Laboratories*
Site	Data Gap Well No. WUABFFMW01
SSHASP	Site-Specific Health and Safety Plan
SOP	standard operating procedure
SVOCs	semi-volatile organic compounds
VOCs	volatile organic compounds
Water Authority	Albuquerque Bernalillo County Water Utility Authority
Work Plan/SAP	Work Plan and Sampling Analysis Plan

1.0 Introduction

INTERA Incorporated (INTERA), under contract with the Albuquerque Bernalillo County Water Utility Authority (Water Authority) and in accordance with the *Work Plan/Sampling Analysis Plan for Data Gap Monitoring Well Installation Well No. WUABFFMW01* (Work Plan/SAP) dated January 6, 2022, is submitting this *Quarterly Groundwater Monitoring Report (Q4 2022)* (Report). This Report documents activities associated with the Quarter 4 (Q4) sampling event to determine the presence/absence of EDB and other fuel contaminants conducted in December 2022 at Water Authority Data Gap Well No. WUABFFMW01, located at 800 Indiana Street SE, Albuquerque, New Mexico (Site).

1.1 Background

The Water Authority data gap groundwater monitoring well WUABFFMW01 was installed in Albuquerque, New Mexico near the southeast corner of the intersection of Kathryn Avenue SE and Indiana Street SE in 2022 to investigate the distal end of the ethylene dibromide (EDB) groundwater plume emanating from the Kirtland Air Force Base (KAFB) Bulk Fuels Facility (BFF) jet fuel leak. The KAFB BFF leak was reportedly discovered in 1999 and has subsequently been investigated and monitored by the United States Air Force and their contractors, including EA Engineering, Science, and Technology, Inc., PBC (EA) and others, via a network of monitoring wells within KAFB and in Albuquerque neighborhoods to the north of KAFB. Groundwater underlying KAFB is impacted with benzene, toluene, ethylbenzene, and xylenes (BTEX), EDB, and light non-aqueous phase liquid (LNAPL). The EDB groundwater plume extends more than 6,000 ft from the source into the neighborhoods, and although interim measure extraction wells have been implemented, until the EDB plume is fully remediated it continues to pose a risk to Water Authority supply wells if EDB is able to migrate further. Thus, full characterization of the distal end of the EDB plume by filling any data gaps in the monitoring well network is important to ensure the ongoing safety of the Water Authority's production wells.

Field construction activities for Data Gap Well No. WUABFFMW01 were initiated on January 24, 2022 and were completed on April 14, 2022. The well is screened between 572 feet to 592 feet below ground surface (bgs) to monitor a potential deep contaminant migration pathway; for comparison, the depth to water at the time of completion was 453 feet bgs. Groundwater sampling of WUABFFMW01 began in May 2022 and has continued to present on a quarterly basis using one or both of these sampling methods each event:

1. Passive sampling using passive diffusion bag (PDB) samplers for analysis of volatile organic compound (VOC) constituents and dual membrane passive diffusion samplers (DMS) for analysis of non-VOC constituents, and
2. low-flow purge sampling (LF) using a dedicated Bennett Pump to purge three saturated well-casing volumes at a flow rate low enough to avoid turbulent flow and minimize drawdown and then to collect samples for analysis of both VOC and non-VOC constituents.

Water levels are manually gauged using an oil/water interface probe during sampling events and certain other field activities at the well. A pressure transducer and data logger were installed in WUABFFMW01

in July 2022 to record hourly water levels between sampling events. The transducer is removed for three weeks each quarter while PDB and DMS samplers are deployed and during PDB or LF sampling, and it is replaced following sample collection and reprogrammed to the current water level after the completion of sampling activities.

1.2 Scope of Work

The SAP portion of the Work Plan/SAP outlines the sampling procedures that INTERA followed for all groundwater monitoring activities at WUABFFMW01. The Work Plan/SAP included a Site-Specific Health and Safety Plan (SSHASP) as an attachment. The scope of work for groundwater sampling for the presence/absence of EDB and other fuel contaminants event conducted in Q4 2022 reported herein included the following tasks:

- Notify the Water Authority of sampling schedule and coordinate with EA or Air Force representatives upon split sample request.
- Measure fluid levels at WUABFFMW01 using a properly decontaminated oil/water interface probe, download transducer data before sampling, and reprogram and replace transducer after sampling.
- Perform LF purge sampling while monitoring groundwater quality field parameters (specific conductivity, temperature, turbidity and pH) for stabilization using a calibrated YSI Plus 1030 water quality meter and a turbidity meter. Collect groundwater samples at WUABFFMW01 and analyze samples for:
  - Ethylene dibromide (EDB) via EPA Method 8011
  - Volatile Organic Compounds (VOCs) via EPA Method 8260
  - Semi-Volatile Organic Compounds (SVOCs) via EPA Method 8270
  - Metals via EPA Method 6010
  - Anions via EPA Method E300.0
  - Alkalinity via Standard Method SM2320B
- Decontaminate all reusable sampling equipment using Liquinox (or equivalent) soap and rinse twice, using distilled or deionized (DI) water for the final rinse.
- Transport purge water off-Site for disposal at the Advanced Environmental Solutions (AES) facility in Belen, New Mexico.

Note that unlike for previous events, PDB and DMS samplers were not included in the scope for Q4 2022. The Water Authority subsequently requested that passive sampling be resumed beginning in Q1 2023.

1.3 Work Plan/SAP Deviations

The following work plan/SAP deviations this quarter are noted below:

- Quality assurance/quality control (QA/QC) samples, including a field blank, equipment blank, and trip blank, were added to the initially requested scope for the event following discussion and mutual agreement between the Water Authority and INTERA.
- Lab-grade ASTM Type II reagent water (DI water) was used as the final rinse during Bennett pump decontamination procedures for the LF sampling event. While consistent with the SAP and not a deviation, the lab-grade DI specification is mentioned as a more stringent criterion to avoid impurities compared to the general term “deionized water” used in the SAP.Eurofins reported metals by EPA Method 6020 and nitrate-nitrite as N by EPA Method 353.2. In INTERA’s experience, these methods are comparable to EPA Methods 6010 and 300.0, respectively, i.e., differences are typically small and random.

2.0 Field Activities

Field activities for this groundwater sampling event at WUABFFMW01 were conducted December 12 to 14, 2022. A copy of the field notes and groundwater sampling forms are included in **Appendix A**. The SSHASP was reviewed in detail and used as a guide for daily health and safety meetings. Except for any deviations noted in Section 1.3, all field activities were performed in accordance with the procedures stated in the Water Authority-approved Work Plan/SAP.

2.1 Fluid Level Monitoring

A dedicated pressure transducer (In-Situ Level TROLL 700, 300 psi, with vented, twist-lock cable) was installed in WUABFFMW01 following the previous sampling event and set to record water levels hourly. INTERA downloaded the data from the transducer prior to the sampling event in December 2022 and will transfer the electronic file to the Water Authority via email.

Depth to groundwater was gauged on December 12, 2022 prior to purging the well to sample. LNAPL was not anticipated to be present in WUABFFMW01, but an electronic oil-water interface probe was used to confirm it was not present at the water surface and to obtain the water level. Upon retraction, the well gauging tape was thoroughly decontaminated per the Work Plan/SAP. Fluid level measurements are recorded in the field documentation provided in **Appendix A**.

The pressure transducer was reset following sampling on December 14, 2022.

2.2 Groundwater Sampling

WUABFFMW01 was sampled using the LF purge method (no passive sampling was performed in Q4 2022 as noted in Section 1.2). The sampling event occurred from December 12 to 14, 2022. During the event, the dedicated Bennett Pump, purchased specifically for sampling WUABFFMW01, was placed in the center of the well screen, and the flow rate was maintained at 0.13 gallons per minute (gpm) during work hours and stopped overnight. During purging, groundwater quality field parameters (specific conductivity, temperature, turbidity, and pH) were monitored using a YSI Plus 1030 water quality meter and a separate turbidity meter. Purging was considered complete when the well had been purged a minimum of three saturated well-casing volumes and the field parameters had stabilized. Stability was defined as a minimum of three consecutive measurements within 10 percent (%) of each other for specific conductivity and temperature, within 0.5 standard units for pH, and either below 10 nephelometric turbidity units (NTUs) or within 10% of each other for turbidity. After a total of 164.5 gallons had been purged (field parameters stabilized before the minimum three casing volumes), samples were collected for the Water Authority and split with EA. All purge, water quality, and sample collection data were recorded on a field form, a copy of which is provided in **Appendix A**.

The samples were submitted to Eurofins Lancaster Laboratories Environment Testing, LLC (Eurofins), 2425 New Holland Pike, Lancaster, Pennsylvania (Environmental Laboratory Accreditation Program [ELAP] Certificate No. 36-00037, State of Pennsylvania) for the analyses listed in Section 1.2. Hall Environmental Analysis Laboratory (HEAL), 4901 Hawkins NE, Albuquerque, NM 87109 (ADHS Cert #AZ0682, NMED-DWB Cert #NM9425, NMED-Micro Cert #NM0901) was used as the receiving/shipping

laboratory for the samples sent to Eurofins because HEAL's location in Albuquerque simplified sample handling and their existing contractual agreement with Eurofins allowed reduced sample turn-around time. Laboratory reports are included in **Appendix B**.

Purge water was containerized in a 275-gallon tote and transported by INTERA to the AES facility in Belen, New Mexico for disposal. A copy of the waste manifest is provided in **Appendix C**.

2.3 QA/QC Samples

QA/QC samples were collected on December 14, 2022 during the sampling event using the same containers and preservatives as for the primary samples for VOCs and submitted to Eurofins via HEALfor analysis of VOCs by EPA Method 8260.

A trip blank was shipped with the primary sample containers and remained with the sample cooler until samples were submitted to the laboratory.

A field blank was collected by filling sample vials with ASTM Type II reagent water (DI water) and leaving them open to the atmosphere during collection of the primary sample.

After the primary sample was collected, the Bennett pump and tubing were decontaminated by placing the pump in a PVC decontamination vessel and circulating Liquinox and water through the tubing for one cycle, water only for a first rinse, and ASTM Type II reagent water (DI water) for the final rinse. An equipment rinsate (blank) sample was collected from the final rinse.

Laboratory reports are included in **Appendix B**.

3.0 Results and Discussion

This section presents the results of the Q4 2022 groundwater sampling event at WUABFFMW01 conducted December 12 to 14, 2022. **Figure 1** presents water levels collected through the current quarter. **Table 1**, **Table 2**, and **Table 3** summarize water quality data from field measurements and laboratory analyses of groundwater and QA/QC samples. A copy of the field notes and groundwater sampling forms are included in **Appendix A**. The complete laboratory report is included in **Appendix B**.

3.1 Fluid Level Monitoring

Depth to groundwater measured before sampling on December 12, 2022 was 453.87 ft below top of casing, equal to an elevation of 4,874.67 ft on the North American Vertical Datum of 1988. LNAPL of measurable thickness (greater than 0.01 ft) was not observed.

Figure 1 presents water levels collected with the transducer[1] as well as manual measurements through Q2 2023. Diurnal and seasonal variations are evident—groundwater elevations decreased from May 2022 to October 2022, increased from October 2022 through December 2022.

3.2 Field Parameters and Laboratory Analytical Results

Groundwater quality field parameter values (temperature, conductivity, pH, and turbidity) recorded during monitoring well purging December 12 to 14, 2022 are provided in the groundwater sampling forms in **Appendix A**, and the stabilized/final groundwater quality parameter values are presented in **Table 1**. Results of laboratory analyses of the low-flow purge groundwater sample collected December 14, 2022 are summarized in **Table 2**, QA/QC sample results are summarized in **Table 3**, and the complete laboratory report is included in **Appendix B**.

EDB and BTEX compounds were not detected in the groundwater sample or QA/QC samples above their respective method detection limits (MDLs).

The only VOC detection reported for the groundwater sample was an estimated concentration of acetone at 0.78J µg/L. The "J" qualifier means that the concentration identified is estimated (the result is less than the Reporting Limit [RL] but greater than or equal to the MDL). Comparable levels of acetone were reported for the field blank (3.1J µg/L) and equipment rinsate sample (1.5J µg/L), whereas acetone was not detected in the trip blank. No other VOCs were detected in the QA/QC samples. Acetone is a common laboratory contaminant and is also a common solvent in numerous consumer products and other products that may be present in an urban environment. For this event, because the highest estimated concentration of acetone was for the field blank, the detection reported for the groundwater sample is not likely representative of the aquifer environment and is more likely due to acetone in the ambient air during sampling and/or laboratory contamination (please note that analytical uncertainty and the role of random error increase at levels below the RL).

Several estimated SVOC detections below RLs, all for polycyclic aromatic hydrocarbon (PAH) compounds, were reported by Eurofins for the groundwater sample but subsequently attributed to laboratory contamination (these are not included in **Table 2** due to format considerations). The PAH

detections included benzo[a]anthracene (0.21J µg/L), benzo[a]pyrene (0.21J µg/L), benzo[b]fluoranthene (0.17 J µg/L), benzo[g,h,i]perylene (0.12J µg/L), benzo[k]fluoranthene (0.19J µg/L), chrysene (0.28 J), dibenz(a,h)anthracene (0.11 µg/L), and indeno[1,2,3-cd]pyrene (0.13J µg/L). Data validation indicated that the PAH detections are attributable to laboratory contamination; notably, the pattern of PAH concentrations reported is more consistent with laboratory standards than with environmental weathering conditions or historical groundwater monitoring data.

Anions and metals or other cations detected above MDLs included bromide, chloride, nitrate, sulfate, total alkalinity, total arsenic, calcium, magnesium, potassium, sodium, dissolved iron, and dissolved manganese and are presented in **Table 2**.

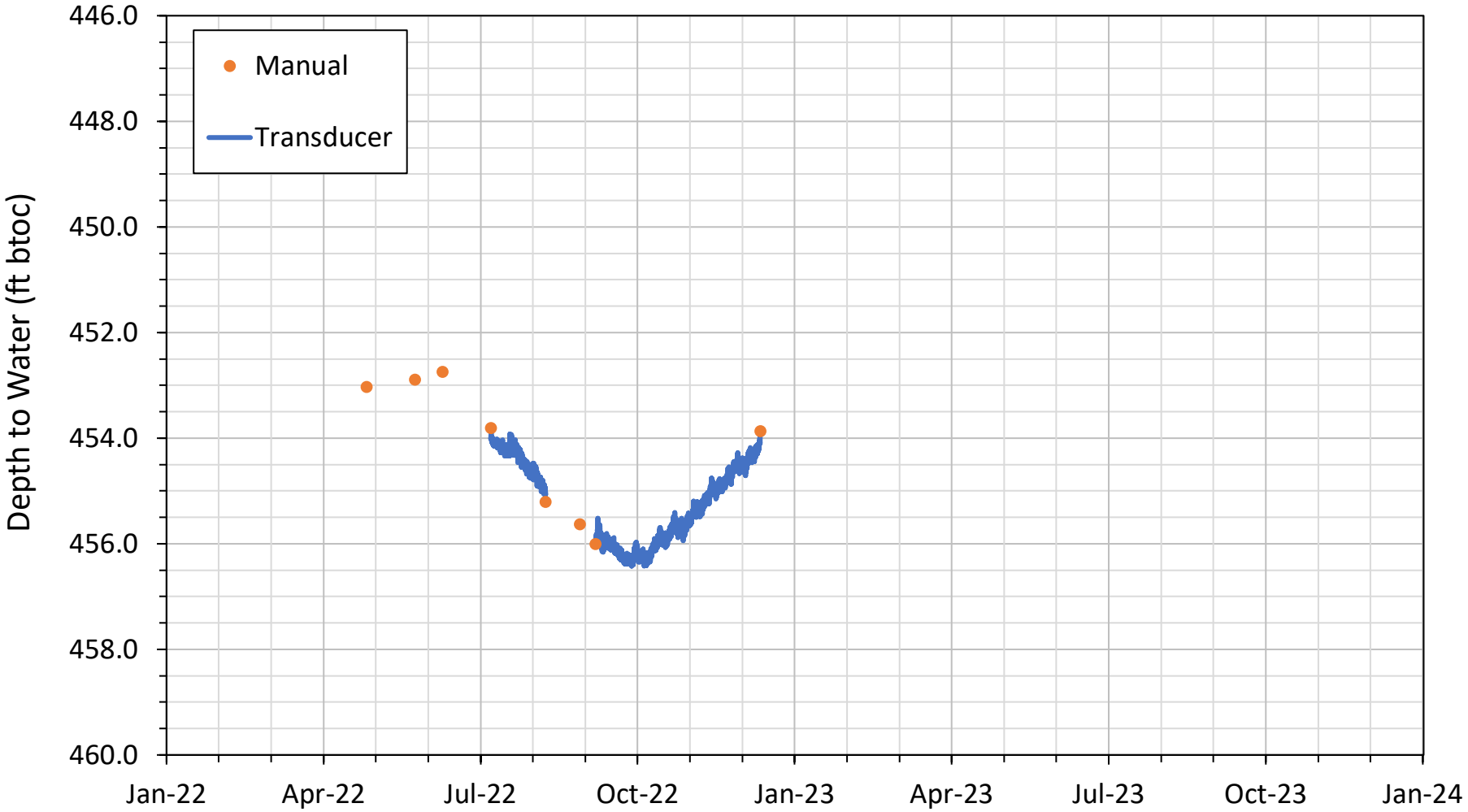
4.0 Summary and Recommendations

The contaminant of greatest concern, 1,2-dibromoethane (EDB), has not been detected in samples collected from WUABFFMW01 to date. The groundwater sample collected during the Q4 2022 sampling event did not detect BTEX compounds. Detections of other organic compounds during this event are not considered representative of the aquifer environment for reasons explained in Section 3.2. Several inorganic analytes were detected; none of the inorganic concentrations were unusual.

The laboratory analytical results were compared to their respective screening levels used by KAFB for the BFF site, which are based on EPA and New Mexico Water Quality Control Commission (NMWQCC) standards, and the only exceedance identified was for manganese at 0.27 mg/L, which exceeds the NMWQCC Standard of 0.2 mg/L.

INTERA recommends continued sampling of WUABFFMW01 for EDB and other fuel contaminants on a quarterly basis. This recommendation aligns with the sampling frequency followed by the Air Force, thus allowing for consistent and reliable data comparison across the BFF groundwater monitoring well network. Consistent with discussions with the Water Authority, INTERA recommends using lab-grade ASTM Type II reagent water (DI water) for the final decontamination rinse during LF sampling as well as continuing to collect QA/QC samples during quarterly sampling.

Figures



Notes:
ft btoc = feet below top of casing
Added 0.99 ft to transducer depths to water from 7/8/22 to 8/9/22 to correct raw dataset that began recording before transducer had fully equilibrated.

INTERA

Figure 1
Depth to Water, Data Gap Well WUABBFMW01
2022 Q4 Quarterly Monitoring Report
Albuquerque Bernalillo County Water Utility Authority

S:\ABQ\ABWUA.C009.KAFB\Data_Gap_Well\Task 10 LTGWM\DTW_plots.xlsx

Tables

TABLE 1
Groundwater Quality Field Parameters

Quarterly Groundwater Monitoring Report for Data Gap Well WUABFFMW01
ABCWUA
Kirtland Air Force Base Bulk Fuels Facility
Albuquerque, New Mexico

Well ID	Date	Temperature		Specific Conductivity (µS/cm)	pH	Turbidity (NTU)
		°C	°F			
WUABFFMW01	12/14/2022*	16.8	62.2	311.4	8.18	0.33

Notes:

*Bennett Pump Low-Flow Sampling Event
°C = degrees Celsius.

°F = degrees Fahrenheit.

µS/cm = microSiemens per centimeter.

NTU= Nephelometric Turbidity Unit

"-" = Not collected

TABLE 2
Laboratory Analytical Results - Groundwater
Quarterly Groundwater Monitoring Report for Data Gap Well WUABFFMW01
ABCWUA
Kirtland Air Force Base Bulk Fuels Facility
Albuquerque, New Mexico

Sample ID	Date	Organics[1,2,3,4]							Inorganics[5,6]											Dissolved Metals[6]	
		1,2-Dibromoethane (EDB)[1]	Benzene[2]	Toluene[2]	Ethylbenzene[2]	Total Xylenes[2]	BTEX[3]	Acetone[2]	Bromide[5]	Chloride[5]	Nitrate as N[5]	Sulfate[5]	Total Alkalinity[5]	Arsenic[6]	Calcium[6]	Magnesium[6]	Potassium[6]	Sodium[6]	Iron[6]	Manganese[6]
Units		µg/L							mg/L												
EPA MCL		**0.05**	**5**	**1000**	**700**	**10,000**	**NS**	**NS**	**NS**	**NS**	**10**	**NS**	**NS**	**0.010**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**
EPA RSL		**0.075**	**4.6**	**1100**	**15**	**190**	**NS**	**14000**	**NS**	**NS**	**32**	**NS**	**NS**	**0.000052**	**NS**	**NS**	**NS**	**NS**	**14**	**0.43**
NMWQCC Standard		**0.05**	**5**	**1000**	**700**	**620**	**NS**	**NS**	**NS**	**250**	**10**	**600**	**NS**	**0.010**	**NS**	**NS**	**NS**	**NS**	**1.0**	**0.2**
KAFB BFF PSL		**0.05**	**5**	**1000**	**700**	**620**	**NS**	**14000**	**NS**	**250**	**10**	**600**	**NS**	**0.010**	**NS**	**NS**	**NS**	**NS**	**1.0**	**0.2**
WUABFFMW01	12/14/2022*	<0.0097	<0.3	<0.4	<0.2	<0.4	<1.3	0.78 J	<0.25	10	0.046 J	30	120	0.0011 J	33	4.8	2.9	28	0.11	**0.27**

Notes:

Bolding indicates values or RLs in excess of KAFB BFF PSLs = more stringent of EPA MCL or NMWQCC Standard, or EPA RSL if analyte has no MCL or NMWQCC Standard.

NS = No standard/screening level.

Selected analytes listed include EDB, BTEX compounds, and analytes detected in at least one environmental sample or QA/QC sample this quarter. See laboratory report for all non-detected analytes.

Data shown as reported by the laboratory and do not include qualifiers from data validation.

Several semivolatile organic compounds detected and attributed to laboratory contamination are omitted from this table; see text for details.

[1] = EDB analyzed by U.S. Environmental Protection Agency (EPA) Method 8011.

[2] = Volatile organic compounds analyzed by EPA Method 8260D.

[3] = BTEX includes sum of benzene, toluene, ethylbenzene, and total xylenes detections (non-detections < method detection limit [MDL] are assumed to be 0) or sum of MDLs when no individual analytes are detected.

[4] = Semivolatile organic compounds analyzed by EPA Method 8270C.

[5] = Anions analyzed by EPA Method 300.0 and total alkalinity analyzed by Standard Method 2320B. Eurofins reported Nitrate-Nitrite as N by EPA Method 353.2, assumed to be nitrate for screening purposes.

[6] = Cations/metals analyzed by EPA Method 6020B.

*Bennett Pump Low-Flow Purge Sampling Event.

µg/L = microgram(s) per liter.

mg/L= milligram(s) per liter.

J = Result is less than the Reporting Limit (RL) but greater than or equal to the method detection limit (MDL) and the concentration is an approximate value.

BTEX = benzene, toluene, ethylbenzene, and total xylenes.

EDB = 1,2-dibromoethane, also known as ethylene dibromide.

EPA MCL = maximum contaminant level as defined by the EPA.

EPA RSL = regional screening level as defined by the EPA.

NMWQCC Standard = Groundwater Standards as defined by the State of New Mexico Water Quality Control Commission (NMWQCC, December 2018).

KAFB BFF PSL = Kirtland Air Force Base Bulk Fuel Facility Project Screening Level.

TABLE 3
Laboratory Analytical Results - QA/QC Samples
Quarterly Groundwater Monitoring Report for Data Gap Well WUABFFMW01
ABCWUA
Kirtland Air Force Base Bulk Fuels Facility
Albuquerque, New Mexico

Sample ID	Date	Organics					
		1,2-Dibromoethane (EDB)	Benzene	Toluene	Ethylbenzene	Total Xylenes	Acetone
		Concentration (µg/L)					
Equipment Blank	12/14/2022	<0.2	<0.3	<0.2	<0.4	<0.4	1.5 J
Field Blank	12/14/2022	<0.2	<0.3	<0.2	<0.4	<0.4	3.1 J
Trip Blank	12/14/2022	<0.2	<0.3	<0.2	<0.4	<0.4	<0.7

Notes:

Selected analytes listed include EDB, BTEX compounds, and volatile organic compounds detected in at least one environmental sample or QA/QC sample this quarter. See laboratory report for all non-detected analytes.

Analyzed by EPA Method 8260D.

µg/L = microgram(s) per liter.

J = Result is less than the Reporting Limit (RL) but greater than or equal to the method detection limit (MDL) and the concentration is an approximate value.

EDB = 1,2-dibromoethane, also known as ethylene dibromide.

Appendix A

Field Notes and Groundwater Sampling Forms

AH/BA Data Gap GW Sampling 12/12/22

0740 INTERA onsite - A. Hafner + B Archuleta
wx = cold, partly cloudy (30s, high=49), breezy

0745 Tailgate safety meeting

0830 Downloaded transducer log
File name: Log-2022-09-07

DTW = 453.87 ft BTOC
Using 500 ft WLM Model 601

0900 Lower Bennett Pump
Intake set @ ~452' bgs

0905 Start Air Compressor

Calibrate YSI Pro 1030
Calibrate HACH 2100Q Turbidity meter

0910 Begin Purging
- Set flow to ~500 mL/min
- Will record W.L.s during purge to ensure drawdown rate is not exceeded.

0920 Calibrate YSI + HACH

0950 Tracie Vaught (KAFB) onsite to observe, she noted that EA may stop by today

1000 T. Vaught off site

1005 Ceten Christiansen (Water Authority) onsite to observe + take photos

12/12/22 GW Sampling AH/BA

~~[illegible]~~ AH

1010 B. Archuleta offsite to get gasoline

1015 Ceten (Water Authority) offsite

1030 B. Archuleta back onsite w/ gasoline for generater

1035 B. Archuleta off site

1300 Weather Note: Cloudy, cold, breezy, + light rain / sprinkles.

1630 B. Archuleta returns to assist w/ packing up. Stop pumping for day.

Pull Pump + pack up equip.

~~1710~~ ~~1510~~ Offsite

BA 12/12/22

AH/BA GW Sampling 12/13/22

0745 INTERA onsite
wx = partly cloudy, cold (low 30s, high = 40)

0800 Bennett pump is frozen. A. Hefner offsite to get heat gun

0825 A. Hefner back onsite, thawing pump

0900 Pump downhole, compressor on
Pumping but acrylic flow meter is cracked, detached water outflow tube in control box + using compressor to control flow rate, pumping into 5 gal. bucket to monitor flow rate

0945 A. Hefner calibrating YSI + HACH,
B. Archuleta offsite

1225 Wx note: light flurries/snow, cloudy, cold, windy

1630 B. Archuleta return to assist w/ packing up. Stop purging for the day → @ ~ill gal

Pull pump + pack up

1710 Intera offsite.

AH

12/14/22 GW Sampling AH/BA

0745 INTERA onsite
Wx = very cold (20s, high = 42), breezy, sunny, clear sky w/ few clouds

0800 Tailgate safety meeting, A. Hafner calibrate YSI + turbidity meter

0805 Compressor + pump on

0810 Water @ surface, begin purging

0915 B. Archuleta offsite

1340 Dillon Schmeelk (EA) onsite
1345 Finished purging
1350 Tracy Voight onsite

1407 Cetan Christensen (Water Authority) onsite
Lynda Price on-site.

1420 WVABFFMW01 sampled

~ 170 gallons purged; WQ parameters stabilized.

We are submitting a sample kit to Eurofins and to HALL per WVA's request. The kit includes the following analyses:

- VOCs 8260
- EDB 504.1
- Anions (chloride, bromide, sulfate)
- Anions (Nitrate / Nitrite)
- SVOCs
- Alkalinity
- Total Metals (Ca, Mg, Potasium, sodium, As, Pb)
- Dissolved Metals (Fe, Mn)

AH/BA GW Sampling 12/14/22

Note We collected + filled the sample containers for non-VOC analyses first. Then VOCs containers. Generator was off. EA collected a split sample for KAFB.

1435 Field Blank collected for 8260B.

Poured DI water supplied by HALL into VOAs as the VOC samples were being collected.

1455 Dillion Schmeelk off-site
INTERA begins pulling up WL meter + pump.

1515 Tracy Voight off-site.

Begin decon process. Use Cuillisan drinking water + Liquinox and run through pump + tubing assembly.

1610 Equipment Blank collected for 8260

Ceton Christensen off-site

1620 Continue clean-up, deploy transducer
↳first reading @ 1700

1655 INTERA off-site

AH

Day 1

INTERA
GEOSCIENCE & ENGINEERING SOLUTIONS

Standard Operating Procedure
SOP 30: Field Form 5 – STANDARD PURGING and SAMPLING DATA

PROJECT NAME: Data Gap Well WELL NO.: WUABFEMW01
PROJECT NO.: ABCWuA.0049 DATE: 12/12/20 FIELD CREW: B Archuleta/A. Heffner

WATER LEVEL AND WATER COLUMN HEIGHT

TIME	DEPTH TO BOTTOM OF WELL (DTB) (ft btoc)	DEPTH TO WATER (DTW) (ft btoc)	Water Column Height (DTB-DTW) (ft)
0830	597'	453.87'	143.13

ft btoc: feet below top of casing from designated measuring point

PURGE VOLUME

Well Casing Diameter (inches)	Volume/Linear Foot (see conversion table below)	1 Well Volume (gal)	2 Well Volumes (gal)	3 Well Volumes (gal)
3"	0.38	54.39		163.17

VOLUME/LINEAR FOOT (gal/ft) (Use well casing ID)

1" = 0.04	1.5" = 0.09	2" = 0.17	3" = 0.38	4" = 0.66	6" = 1.5	8" = 2.6	10" = 4.1

1 well casing volume = Volume/Linear Foot x Water Column Height

METHOD OF PURGING: Bennett Pump → low flow (<500 mL/min)
METHOD OF SAMPLING: Bennett Pump

WATER LEVEL/WATER QUALITY INSTRUMENTS USED

INSTRUMENT	SERIAL NO.	TIME CALIBRATION PERFORMED	TECH	COMMENTS
YSI Pro 1030		0920	AH	
HACH2100 Q		0920	AH	

WATER QUALITY READINGS DURING PURGING

TIME AH	TEMP (°C)	pH	SP. COND. (µS/cm)	TURB. (NTU)*	DO (mg/L) Ft BTOC Waterlevel	ORP (mV) gal/min FlowRate	Total Purge Volume (gal)	Comments (color/odor)
0905	Compressor on							
0910	Start purging, water @ surface							
0919	Dialed in to ~500mL/min or 0.13 gal/min, DTW=453.94							
0945	17.1	7.10	348.3	2.80	453.86	0.13	4.55	clear, wk odor.
1015	17.8	7.87	327.4	0.71	453.81	0.13	8.45	" "
1045	17.4	7.91	324.8	0.94	453.78	0.13	12.35	" "
1115	16.8	7.98	326.1	0.42	453.80	0.13	16.25	
1145	17.7	7.94	325.3	0.39	453.83	0.13	20.15	
1215	17.4	7.97	320.5	0.36	453.75	0.13	24.05	
1245	17.2	7.95	318.8	0.41	453.78	0.13	28.0	"
1315	15.2	7.97	324.4	0.41	453.79	0.13	31.9	
1345	16.2	7.97	325.2	0.38	453.77	0.13	35.8	
1415	16.1	7.99	324.0	0.41	453.78	0.13	39.7	
1445	16.0	7.99	323.3	0.34	453.79	0.13	43.6	

*If measured.
Stabilization = **Temp** ±1°C; **pH** ±0.2 units; **Sp. Cond.** ±10%; **Turb.** ±10%

WATER QUALITY READINGS DURING PURGING (continued)

TIME	TEMP (°C)	pH	SP. COND. (µS/cm)	TURB. (NTU)*	DO (mg/L) Water Level ft BTOC	ORP (mV) Flow Rate gal/min	Total Volume Purged (gal)	Comments (color/odor)
1515	15.8	7.98	322.9	0.46	453.77	0.13	47.5	clear
1545	16.2	7.98	323.8	0.37	453.80	0.13	51.4	"
1615	16.1	7.99	323.0	0.36	453.78	0.13	55.3	
1630	Stop pump. Will resume pumping/purging tomorrow.							

AH

*If measured.
Stabilization = **Temp** ±1°C; **pH** ±0.2 units; **Sp. Cond.** ±10%; **Turb.** ±10%

GROUNDWATER SAMPLING DATA

GROUNDWATER SAMPLE ID: _____ DUPLICATE SAMPLE ID: _____

Time	Bottle Type	Analytical Method	# of Bottles	Volume	Preservative
		TOTAL:			

Sampler: _____ _____
(Printed Name) (Signature)

Day 2

INTERA
GEOSCIENCE & ENGINEERING SOLUTIONS

Standard Operating Procedure
SOP 30: Field Form 5 – STANDARD PURGING and SAMPLING DATA

PROJECT NAME: Data Gap Well WELL NO.: WUABFFMW01
PROJECT NO.: ABCWUA.0004 DATE: 12/13/22 FIELD CREW: A. Hafner / B. Archuleta

WATER LEVEL AND WATER COLUMN HEIGHT

TIME	DEPTH TO BOTTOM OF WELL (DTB) (ft btoc)	DEPTH TO WATER (DTW) (ft btoc)	Water Column Height (DTB-DTW) (ft)
12/12/22 0830	597'	453.87	143.13

ft btoc: feet below top of casing from designated measuring point

PURGE VOLUME

Well Casing Diameter (inches)	Volume/Linear Foot (see conversion table below)	1 Well Volume (gal)	2 Well Volumes (gal)	3 Well Volumes (gal)
3"	0.38	54.39		163.17

VOLUME/LINEAR FOOT (gal/ft) (Use well casing ID)

1" = 0.04	1.5" = 0.09	2" = 0.17	3" = 0.38	4" = 0.66	6" = 1.5	8" = 2.6	10" = 4.1

1 well casing volume = Volume/Linear Foot x Water Column Height

METHOD OF PURGING: Bennett pump → low flow (<500 mL/min)
METHOD OF SAMPLING: Bennett Pump

WATER LEVEL/WATER QUALITY INSTRUMENTS USED

INSTRUMENT	SERIAL NO.	TIME CALIBRATION PERFORMED	TECH	COMMENTS
YSI Pro 1030		0945	AH	
HACH 2100Q		0945	AH	

WATER QUALITY READINGS DURING PURGING

TIME	TEMP (°C)	pH	SP. COND. (µS/cm)	TURB. (NTU)*	DO ~~(mg/L)~~ ft BTOC (Water Level)	ORP ~~(mV)~~ gal/min (Flow Rate)	Total Purge Volume (gal)	Comments (color/odor)
0915	Pump was frozen, had to thaw pump,						55.3	
1	began pumping but acrylic flow meter cracked							
0945	+ was leaking, using compressor to control flow rate							
1000	13.0	7.91	306.8	0.97	453.96	0.13	59.3	clear
1030	14.0	8.10	307.2	0.94	453.90	0.13	63.2	
1100	15.5	8.13	307.4	0.45	453.89	0.14	67.2	
1130	14.9	8.14	304.1	0.51	453.94	0.13	71.2	clear
1200	14.0	8.11	301.9	0.59	453.95	0.13	75.2	
1230	14.8	8.16	301.8	0.41	453.96	0.13	79.2	
1300	15.4	8.16	304.5	0.47	453.90	0.13	83.2	
1330	15.8	8.15	303.8	0.72	453.95	0.13	87.2	
1400	16.1	8.19	302.6	0.60	453.98	0.13	91.2	clear
1430	15.7	8.19	301.4	0.36	453.92	0.13	95.2	
1500	16.2	8.21	297.1	0.54	453.97	0.13	99.2	

*If measured.
Stabilization = **Temp** ±1°C; **pH** ±0.2 units; **Sp. Cond.** ±10%; **Turb.** ±10%

WATER QUALITY READINGS DURING PURGING (continued)

TIME	TEMP (°C)	pH	SP. COND. (µS/cm)	TURB. (NTU)*	Water level DO (mg/L) ft BTOC	Flow rate ORP (mV) gal/min	Total Volume Purged (gal)	Comments (color/odor)
1530	14.6	8.26	297.0	0.32	453.95	0.13	103.2	clear
1600	13.5	8.22	304.3	0.36	453.96	0.13	107.2	
1630	14.5	8.18	301.6	0.49	453.97	0.13	111.2	
1635	Compressor	off.	reel	up pump +	blow it	out		
				AH				

*If measured.
Stabilization = **Temp** ±1°C; **pH** ±0.2 units; **Sp. Cond.** ±10%; **Turb.** ±10%

GROUNDWATER SAMPLING DATA

GROUNDWATER SAMPLE ID: _____ DUPLICATE SAMPLE ID: _____

Time	Bottle Type	Analytical Method	# of Bottles	Volume	Preservative
		TOTAL:			

Sampler: _____ _____
(Printed Name) **(Signature)**

Day 3

INTERA GEOSCIENCE & ENGINEERING SOLUTIONS

Standard Operating Procedure
SOP 30: Field Form 5 – STANDARD PURGING and SAMPLING DATA

PROJECT NAME: Date Gap Well WELL NO.: WUABFFMW01
PROJECT NO.: ABCWuA.10004 DATE: 12/14/22 FIELD CREW: A. Heffner/B. Archuleta

WATER LEVEL AND WATER COLUMN HEIGHT

TIME	DEPTH TO BOTTOM OF WELL (DTB) (ft btoc)	DEPTH TO WATER (DTW) (ft btoc)	Water Column Height (DTB-DTW) (ft)
12/12/22	597'	453.87	143.13

ft btoc: feet below top of casing from designated measuring point

PURGE VOLUME

Well Casing Diameter (inches)	Volume/Linear Foot (see conversion table below)	1 Well Volume (gal)	2 Well Volumes (gal)	3 Well Volumes (gal)
3"	0.38	54.39		163.17

VOLUME/LINEAR FOOT (gal/ft) (Use well casing ID)

1" = 0.04	1.5" = 0.09	2" = 0.17	3" = 0.38	4" = 0.66	6" = 1.5	8" = 2.6	10" = 4.1

1 well casing volume = Volume/Linear Foot x Water Column Height

METHOD OF PURGING: Bennett Pump → low flow (<500mL/min)
METHOD OF SAMPLING: Bennett Pump

WATER LEVEL/WATER QUALITY INSTRUMENTS USED

INSTRUMENT	SERIAL NO.	TIME CALIBRATION PERFORMED	TECH	COMMENTS
YSI Pro 1030		0800	AH	
HACH 2100 Q		0800	AH	

WATER QUALITY READINGS DURING PURGING

TIME	TEMP (°C)	pH	SP. COND. (µS/cm)	TURB. (NTU)*	Water level DO (mg/L) ft BTOC	Flow Rate ORP (mV) gal/min	Total Purge Volume (gal)	Comments (color/odor)
0805	Pump	on					111	
0810	Water	@ surface						
0815	12.2	7.66	311.2	1.02	—	0.13	113.5	clear
0845	12.0	8.16	304.7	0.42	—	0.13	117.4	
0915	16.8	8.17	313.7	0.40	454.15	0.13	121.3	
0945	17.4	8.14	314.2	0.31	454.14	0.13	125.2	
1015	17.1	8.12	314.9	0.29	454.09	0.13	139	#Adjusted based on tote
1045	17.7	8.11	317.0	0.35	454.13	0.13	143	
1115	17.8	8.21	317.3	0.35	454.15	0.13	147	
1145	17.2	8.29	316.4	0.40	454.13	0.13	150.9	clear
1215	17.7	8.13	312.6	0.31	454.17	0.13	153.8	
1245	16.6	8.15	314.2	0.31	454.12	0.13	156.7	
1315	17.1	8.17	311.5	0.34	454.14	0.13	160.6	
1345	16.8	8.18	311.4	0.33	454.09	0.13	164.5	

*If measured. 1420 Sample

Stabilization = **Temp** ±1°C; **pH** ±0.2 units; **Sp. Cond.** ±10%; **Turb.** ±10%

WATER QUALITY READINGS DURING PURGING (continued)

TIME	TEMP (°C)	pH	SP. COND. (µS/cm)	TURB. (NTU)*	DO (mg/L)	ORP (mV)	Total Volume Purged (gal)	Comments (color/odor)

AH

*If measured.
Stabilization = **Temp** ±1°C; **pH** ±0.2 units; **Sp. Cond.** ±10%; **Turb.** ±10%

GROUNDWATER SAMPLING DATA

GROUNDWATER SAMPLE ID: WUABFFMW01 DUPLICATE SAMPLE ID: collected 2nd set to send to Eurofins, same sample name

Time	Bottle Type	Analytical Method	# of Bottles	Volume	Preservative
1420	VOA	8260	3	40mL	HCl
1420	VOA	EDB 8011	3	40mL	SOTH
1420	amber	8270	2	1 L	none
1420	HDPE	6010C/6020A	1	250 mL	HNO_3
1420	HDPE		1	125 mL	HNO_3 (filtered)
1420	HDPE	E353.2	1	500mL	H_2SO_4
1420	HDPE	E300, SM2320B	1	500mL	none
		TOTAL:	12		

Sampler: Alison Hefner (Printed Name) (Signature)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 10, 2023

Joseph Tracy

Intera, Inc.
2440 Louisana Blvd NE Suite 700
Albuquerque, NM 87110
TEL: (505) 246-1600
FAX (505) 246-2600

RE: Data Gap Well OrderNo.: 2212993

Dear Joseph Tracy:

Hall Environmental Analysis Laboratory received 4 sample(s) on 12/15/2022 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued December 29, 2022.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Appendix B

Laboratory Analytical Report

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: John Caldwell
Hall Environmental Analysis Laboratory
4901 Hawkins NE
Suite D
Albuquerque, New Mexico 87109

Generated 1/10/2023 5:03:05 PM Revision 1

JOB DESCRIPTION

2212993

JOB NUMBER

410-109453-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

Job Notes

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization

Generated
1/10/2023 5:03:05 PM
Revision 1

Authorized for release by
Nicole Brown, Project Manager
Nicole.Brown@et.eurofinsus.com
(717)471-3265

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
· Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

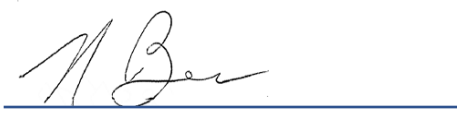


Table of Contents

Definitions/Glossary

Client: Hall Environmental Analysis Laboratory
Job ID: 410-109453-1
Project/Site: 2212993

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
cn	Refer to Case Narrative for further detail
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
cn	Refer to Case Narrative for further detail
E	Result exceeded calibration range.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

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

General Chemistry

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TNTC	Too Numerous To Count

Case Narrative

Client: Hall Environmental Analysis Laboratory
Project/Site: 2212993

Job ID: 410-109453-1

Job ID: 410-109453-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

Narrative

Job Narrative
410-109453-1

REVISION
The report being provided is a revision of the original report sent on 12/28/2022. The report (revision 1) is being revised due to client requested sample ID for 2212993-001 A-F / WVABFF MW01 be changed to 2212993-001 A-F / WUABFF MW01 due to a typo on the client COC.

Receipt
The samples were received on 12/16/2022 10:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.9°C

GC/MS VOA
Method 8260D: The continuing calibration verification (CCV) associated with batch 410-330580 recovered outside acceptance criteria, low biased, for 1,2,3-Trichlorobenzene, Bromomethane, Chloroethane and Vinyl chloride. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Non-detections of the affected analytes are reported. Any detections are considered estimated.

Method 8260D: The continuing calibration verification (CCV) analyzed on 410-330580 is compliant under 8260C/D method criteria for Trichlorofluoromethane . The software does not display the % Drift data to the whole number as is listed in the method (i.e. limit of 20%). When applying the evaluation to a whole number, the check passes the criteria with a value of 20% Drift.

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

GC/MS Semi VOA
Method 8270E: The continuing calibration verification (CCV) associated with batch 410-329552 recovered above the upper control limit for 2,4-Dinitrophenol, 2,4-Dinitrotoluene, 2-Nitroaniline, 2-Nitrophenol, 4,6-Dinitro-2-methylphenol, 4-Nitrophenol and Di-n-octyl phthalate. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

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

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

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

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

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

Detection Summary

Client: Hall Environmental Analysis Laboratory
Project/Site: 2212993

Job ID: 410-109453-1

Client Sample ID: 2212993-001A-F / WUABFF MW01 — Lab Sample ID: 410-109453-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	0.78	J	20	0.70	ug/L	1		8260D	Total/NA
Benzo[a]anthracene	0.21	J	0.50	0.10	ug/L	1		8270E	Total/NA
Benzo[a]pyrene	0.21	J	0.50	0.11	ug/L	1		8270E	Total/NA
Benzo[b]fluoranthene	0.17	J	0.50	0.10	ug/L	1		8270E	Total/NA
Benzo[g,h,i]perylene	0.12	J	0.50	0.10	ug/L	1		8270E	Total/NA
Benzo[k]fluoranthene	0.19	J	0.50	0.10	ug/L	1		8270E	Total/NA
Chrysene	0.28	J	0.50	0.10	ug/L	1		8270E	Total/NA
Dibenz(a,h)anthracene	0.11	J	0.50	0.10	ug/L	1		8270E	Total/NA
Indeno[1,2,3-cd]pyrene	0.13	J	0.50	0.11	ug/L	1		8270E	Total/NA
Sulfate	30		7.5	2.5	mg/L	5		EPA 300.0 R2.1	Total/NA
Chloride	10		7.5	3.0	mg/L	5		EPA 300.0 R2.1	Total/NA
Arsenic	1.1	J	2.0	0.68	ug/L	1		6020B	Total Recoverable
Calcium	33000		100	50	ug/L	1		6020B	Total Recoverable
Magnesium	4800		50	16	ug/L	1		6020B	Total Recoverable
Potassium	2900		200	65	ug/L	1		6020B	Total Recoverable
Sodium	28000		200	90	ug/L	1		6020B	Total Recoverable
Iron	110		52	21	ug/L	1		6020B	Dissolved
Manganese	270		2.1	0.98	ug/L	1		6020B	Dissolved
Total Alkalinity as CaCO3 to pH 4.5	120		8.0	2.6	mg/L	1		2320B-2011	Total/NA
Nitrate Nitrite as N	0.046	J	0.10	0.040	mg/L	1		353.2	Total/NA

Client Sample ID: 2212993-002A / Field Blank — Lab Sample ID: 410-109453-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	3.1	J	20	0.70	ug/L	1		8260D	Total/NA

Client Sample ID: 2212993-003A / Equip Blank — Lab Sample ID: 410-109453-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	1.5	J	20	0.70	ug/L	1		8260D	Total/NA

Client Sample ID: 2212993-004A / Trip Blank — Lab Sample ID: 410-109453-4

No Detections.

This Detection Summary does not include radiochemical test results.

Client: Hall Environmental Analysis Laboratory
Project/Site: 2212993

Job ID: 410-109453-1

Client Sample ID: 2212993-001A-F / WUABFF MW01
Date Collected: 12/14/22 14:20
Date Received: 12/16/22 10:20

Lab Sample ID: 410-109453-1
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.30	ug/L			12/28/22 06:27	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.30	ug/L			12/28/22 06:27	1
1,1,2-Trichloroethane	ND		1.0	0.30	ug/L			12/28/22 06:27	1
1,1-Dichloroethane	ND		1.0	0.30	ug/L			12/28/22 06:27	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/28/22 06:27	1
1,2,3-Trichlorobenzene	ND	cn	5.0	0.40	ug/L			12/28/22 06:27	1
1,2,4-Trichlorobenzene	ND		5.0	0.30	ug/L			12/28/22 06:27	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.30	ug/L			12/28/22 06:27	1
1,2-Dibromoethane	ND		1.0	0.20	ug/L			12/28/22 06:27	1
1,2-Dichlorobenzene	ND		5.0	0.20	ug/L			12/28/22 06:27	1
1,2-Dichloroethane	ND		1.0	0.30	ug/L			12/28/22 06:27	1
1,2-Dichloropropane	ND		1.0	0.30	ug/L			12/28/22 06:27	1
1,3-Dichlorobenzene	ND		5.0	0.68	ug/L			12/28/22 06:27	1
1,4-Dichlorobenzene	ND		5.0	0.30	ug/L			12/28/22 06:27	1
2-Butanone	ND		10	0.50	ug/L			12/28/22 06:27	1
2-Hexanone	ND		10	0.85	ug/L			12/28/22 06:27	1
4-Methyl-2-pentanone	ND		10	0.50	ug/L			12/28/22 06:27	1
Acetone	**0.78**	**J**	20	0.70	ug/L			12/28/22 06:27	1
Benzene	ND		1.0	0.30	ug/L			12/28/22 06:27	1
Bromochloromethane	ND		5.0	0.20	ug/L			12/28/22 06:27	1
Bromodichloromethane	ND		1.0	0.20	ug/L			12/28/22 06:27	1
Bromoform	ND		4.0	1.0	ug/L			12/28/22 06:27	1
Bromomethane	ND	cn	1.0	0.30	ug/L			12/28/22 06:27	1
Carbon disulfide	ND		5.0	0.30	ug/L			12/28/22 06:27	1
Carbon tetrachloride	ND		1.0	0.30	ug/L			12/28/22 06:27	1
Chlorobenzene	ND		1.0	0.30	ug/L			12/28/22 06:27	1
Chloroethane	ND	cn	1.0	0.20	ug/L			12/28/22 06:27	1
Chloroform	ND		1.0	0.30	ug/L			12/28/22 06:27	1
Chloromethane	ND		2.0	0.55	ug/L			12/28/22 06:27	1
cis-1,2-Dichloroethene	ND		1.0	0.30	ug/L			12/28/22 06:27	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/L			12/28/22 06:27	1
Cyclohexane	ND		5.0	1.0	ug/L			12/28/22 06:27	1
Dibromochloromethane	ND		1.0	0.20	ug/L			12/28/22 06:27	1
Dichlorodifluoromethane	ND		1.0	0.20	ug/L			12/28/22 06:27	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/28/22 06:27	1
Freon 113	ND		10	0.30	ug/L			12/28/22 06:27	1
Isopropylbenzene	ND		5.0	0.20	ug/L			12/28/22 06:27	1
m&p-Xylene	ND		5.0	2.0	ug/L			12/28/22 06:27	1
Methyl acetate	ND		5.0	0.30	ug/L			12/28/22 06:27	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			12/28/22 06:27	1
Methylcyclohexane	ND		5.0	0.50	ug/L			12/28/22 06:27	1
Methylene Chloride	ND		1.0	0.30	ug/L			12/28/22 06:27	1
o-Xylene	ND		1.0	0.40	ug/L			12/28/22 06:27	1
Styrene	ND		5.0	0.30	ug/L			12/28/22 06:27	1
Tetrachloroethene	ND		1.0	0.30	ug/L			12/28/22 06:27	1
Toluene	ND		1.0	0.20	ug/L			12/28/22 06:27	1
trans-1,2-Dichloroethene	ND		2.0	0.70	ug/L			12/28/22 06:27	1
trans-1,3-Dichloropropene	ND		1.0	0.20	ug/L			12/28/22 06:27	1
Trichloroethene	ND		1.0	0.30	ug/L			12/28/22 06:27	1

Client: Hall Environmental Analysis Laboratory
Project/Site: 2212993

Job ID: 410-109453-1

Client Sample ID: 2212993-001A-F / WUABFF MW01

Lab Sample ID: 410-109453-1

Date Collected: 12/14/22 14:20

Matrix: Water

Date Received: 12/16/22 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	ND	cn	1.0	0.20	ug/L			12/28/22 06:27	1
Vinyl chloride	ND	cn	1.0	0.20	ug/L			12/28/22 06:27	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/28/22 06:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 120*		*12/28/22 06:27*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*12/28/22 06:27*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 120*		*12/28/22 06:27*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*12/28/22 06:27*	*1*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 23:05	1
2,2'-oxybis[1-chloropropane]	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 23:05	1
2,4,5-Trichlorophenol	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 23:05	1
2,4,6-Trichlorophenol	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 23:05	1
2,4-Dichlorophenol	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 23:05	1
2,4-Dimethylphenol	ND		10	3.0	ug/L		12/21/22 08:01	12/21/22 23:05	1
2,4-Dinitrophenol	ND	cn	30	14	ug/L		12/21/22 08:01	12/21/22 23:05	1
2,4-Dinitrotoluene	ND	cn	5.0	1.0	ug/L		12/21/22 08:01	12/21/22 23:05	1
2,6-Dinitrotoluene	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 23:05	1
2-Chloronaphthalene	ND		1.0	0.40	ug/L		12/21/22 08:01	12/21/22 23:05	1
2-Chlorophenol	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 23:05	1
2-Methylnaphthalene	ND		0.50	0.10	ug/L		12/21/22 08:01	12/21/22 23:05	1
2-Methylphenol	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 23:05	1
2-Nitroaniline	ND	cn	5.0	1.0	ug/L		12/21/22 08:01	12/21/22 23:05	1
2-Nitrophenol	ND	cn	5.0	1.0	ug/L		12/21/22 08:01	12/21/22 23:05	1
3,3'-Dichlorobenzidine	ND		10	4.0	ug/L		12/21/22 08:01	12/21/22 23:05	1
3-Nitroaniline	ND		5.0	2.0	ug/L		12/21/22 08:01	12/21/22 23:05	1
4,6-Dinitro-2-methylphenol	ND	*+ cn	21	8.0	ug/L		12/21/22 08:01	12/21/22 23:05	1
4-Bromophenyl phenyl ether	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 23:05	1
4-Chloro-3-methylphenol	ND		5.0	1.0	ug/L		12/21/22 08:01	12/21/22 23:05	1
4-Chloroaniline	ND		10	4.0	ug/L		12/21/22 08:01	12/21/22 23:05	1
4-Chlorophenyl phenyl ether	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 23:05	1
4-Methylphenol	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 23:05	1
4-Nitroaniline	ND		3.0	0.90	ug/L		12/21/22 08:01	12/21/22 23:05	1
4-Nitrophenol	ND	cn	30	10	ug/L		12/21/22 08:01	12/21/22 23:05	1
Acenaphthene	ND		0.50	0.10	ug/L		12/21/22 08:01	12/21/22 23:05	1
Acenaphthylene	ND		0.50	0.10	ug/L		12/21/22 08:01	12/21/22 23:05	1
Acetophenone	ND		5.0	1.0	ug/L		12/21/22 08:01	12/21/22 23:05	1
Anthracene	ND		0.50	0.10	ug/L		12/21/22 08:01	12/21/22 23:05	1
Atrazine	ND		5.0	1.0	ug/L		12/21/22 08:01	12/21/22 23:05	1
Benzaldehyde	ND		5.0	1.0	ug/L		12/21/22 08:01	12/21/22 23:05	1
Benzo[a]anthracene	**0.21**	**J**	0.50	0.10	ug/L		12/21/22 08:01	12/21/22 23:05	1
Benzo[a]pyrene	**0.21**	**J**	0.50	0.11	ug/L		12/21/22 08:01	12/21/22 23:05	1
Benzo[b]fluoranthene	**0.17**	**J**	0.50	0.10	ug/L		12/21/22 08:01	12/21/22 23:05	1
Benzo[g,h,i]perylene	**0.12**	**J**	0.50	0.10	ug/L		12/21/22 08:01	12/21/22 23:05	1
Benzo[k]fluoranthene	**0.19**	**J**	0.50	0.10	ug/L		12/21/22 08:01	12/21/22 23:05	1
Bis(2-chloroethoxy)methane	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 23:05	1
Bis(2-chloroethyl)ether	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 23:05	1

Client Sample ID: 2212993-001A-F / WUABFF MW01
Lab Sample ID: 410-109453-1

Date Collected: 12/14/22 14:20
Matrix: Water
Date Received: 12/16/22 10:20

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		5.0	2.0	ug/L		12/21/22 08:01	12/21/22 23:05	1
Butyl benzyl phthalate	ND		5.0	2.0	ug/L		12/21/22 08:01	12/21/22 23:05	1
Caprolactam	ND		7.0	3.0	ug/L		12/21/22 08:01	12/21/22 23:05	1
Carbazole	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 23:05	1
Chrysene	**0.28**	**J**	0.50	0.10	ug/L		12/21/22 08:01	12/21/22 23:05	1
Di-n-butyl phthalate	ND		5.0	2.0	ug/L		12/21/22 08:01	12/21/22 23:05	1
Di-n-octyl phthalate	ND	cn	11	5.0	ug/L		12/21/22 08:01	12/21/22 23:05	1
Dibenz(a,h)anthracene	**0.11**	**J**	0.50	0.10	ug/L		12/21/22 08:01	12/21/22 23:05	1
Dibenzofuran	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 23:05	1
Diethyl phthalate	ND		5.0	2.0	ug/L		12/21/22 08:01	12/21/22 23:05	1
Dimethyl phthalate	ND		5.0	2.0	ug/L		12/21/22 08:01	12/21/22 23:05	1
Fluoranthene	ND		0.50	0.10	ug/L		12/21/22 08:01	12/21/22 23:05	1
Fluorene	ND		0.50	0.12	ug/L		12/21/22 08:01	12/21/22 23:05	1
Hexachlorobenzene	ND		0.50	0.11	ug/L		12/21/22 08:01	12/21/22 23:05	1
Hexachlorobutadiene	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 23:05	1
Hexachlorocyclopentadiene	ND		11	5.0	ug/L		12/21/22 08:01	12/21/22 23:05	1
Hexachloroethane	ND		5.0	0.50	ug/L		12/21/22 08:01	12/21/22 23:05	1
Indeno[1,2,3-cd]pyrene	**0.13**	**J**	0.50	0.11	ug/L		12/21/22 08:01	12/21/22 23:05	1
Isophorone	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 23:05	1
N-Nitrosodi-n-propylamine	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 23:05	1
N-Nitrosodiphenylamine	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 23:05	1
Naphthalene	ND		0.50	0.10	ug/L		12/21/22 08:01	12/21/22 23:05	1
Nitrobenzene	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 23:05	1
Pentachlorophenol	ND		5.0	1.0	ug/L		12/21/22 08:01	12/21/22 23:05	1
Phenanthrene	ND		0.50	0.11	ug/L		12/21/22 08:01	12/21/22 23:05	1
Phenol	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 23:05	1
Pyrene	ND		0.50	0.10	ug/L		12/21/22 08:01	12/21/22 23:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*73*		*44 - 120*	*12/21/22 08:01*	*12/21/22 23:05*	*1*
2-Fluorophenol (Surr)	*44*		*10 - 120*	*12/21/22 08:01*	*12/21/22 23:05*	*1*
Nitrobenzene-d5 (Surr)	*83*		*25 - 125*	*12/21/22 08:01*	*12/21/22 23:05*	*1*
p-Terphenyl-d14 (Surr)	*74*		*37 - 120*	*12/21/22 08:01*	*12/21/22 23:05*	*1*
2,4,6-Tribromophenol (Surr)	*89*		*10 - 150*	*12/21/22 08:01*	*12/21/22 23:05*	*1*
Phenol-d5 (Surr)	*30*		*10 - 120*	*12/21/22 08:01*	*12/21/22 23:05*	*1*

Method: SW846 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide (1C)	ND		0.029	0.0097	ug/L		12/19/22 23:42	12/20/22 19:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,2,2-Tetrachloroethane (Surr) (1C)	*76*		*46 - 136*	*12/19/22 23:42*	*12/20/22 19:19*	*1*
1,1,2,2-Tetrachloroethane (Surr) (2C)	*74*		*46 - 136*	*12/19/22 23:42*	*12/20/22 19:19*	*1*

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.75	0.25	mg/L			12/22/22 16:13	1
Sulfate	**30**		7.5	2.5	mg/L			12/22/22 16:22	5
Chloride	**10**		7.5	3.0	mg/L			12/22/22 16:22	5

Client Sample Results

Client: Hall Environmental Analysis Laboratory
Project/Site: 2212993

Job ID: 410-109453-1

Client Sample ID: 2212993-001A-F / WUABFF MW01

Lab Sample ID: 410-109453-1

Date Collected: 12/14/22 14:20

Matrix: Water

Date Received: 12/16/22 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.1	J	2.0	0.68	ug/L		12/19/22 07:02	12/20/22 12:01	1
Calcium	33000		100	50	ug/L		12/19/22 07:02	12/20/22 12:01	1
Lead	ND		0.50	0.071	ug/L		12/19/22 07:02	12/20/22 12:01	1
Magnesium	4800		50	16	ug/L		12/19/22 07:02	12/20/22 12:01	1
Potassium	2900		200	65	ug/L		12/19/22 07:02	12/20/22 12:01	1
Sodium	28000		200	90	ug/L		12/19/22 07:02	12/20/22 13:11	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	110		52	21	ug/L		12/22/22 10:07	12/27/22 12:21	1
Manganese	270		2.1	0.98	ug/L		12/22/22 10:07	12/27/22 12:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B-2011)	120		8.0	2.6	mg/L			12/19/22 22:54	1
Nitrate Nitrite as N (MCAWW 353.2	0.046	J	0.10	0.040	mg/L			12/19/22 08:53	1

Client: Hall Environmental Analysis Laboratory
Project/Site: 2212993

Job ID: 410-109453-1

Client Sample ID: 2212993-002A / Field Blank

Lab Sample ID: 410-109453-2

Date Collected: 12/14/22 14:35

Matrix: Water

Date Received: 12/16/22 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.30	ug/L			12/28/22 02:26	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.30	ug/L			12/28/22 02:26	1
1,1,2-Trichloroethane	ND		1.0	0.30	ug/L			12/28/22 02:26	1
1,1-Dichloroethane	ND		1.0	0.30	ug/L			12/28/22 02:26	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/28/22 02:26	1
1,2,3-Trichlorobenzene	ND	cn	5.0	0.40	ug/L			12/28/22 02:26	1
1,2,4-Trichlorobenzene	ND		5.0	0.30	ug/L			12/28/22 02:26	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.30	ug/L			12/28/22 02:26	1
1,2-Dibromoethane	ND		1.0	0.20	ug/L			12/28/22 02:26	1
1,2-Dichlorobenzene	ND		5.0	0.20	ug/L			12/28/22 02:26	1
1,2-Dichloroethane	ND		1.0	0.30	ug/L			12/28/22 02:26	1
1,2-Dichloropropane	ND		1.0	0.30	ug/L			12/28/22 02:26	1
1,3-Dichlorobenzene	ND		5.0	0.68	ug/L			12/28/22 02:26	1
1,4-Dichlorobenzene	ND		5.0	0.30	ug/L			12/28/22 02:26	1
2-Butanone	ND		10	0.50	ug/L			12/28/22 02:26	1
2-Hexanone	ND		10	0.85	ug/L			12/28/22 02:26	1
4-Methyl-2-pentanone	ND		10	0.50	ug/L			12/28/22 02:26	1
Acetone	**3.1**	**J**	20	0.70	ug/L			12/28/22 02:26	1
Benzene	ND		1.0	0.30	ug/L			12/28/22 02:26	1
Bromochloromethane	ND		5.0	0.20	ug/L			12/28/22 02:26	1
Bromodichloromethane	ND		1.0	0.20	ug/L			12/28/22 02:26	1
Bromoform	ND		4.0	1.0	ug/L			12/28/22 02:26	1
Bromomethane	ND	cn	1.0	0.30	ug/L			12/28/22 02:26	1
Carbon disulfide	ND		5.0	0.30	ug/L			12/28/22 02:26	1
Carbon tetrachloride	ND		1.0	0.30	ug/L			12/28/22 02:26	1
Chlorobenzene	ND		1.0	0.30	ug/L			12/28/22 02:26	1
Chloroethane	ND	cn	1.0	0.20	ug/L			12/28/22 02:26	1
Chloroform	ND		1.0	0.30	ug/L			12/28/22 02:26	1
Chloromethane	ND		2.0	0.55	ug/L			12/28/22 02:26	1
cis-1,2-Dichloroethene	ND		1.0	0.30	ug/L			12/28/22 02:26	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/L			12/28/22 02:26	1
Cyclohexane	ND		5.0	1.0	ug/L			12/28/22 02:26	1
Dibromochloromethane	ND		1.0	0.20	ug/L			12/28/22 02:26	1
Dichlorodifluoromethane	ND		1.0	0.20	ug/L			12/28/22 02:26	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/28/22 02:26	1
Freon 113	ND		10	0.30	ug/L			12/28/22 02:26	1
Isopropylbenzene	ND		5.0	0.20	ug/L			12/28/22 02:26	1
m&p-Xylene	ND		5.0	2.0	ug/L			12/28/22 02:26	1
Methyl acetate	ND		5.0	0.30	ug/L			12/28/22 02:26	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			12/28/22 02:26	1
Methylcyclohexane	ND		5.0	0.50	ug/L			12/28/22 02:26	1
Methylene Chloride	ND		1.0	0.30	ug/L			12/28/22 02:26	1
o-Xylene	ND		1.0	0.40	ug/L			12/28/22 02:26	1
Styrene	ND		5.0	0.30	ug/L			12/28/22 02:26	1
Tetrachloroethene	ND		1.0	0.30	ug/L			12/28/22 02:26	1
Toluene	ND		1.0	0.20	ug/L			12/28/22 02:26	1
trans-1,2-Dichloroethene	ND		2.0	0.70	ug/L			12/28/22 02:26	1
trans-1,3-Dichloropropene	ND		1.0	0.20	ug/L			12/28/22 02:26	1
Trichloroethene	ND		1.0	0.30	ug/L			12/28/22 02:26	1

Client: Hall Environmental Analysis Laboratory
Job ID: 410-109453-1
Project/Site: 2212993

Client Sample ID: 2212993-002A / Field Blank
Lab Sample ID: 410-109453-2
Date Collected: 12/14/22 14:35
Matrix: Water
Date Received: 12/16/22 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	ND	cn	1.0	0.20	ug/L			12/28/22 02:26	1
Vinyl chloride	ND	cn	1.0	0.20	ug/L			12/28/22 02:26	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/28/22 02:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 120*		*12/28/22 02:26*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*12/28/22 02:26*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 120*		*12/28/22 02:26*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*12/28/22 02:26*	*1*

Client: Hall Environmental Analysis Laboratory
Project/Site: 2212993

Job ID: 410-109453-1

Client Sample ID: 2212993-003A / Equip Blank

Date Collected: 12/14/22 16:10
Date Received: 12/16/22 10:20

Lab Sample ID: 410-109453-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.30	ug/L			12/28/22 02:48	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.30	ug/L			12/28/22 02:48	1
1,1,2-Trichloroethane	ND		1.0	0.30	ug/L			12/28/22 02:48	1
1,1-Dichloroethane	ND		1.0	0.30	ug/L			12/28/22 02:48	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/28/22 02:48	1
1,2,3-Trichlorobenzene	ND		5.0	0.40	ug/L			12/28/22 02:48	1
1,2,4-Trichlorobenzene	ND		5.0	0.30	ug/L			12/28/22 02:48	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.30	ug/L			12/28/22 02:48	1
1,2-Dibromoethane	ND		1.0	0.20	ug/L			12/28/22 02:48	1
1,2-Dichlorobenzene	ND		5.0	0.20	ug/L			12/28/22 02:48	1
1,2-Dichloroethane	ND		1.0	0.30	ug/L			12/28/22 02:48	1
1,2-Dichloropropane	ND		1.0	0.30	ug/L			12/28/22 02:48	1
1,3-Dichlorobenzene	ND		5.0	0.68	ug/L			12/28/22 02:48	1
1,4-Dichlorobenzene	ND		5.0	0.30	ug/L			12/28/22 02:48	1
2-Butanone	ND		10	0.50	ug/L			12/28/22 02:48	1
2-Hexanone	ND		10	0.85	ug/L			12/28/22 02:48	1
4-Methyl-2-pentanone	ND		10	0.50	ug/L			12/28/22 02:48	1
Acetone	**1.5**	**J**	20	0.70	ug/L			12/28/22 02:48	1
Benzene	ND		1.0	0.30	ug/L			12/28/22 02:48	1
Bromochloromethane	ND		5.0	0.20	ug/L			12/28/22 02:48	1
Bromodichloromethane	ND		1.0	0.20	ug/L			12/28/22 02:48	1
Bromoform	ND		4.0	1.0	ug/L			12/28/22 02:48	1
Bromomethane	ND		1.0	0.30	ug/L			12/28/22 02:48	1
Carbon disulfide	ND		5.0	0.30	ug/L			12/28/22 02:48	1
Carbon tetrachloride	ND		1.0	0.30	ug/L			12/28/22 02:48	1
Chlorobenzene	ND		1.0	0.30	ug/L			12/28/22 02:48	1
Chloroethane	ND		1.0	0.20	ug/L			12/28/22 02:48	1
Chloroform	ND		1.0	0.30	ug/L			12/28/22 02:48	1
Chloromethane	ND		2.0	0.55	ug/L			12/28/22 02:48	1
cis-1,2-Dichloroethene	ND		1.0	0.30	ug/L			12/28/22 02:48	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/L			12/28/22 02:48	1
Cyclohexane	ND		5.0	1.0	ug/L			12/28/22 02:48	1
Dibromochloromethane	ND		1.0	0.20	ug/L			12/28/22 02:48	1
Dichlorodifluoromethane	ND		1.0	0.20	ug/L			12/28/22 02:48	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/28/22 02:48	1
Freon 113	ND		10	0.30	ug/L			12/28/22 02:48	1
Isopropylbenzene	ND		5.0	0.20	ug/L			12/28/22 02:48	1
m&p-Xylene	ND		5.0	2.0	ug/L			12/28/22 02:48	1
Methyl acetate	ND		5.0	0.30	ug/L			12/28/22 02:48	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			12/28/22 02:48	1
Methylcyclohexane	ND		5.0	0.50	ug/L			12/28/22 02:48	1
Methylene Chloride	ND		1.0	0.30	ug/L			12/28/22 02:48	1
o-Xylene	ND		1.0	0.40	ug/L			12/28/22 02:48	1
Styrene	ND		5.0	0.30	ug/L			12/28/22 02:48	1
Tetrachloroethene	ND		1.0	0.30	ug/L			12/28/22 02:48	1
Toluene	ND		1.0	0.20	ug/L			12/28/22 02:48	1
trans-1,2-Dichloroethene	ND		2.0	0.70	ug/L			12/28/22 02:48	1
trans-1,3-Dichloropropene	ND		1.0	0.20	ug/L			12/28/22 02:48	1
Trichloroethene	ND		1.0	0.30	ug/L			12/28/22 02:48	1

Client: Hall Environmental Analysis Laboratory
Project/Site: 2212993

Job ID: 410-109453-1

Client Sample ID: 2212993-003A / Equip Blank

Lab Sample ID: 410-109453-3

Date Collected: 12/14/22 16:10

Matrix: Water

Date Received: 12/16/22 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	ND	cn	1.0	0.20	ug/L			12/28/22 02:48	1
Vinyl chloride	ND		1.0	0.20	ug/L			12/28/22 02:48	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/28/22 02:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 120*		*12/28/22 02:48*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*12/28/22 02:48*	*1*
Dibromofluoromethane (Surr)	*96*		*80 - 120*		*12/28/22 02:48*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*12/28/22 02:48*	*1*

Client: Hall Environmental Analysis Laboratory
Project/Site: 2212993

Job ID: 410-109453-1

Client Sample ID: 2212993-004A / Trip Blank

Lab Sample ID: 410-109453-4

Date Collected: 12/14/22 08:00

Matrix: Water

Date Received: 12/16/22 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.30	ug/L			12/28/22 03:10	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.30	ug/L			12/28/22 03:10	1
1,1,2-Trichloroethane	ND		1.0	0.30	ug/L			12/28/22 03:10	1
1,1-Dichloroethane	ND		1.0	0.30	ug/L			12/28/22 03:10	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/28/22 03:10	1
1,2,3-Trichlorobenzene	ND		5.0	0.40	ug/L			12/28/22 03:10	1
1,2,4-Trichlorobenzene	ND		5.0	0.30	ug/L			12/28/22 03:10	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.30	ug/L			12/28/22 03:10	1
1,2-Dibromoethane	ND		1.0	0.20	ug/L			12/28/22 03:10	1
1,2-Dichlorobenzene	ND		5.0	0.20	ug/L			12/28/22 03:10	1
1,2-Dichloroethane	ND		1.0	0.30	ug/L			12/28/22 03:10	1
1,2-Dichloropropane	ND		1.0	0.30	ug/L			12/28/22 03:10	1
1,3-Dichlorobenzene	ND		5.0	0.68	ug/L			12/28/22 03:10	1
1,4-Dichlorobenzene	ND		5.0	0.30	ug/L			12/28/22 03:10	1
2-Butanone	ND		10	0.50	ug/L			12/28/22 03:10	1
2-Hexanone	ND		10	0.85	ug/L			12/28/22 03:10	1
4-Methyl-2-pentanone	ND		10	0.50	ug/L			12/28/22 03:10	1
Acetone	ND		20	0.70	ug/L			12/28/22 03:10	1
Benzene	ND		1.0	0.30	ug/L			12/28/22 03:10	1
Bromochloromethane	ND		5.0	0.20	ug/L			12/28/22 03:10	1
Bromodichloromethane	ND		1.0	0.20	ug/L			12/28/22 03:10	1
Bromoform	ND		4.0	1.0	ug/L			12/28/22 03:10	1
Bromomethane	ND		1.0	0.30	ug/L			12/28/22 03:10	1
Carbon disulfide	ND		5.0	0.30	ug/L			12/28/22 03:10	1
Carbon tetrachloride	ND		1.0	0.30	ug/L			12/28/22 03:10	1
Chlorobenzene	ND		1.0	0.30	ug/L			12/28/22 03:10	1
Chloroethane	ND		1.0	0.20	ug/L			12/28/22 03:10	1
Chloroform	ND		1.0	0.30	ug/L			12/28/22 03:10	1
Chloromethane	ND		2.0	0.55	ug/L			12/28/22 03:10	1
cis-1,2-Dichloroethene	ND		1.0	0.30	ug/L			12/28/22 03:10	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/L			12/28/22 03:10	1
Cyclohexane	ND		5.0	1.0	ug/L			12/28/22 03:10	1
Dibromochloromethane	ND		1.0	0.20	ug/L			12/28/22 03:10	1
Dichlorodifluoromethane	ND		1.0	0.20	ug/L			12/28/22 03:10	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/28/22 03:10	1
Freon 113	ND		10	0.30	ug/L			12/28/22 03:10	1
Isopropylbenzene	ND		5.0	0.20	ug/L			12/28/22 03:10	1
m&p-Xylene	ND		5.0	2.0	ug/L			12/28/22 03:10	1
Methyl acetate	ND		5.0	0.30	ug/L			12/28/22 03:10	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			12/28/22 03:10	1
Methylcyclohexane	ND		5.0	0.50	ug/L			12/28/22 03:10	1
Methylene Chloride	ND		1.0	0.30	ug/L			12/28/22 03:10	1
o-Xylene	ND		1.0	0.40	ug/L			12/28/22 03:10	1
Styrene	ND		5.0	0.30	ug/L			12/28/22 03:10	1
Tetrachloroethene	ND		1.0	0.30	ug/L			12/28/22 03:10	1
Toluene	ND		1.0	0.20	ug/L			12/28/22 03:10	1
trans-1,2-Dichloroethene	ND		2.0	0.70	ug/L			12/28/22 03:10	1
trans-1,3-Dichloropropene	ND		1.0	0.20	ug/L			12/28/22 03:10	1
Trichloroethene	ND		1.0	0.30	ug/L			12/28/22 03:10	1

Client: Hall Environmental Analysis Laboratory
Project/Site: 2212993

Job ID: 410-109453-1

Client Sample ID: 2212993-004A / Trip Blank

Lab Sample ID: 410-109453-4

Date Collected: 12/14/22 08:00

Matrix: Water

Date Received: 12/16/22 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	ND	cn	1.0	0.20	ug/L			12/28/22 03:10	1
Vinyl chloride	ND		1.0	0.20	ug/L			12/28/22 03:10	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/28/22 03:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 120*		*12/28/22 03:10*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*		*12/28/22 03:10*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 120*		*12/28/22 03:10*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*		*12/28/22 03:10*	*1*

Surrogate Summary

Client: Hall Environmental Analysis Laboratory
Project/Site: 2212993

Job ID: 410-109453-1

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

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(80-120)	(80-120)	(80-120)	(80-120)
410-109453-1	2212993-001A-F / WUABFF MW	104	97	97	100
410-109453-2	2212993-002A / Field Blank	104	98	98	100
410-109453-3	2212993-003A / Equip Blank	104	102	96	103
410-109453-4	2212993-004A / Trip Blank	105	96	97	94
LCS 410-330580/4	Lab Control Sample	99	103	96	102
MB 410-330580/6	Method Blank	102	97	94	102

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		FBP	2FP	NBZ	TPHd14	TBP	PHL
Lab Sample ID	Client Sample ID	(44-120)	(10-120)	(25-125)	(37-120)	(10-150)	(10-120)
410-109453-1	2212993-001A-F / WUABFF MW	73	44	83	74	89	30
LCS 410-329310/2-A	Lab Control Sample	74	59	83	98	100	43
MB 410-329310/1-A	Method Blank	70	50	81	100	95	36

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
TPHd14 = p-Terphenyl-d14 (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
PHL = Phenol-d5 (Surr)

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		1122TCA1	1122TCA2
Lab Sample ID	Client Sample ID	(46-136)	(46-136)
410-109453-1	2212993-001A-F / WUABFF MW	76	74
LCS 410-328763/2-A	Lab Control Sample	86	86
LCSD 410-328763/3-A	Lab Control Sample Dup	84	81
MB 410-328763/1-A	Method Blank	85	86

Surrogate Legend

1122TCA = 1,1,2,2-Tetrachloroethane (Surr)

Client: Hall Environmental Analysis Laboratory
Project/Site: 2212993

Job ID: 410-109453-1

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

Lab Sample ID: MB 410-330580/6
Matrix: Water
Analysis Batch: 330580

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.30	ug/L			12/27/22 22:50	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.30	ug/L			12/27/22 22:50	1
1,1,2-Trichloroethane	ND		1.0	0.30	ug/L			12/27/22 22:50	1
1,1-Dichloroethane	ND		1.0	0.30	ug/L			12/27/22 22:50	1
1,1-Dichloroethene	ND		1.0	0.30	ug/L			12/27/22 22:50	1
1,2,3-Trichlorobenzene	ND		5.0	0.40	ug/L			12/27/22 22:50	1
1,2,4-Trichlorobenzene	ND		5.0	0.30	ug/L			12/27/22 22:50	1
1,2-Dibromo-3-Chloropropane	ND		5.0	0.30	ug/L			12/27/22 22:50	1
1,2-Dibromoethane	ND		1.0	0.20	ug/L			12/27/22 22:50	1
1,2-Dichlorobenzene	ND		5.0	0.20	ug/L			12/27/22 22:50	1
1,2-Dichloroethane	ND		1.0	0.30	ug/L			12/27/22 22:50	1
1,2-Dichloropropane	ND		1.0	0.30	ug/L			12/27/22 22:50	1
1,3-Dichlorobenzene	ND		5.0	0.68	ug/L			12/27/22 22:50	1
1,4-Dichlorobenzene	ND		5.0	0.30	ug/L			12/27/22 22:50	1
2-Butanone	ND		10	0.50	ug/L			12/27/22 22:50	1
2-Hexanone	ND		10	0.85	ug/L			12/27/22 22:50	1
4-Methyl-2-pentanone	ND		10	0.50	ug/L			12/27/22 22:50	1
Acetone	ND		20	0.70	ug/L			12/27/22 22:50	1
Benzene	ND		1.0	0.30	ug/L			12/27/22 22:50	1
Bromochloromethane	ND		5.0	0.20	ug/L			12/27/22 22:50	1
Bromodichloromethane	ND		1.0	0.20	ug/L			12/27/22 22:50	1
Bromoform	ND		4.0	1.0	ug/L			12/27/22 22:50	1
Bromomethane	ND		1.0	0.30	ug/L			12/27/22 22:50	1
Carbon disulfide	ND		5.0	0.30	ug/L			12/27/22 22:50	1
Carbon tetrachloride	ND		1.0	0.30	ug/L			12/27/22 22:50	1
Chlorobenzene	ND		1.0	0.30	ug/L			12/27/22 22:50	1
Chloroethane	ND		1.0	0.20	ug/L			12/27/22 22:50	1
Chloroform	ND		1.0	0.30	ug/L			12/27/22 22:50	1
Chloromethane	ND		2.0	0.55	ug/L			12/27/22 22:50	1
cis-1,2-Dichloroethene	ND		1.0	0.30	ug/L			12/27/22 22:50	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/L			12/27/22 22:50	1
Cyclohexane	ND		5.0	1.0	ug/L			12/27/22 22:50	1
Dibromochloromethane	ND		1.0	0.20	ug/L			12/27/22 22:50	1
Dichlorodifluoromethane	ND		1.0	0.20	ug/L			12/27/22 22:50	1
Ethylbenzene	ND		1.0	0.40	ug/L			12/27/22 22:50	1
Freon 113	ND		10	0.30	ug/L			12/27/22 22:50	1
Isopropylbenzene	ND		5.0	0.20	ug/L			12/27/22 22:50	1
m&p-Xylene	ND		5.0	2.0	ug/L			12/27/22 22:50	1
Methyl acetate	ND		5.0	0.30	ug/L			12/27/22 22:50	1
Methyl tertiary butyl ether	ND		1.0	0.20	ug/L			12/27/22 22:50	1
Methylcyclohexane	ND		5.0	0.50	ug/L			12/27/22 22:50	1
Methylene Chloride	ND		1.0	0.30	ug/L			12/27/22 22:50	1
o-Xylene	ND		1.0	0.40	ug/L			12/27/22 22:50	1
Styrene	ND		5.0	0.30	ug/L			12/27/22 22:50	1
Tetrachloroethene	ND		1.0	0.30	ug/L			12/27/22 22:50	1
Toluene	ND		1.0	0.20	ug/L			12/27/22 22:50	1
trans-1,2-Dichloroethene	ND		2.0	0.70	ug/L			12/27/22 22:50	1
trans-1,3-Dichloropropene	ND		1.0	0.20	ug/L			12/27/22 22:50	1

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

Lab Sample ID: MB 410-330580/6
Matrix: Water
Analysis Batch: 330580

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	ND		1.0	0.30	ug/L			12/27/22 22:50	1
Trichlorofluoromethane	ND		1.0	0.20	ug/L			12/27/22 22:50	1
Vinyl chloride	ND		1.0	0.20	ug/L			12/27/22 22:50	1
Xylenes, Total	ND		1.0	0.40	ug/L			12/27/22 22:50	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 120*		*12/27/22 22:50*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*12/27/22 22:50*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 120*		*12/27/22 22:50*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*12/27/22 22:50*	*1*

Lab Sample ID: LCS 410-330580/4
Matrix: Water
Analysis Batch: 330580

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1-Trichloroethane	20.0	17.5		ug/L		87	67 - 126
1,1,2,2-Tetrachloroethane	20.0	19.2		ug/L		96	72 - 120
1,1,2-Trichloroethane	20.0	18.0		ug/L		90	80 - 120
1,1-Dichloroethane	20.0	19.1		ug/L		96	80 - 120
1,1-Dichloroethene	20.0	19.3		ug/L		97	80 - 131
1,2,3-Trichlorobenzene	20.0	22.5		ug/L		113	66 - 120
1,2,4-Trichlorobenzene	20.0	20.4		ug/L		102	63 - 120
1,2-Dibromo-3-Chloropropane	20.0	16.7		ug/L		83	47 - 131
1,2-Dibromoethane	20.0	19.7		ug/L		98	77 - 120
1,2-Dichlorobenzene	20.0	19.3		ug/L		96	80 - 120
1,2-Dichloroethane	20.0	17.6		ug/L		88	73 - 124
1,2-Dichloropropane	20.0	18.8		ug/L		94	80 - 120
1,3-Dichlorobenzene	20.0	19.1		ug/L		96	80 - 120
1,4-Dichlorobenzene	20.0	18.5		ug/L		93	80 - 120
2-Butanone	250	272		ug/L		109	59 - 135
2-Hexanone	250	260		ug/L		104	56 - 135
4-Methyl-2-pentanone	250	231		ug/L		92	62 - 133
Acetone	250	259		ug/L		104	54 - 157
Benzene	20.0	20.3		ug/L		101	80 - 120
Bromochloromethane	20.0	17.6		ug/L		88	80 - 120
Bromodichloromethane	20.0	18.5		ug/L		92	71 - 120
Bromoform	20.0	17.2		ug/L		86	51 - 120
Bromomethane	20.0	13.3		ug/L		67	53 - 128
Carbon disulfide	20.0	21.9		ug/L		109	65 - 128
Carbon tetrachloride	20.0	16.8		ug/L		84	64 - 134
Chlorobenzene	20.0	19.1		ug/L		96	80 - 120
Chloroethane	20.0	15.0		ug/L		75	55 - 123
Chloroform	20.0	18.8		ug/L		94	80 - 120
Chloromethane	20.0	15.6		ug/L		78	56 - 121
cis-1,2-Dichloroethene	20.0	20.0		ug/L		100	80 - 125
cis-1,3-Dichloropropene	20.0	17.3		ug/L		86	75 - 120
Cyclohexane	20.0	21.7		ug/L		108	68 - 126

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

Lab Sample ID: LCS 410-330580/4
Matrix: Water
Analysis Batch: 330580

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Dibromochloromethane	20.0	18.0		ug/L		90	71 - 120
Dichlorodifluoromethane	20.0	17.0		ug/L		85	41 - 127
Ethylbenzene	20.0	19.9		ug/L		100	80 - 120
Freon 113	20.0	20.8		ug/L		104	73 - 139
Isopropylbenzene	20.0	19.7		ug/L		98	80 - 120
m&p-Xylene	40.0	39.1		ug/L		98	80 - 120
Methyl acetate	20.0	23.1		ug/L		116	54 - 136
Methyl tertiary butyl ether	20.0	19.1		ug/L		96	69 - 122
Methylcyclohexane	20.0	20.5		ug/L		102	67 - 121
Methylene Chloride	20.0	19.3		ug/L		96	80 - 120
o-Xylene	20.0	19.2		ug/L		96	80 - 120
Styrene	20.0	19.8		ug/L		99	80 - 120
Tetrachloroethene	20.0	17.6		ug/L		88	80 - 120
Toluene	20.0	19.9		ug/L		100	80 - 120
trans-1,2-Dichloroethene	20.0	19.1		ug/L		96	80 - 126
trans-1,3-Dichloropropene	20.0	19.6		ug/L		98	67 - 120
Trichloroethene	20.0	18.5		ug/L		92	80 - 120
Trichlorofluoromethane	20.0	13.5		ug/L		67	55 - 135
Vinyl chloride	20.0	14.8		ug/L		74	56 - 120
Xylenes, Total	60.0	58.3		ug/L		97	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*
Dibromofluoromethane (Surr)	*96*		*80 - 120*
Toluene-d8 (Surr)	*102*		*80 - 120*

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 410-329310/1-A
Matrix: Water
Analysis Batch: 329552

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 329310

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 18:10	1
2,2'-oxybis[1-chloropropane]	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 18:10	1
2,4,5-Trichlorophenol	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 18:10	1
2,4,6-Trichlorophenol	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 18:10	1
2,4-Dichlorophenol	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 18:10	1
2,4-Dimethylphenol	ND		10	3.0	ug/L		12/21/22 08:01	12/21/22 18:10	1
2,4-Dinitrophenol	ND		30	14	ug/L		12/21/22 08:01	12/21/22 18:10	1
2,4-Dinitrotoluene	ND		5.0	1.0	ug/L		12/21/22 08:01	12/21/22 18:10	1
2,6-Dinitrotoluene	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 18:10	1
2-Chloronaphthalene	ND		1.0	0.40	ug/L		12/21/22 08:01	12/21/22 18:10	1
2-Chlorophenol	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 18:10	1
2-Methylnaphthalene	ND		0.50	0.10	ug/L		12/21/22 08:01	12/21/22 18:10	1
2-Methylphenol	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 18:10	1
2-Nitroaniline	ND		5.0	1.0	ug/L		12/21/22 08:01	12/21/22 18:10	1
2-Nitrophenol	ND		5.0	1.0	ug/L		12/21/22 08:01	12/21/22 18:10	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 410-329310/1-A
Matrix: Water
Analysis Batch: 329552

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 329310

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3,3'-Dichlorobenzidine	ND		10	4.0	ug/L		12/21/22 08:01	12/21/22 18:10	1
3-Nitroaniline	ND		5.0	2.0	ug/L		12/21/22 08:01	12/21/22 18:10	1
4,6-Dinitro-2-methylphenol	ND		21	8.0	ug/L		12/21/22 08:01	12/21/22 18:10	1
4-Bromophenyl phenyl ether	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 18:10	1
4-Chloro-3-methylphenol	ND		5.0	1.0	ug/L		12/21/22 08:01	12/21/22 18:10	1
4-Chloroaniline	ND		10	4.0	ug/L		12/21/22 08:01	12/21/22 18:10	1
4-Chlorophenyl phenyl ether	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 18:10	1
4-Methylphenol	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 18:10	1
4-Nitroaniline	ND		3.0	0.90	ug/L		12/21/22 08:01	12/21/22 18:10	1
4-Nitrophenol	ND		30	10	ug/L		12/21/22 08:01	12/21/22 18:10	1
Acenaphthene	ND		0.50	0.10	ug/L		12/21/22 08:01	12/21/22 18:10	1
Acenaphthylene	ND		0.50	0.10	ug/L		12/21/22 08:01	12/21/22 18:10	1
Acetophenone	ND		5.0	1.0	ug/L		12/21/22 08:01	12/21/22 18:10	1
Anthracene	ND		0.50	0.10	ug/L		12/21/22 08:01	12/21/22 18:10	1
Atrazine	ND		5.0	1.0	ug/L		12/21/22 08:01	12/21/22 18:10	1
Benzaldehyde	ND		5.0	1.0	ug/L		12/21/22 08:01	12/21/22 18:10	1
Benzo[a]anthracene	ND		0.50	0.10	ug/L		12/21/22 08:01	12/21/22 18:10	1
Benzo[a]pyrene	ND		0.50	0.11	ug/L		12/21/22 08:01	12/21/22 18:10	1
Benzo[b]fluoranthene	ND		0.50	0.10	ug/L		12/21/22 08:01	12/21/22 18:10	1
Benzo[g,h,i]perylene	ND		0.50	0.10	ug/L		12/21/22 08:01	12/21/22 18:10	1
Benzo[k]fluoranthene	ND		0.50	0.10	ug/L		12/21/22 08:01	12/21/22 18:10	1
Bis(2-chloroethoxy)methane	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 18:10	1
Bis(2-chloroethyl)ether	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 18:10	1
Bis(2-ethylhexyl) phthalate	ND		5.0	2.0	ug/L		12/21/22 08:01	12/21/22 18:10	1
Butyl benzyl phthalate	ND		5.0	2.0	ug/L		12/21/22 08:01	12/21/22 18:10	1
Caprolactam	ND		7.0	3.0	ug/L		12/21/22 08:01	12/21/22 18:10	1
Carbazole	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 18:10	1
Chrysene	ND		0.50	0.10	ug/L		12/21/22 08:01	12/21/22 18:10	1
Di-n-butyl phthalate	ND		5.0	2.0	ug/L		12/21/22 08:01	12/21/22 18:10	1
Di-n-octyl phthalate	ND		11	5.0	ug/L		12/21/22 08:01	12/21/22 18:10	1
Dibenz(a,h)anthracene	ND		0.50	0.10	ug/L		12/21/22 08:01	12/21/22 18:10	1
Dibenzofuran	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 18:10	1
Diethyl phthalate	ND		5.0	2.0	ug/L		12/21/22 08:01	12/21/22 18:10	1
Dimethyl phthalate	ND		5.0	2.0	ug/L		12/21/22 08:01	12/21/22 18:10	1
Fluoranthene	ND		0.50	0.10	ug/L		12/21/22 08:01	12/21/22 18:10	1
Fluorene	ND		0.50	0.12	ug/L		12/21/22 08:01	12/21/22 18:10	1
Hexachlorobenzene	ND		0.50	0.11	ug/L		12/21/22 08:01	12/21/22 18:10	1
Hexachlorobutadiene	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 18:10	1
Hexachlorocyclopentadiene	ND		11	5.0	ug/L		12/21/22 08:01	12/21/22 18:10	1
Hexachloroethane	ND		5.0	0.50	ug/L		12/21/22 08:01	12/21/22 18:10	1
Indeno[1,2,3-cd]pyrene	ND		0.50	0.11	ug/L		12/21/22 08:01	12/21/22 18:10	1
Isophorone	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 18:10	1
N-Nitrosodi-n-propylamine	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 18:10	1
N-Nitrosodiphenylamine	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 18:10	1
Naphthalene	ND		0.50	0.10	ug/L		12/21/22 08:01	12/21/22 18:10	1
Nitrobenzene	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 18:10	1
Pentachlorophenol	ND		5.0	1.0	ug/L		12/21/22 08:01	12/21/22 18:10	1
Phenanthrene	ND		0.50	0.11	ug/L		12/21/22 08:01	12/21/22 18:10	1
Phenol	ND		2.0	0.50	ug/L		12/21/22 08:01	12/21/22 18:10	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 410-329310/1-A
Matrix: Water
Analysis Batch: 329552

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 329310

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pyrene	ND		0.50	0.10	ug/L		12/21/22 08:01	12/21/22 18:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*70*		*44 - 120*	*12/21/22 08:01*	*12/21/22 18:10*	*1*
2-Fluorophenol (Surr)	*50*		*10 - 120*	*12/21/22 08:01*	*12/21/22 18:10*	*1*
Nitrobenzene-d5 (Surr)	*81*		*25 - 125*	*12/21/22 08:01*	*12/21/22 18:10*	*1*
p-Terphenyl-d14 (Surr)	*100*		*37 - 120*	*12/21/22 08:01*	*12/21/22 18:10*	*1*
2,4,6-Tribromophenol (Surr)	*95*		*10 - 150*	*12/21/22 08:01*	*12/21/22 18:10*	*1*
Phenol-d5 (Surr)	*36*		*10 - 120*	*12/21/22 08:01*	*12/21/22 18:10*	*1*

Lab Sample ID: LCS 410-329310/2-A
Matrix: Water
Analysis Batch: 329552

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 329310

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1'-Biphenyl	50.0	41.1		ug/L		82	60 - 120
2,2'-oxybis[1-chloropropane]	50.0	40.7		ug/L		81	43 - 121
2,4,5-Trichlorophenol	50.0	49.3		ug/L		99	70 - 124
2,4,6-Trichlorophenol	50.0	50.0		ug/L		100	63 - 120
2,4-Dichlorophenol	50.0	49.7		ug/L		99	65 - 121
2,4-Dimethylphenol	50.0	44.6		ug/L		89	62 - 120
2,4-Dinitrophenol	100	131		ug/L		131	43 - 146
2,4-Dinitrotoluene	50.0	52.3		ug/L		105	71 - 124
2,6-Dinitrotoluene	50.0	49.9		ug/L		100	74 - 127
2-Chloronaphthalene	50.0	42.7		ug/L		85	56 - 120
2-Chlorophenol	50.0	44.4		ug/L		89	57 - 120
2-Methylnaphthalene	50.0	43.6		ug/L		87	53 - 120
2-Methylphenol	50.0	42.9		ug/L		86	58 - 120
2-Nitroaniline	50.0	51.0		ug/L		102	71 - 128
2-Nitrophenol	50.0	53.6		ug/L		107	68 - 122
3,3'-Dichlorobenzidine	100	64.5		ug/L		65	48 - 120
3-Nitroaniline	50.0	42.1		ug/L		84	56 - 120
4,6-Dinitro-2-methylphenol	100	159	*+	ug/L		159	66 - 138
4-Bromophenyl phenyl ether	50.0	46.3		ug/L		93	66 - 120
4-Chloro-3-methylphenol	50.0	47.3		ug/L		95	63 - 128
4-Chloroaniline	50.0	32.2		ug/L		64	49 - 120
4-Chlorophenyl phenyl ether	50.0	45.4		ug/L		91	59 - 120
4-Methylphenol	50.0	42.6		ug/L		85	49 - 120
4-Nitroaniline	50.0	45.1		ug/L		90	63 - 121
4-Nitrophenol	100	68.9		ug/L		69	24 - 120
Acenaphthene	50.0	43.8		ug/L		88	59 - 120
Acenaphthylene	50.0	44.4		ug/L		89	67 - 120
Acetophenone	50.0	45.0		ug/L		90	66 - 120
Anthracene	50.0	46.4		ug/L		93	67 - 123
Atrazine	50.0	42.0		ug/L		84	59 - 142
Benzaldehyde	50.0	32.1		ug/L		64	42 - 129
Benzo[a]anthracene	50.0	48.0		ug/L		96	72 - 129
Benzo[a]pyrene	50.0	48.5		ug/L		97	62 - 136

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 410-329310/2-A
Matrix: Water
Analysis Batch: 329552

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 329310

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[b]fluoranthene	50.0	49.9		ug/L		100	64 - 124
Benzo[g,h,i]perylene	50.0	50.1		ug/L		100	54 - 137
Benzo[k]fluoranthene	50.0	54.3		ug/L		109	67 - 132
Bis(2-chloroethoxy)methane	50.0	45.3		ug/L		91	67 - 120
Bis(2-chloroethyl)ether	50.0	43.4		ug/L		87	62 - 120
Bis(2-ethylhexyl) phthalate	50.0	53.5		ug/L		107	66 - 130
Butyl benzyl phthalate	50.0	25.7		ug/L		51	25 - 132
Caprolactam	50.0	10.1		ug/L		20	12 - 120
Carbazole	50.0	46.0		ug/L		92	74 - 120
Chrysene	50.0	48.0		ug/L		96	70 - 128
Di-n-butyl phthalate	50.0	40.4		ug/L		81	61 - 124
Di-n-octyl phthalate	50.0	64.9	E	ug/L		130	63 - 135
Dibenz(a,h)anthracene	50.0	48.3		ug/L		97	51 - 136
Dibenzofuran	50.0	44.7		ug/L		89	63 - 120
Diethyl phthalate	50.0	30.5		ug/L		61	44 - 131
Dimethyl phthalate	50.0	12.2		ug/L		24	10 - 135
Fluoranthene	50.0	45.4		ug/L		91	70 - 128
Fluorene	50.0	45.2		ug/L		90	66 - 120
Hexachlorobenzene	50.0	50.6		ug/L		101	65 - 120
Hexachlorobutadiene	50.0	33.9		ug/L		68	24 - 120
Hexachlorocyclopentadiene	50.0	19.6		ug/L		39	10 - 120
Hexachloroethane	50.0	34.4		ug/L		69	27 - 120
Indeno[1,2,3-cd]pyrene	50.0	48.7		ug/L		97	50 - 130
Isophorone	50.0	43.8		ug/L		88	70 - 120
N-Nitrosodi-n-propylamine	50.0	43.2		ug/L		86	63 - 120
N-Nitrosodiphenylamine	42.5	37.6		ug/L		88	72 - 120
Naphthalene	50.0	41.3		ug/L		83	55 - 120
Nitrobenzene	50.0	47.0		ug/L		94	59 - 120
Pentachlorophenol	100	109		ug/L		109	56 - 135
Phenanthrene	50.0	47.1		ug/L		94	66 - 120
Phenol	50.0	25.1		ug/L		50	22 - 120
Pyrene	50.0	47.1		ug/L		94	73 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*74*		*44 - 120*
2-Fluorophenol (Surr)	*59*		*10 - 120*
Nitrobenzene-d5 (Surr)	*83*		*25 - 125*
p-Terphenyl-d14 (Surr)	*98*		*37 - 120*
2,4,6-Tribromophenol (Surr)	*100*		*10 - 150*
Phenol-d5 (Surr)	*43*		*10 - 120*

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Lab Sample ID: MB 410-328763/1-A
Matrix: Water
Analysis Batch: 328781

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 328763

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene Dibromide (1C)	ND		0.030	0.010	ug/L		12/19/22 23:42	12/20/22 13:11	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC) (Continued)

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane (Surr) (1C)	85		46 - 136	12/19/22 23:42	12/20/22 13:11	1
1,1,2,2-Tetrachloroethane (Surr) (2C)	86		46 - 136	12/19/22 23:42	12/20/22 13:11	1

Lab Sample ID: LCS 410-328763/2-A
Matrix: Water
Analysis Batch: 328781

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 328763

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Ethylene Dibromide (1C)			0.128	0.107		ug/L		83	60 - 140		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,1,2,2-Tetrachloroethane (Surr) (1C)	86		46 - 136
1,1,2,2-Tetrachloroethane (Surr) (2C)	86		46 - 136

Lab Sample ID: LCSD 410-328763/3-A
Matrix: Water
Analysis Batch: 328781

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 328763

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ethylene Dibromide (1C)			0.128	0.104		ug/L		81	60 - 140	3	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,1,2,2-Tetrachloroethane (Surr) (1C)	84		46 - 136
1,1,2,2-Tetrachloroethane (Surr) (2C)	81		46 - 136

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 410-329905/5
Matrix: Water
Analysis Batch: 329905

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.75	0.25	mg/L			12/22/22 13:30	1
Sulfate	ND		1.5	0.50	mg/L			12/22/22 13:30	1
Chloride	ND		1.5	0.60	mg/L			12/22/22 13:30	1

Lab Sample ID: LCS 410-329905/3
Matrix: Water
Analysis Batch: 329905

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Bromide			7.50	7.37		mg/L		98	90 - 110		
Sulfate			7.50	7.27		mg/L		97	90 - 110		
Chloride			3.00	2.94		mg/L		98	90 - 110		

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 410-329905/4
Matrix: Water
Analysis Batch: 329905

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Bromide	7.50	7.35		mg/L		98	90 - 110	0	20
Sulfate	7.50	7.13		mg/L		95	90 - 110	2	20
Chloride	3.00	2.95		mg/L		98	90 - 110	0	20

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 410-329814/1-A
Matrix: Water
Analysis Batch: 330460

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 329814

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		52	21	ug/L		12/22/22 10:07	12/27/22 11:37	1
Manganese	ND		2.1	0.98	ug/L		12/22/22 10:07	12/27/22 11:37	1

Lab Sample ID: LCS 410-329814/2-A
Matrix: Water
Analysis Batch: 330460

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 329814

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	5000	5010		ug/L		100	88 - 119
Manganese	500	504		ug/L		101	89 - 120

Lab Sample ID: MB 410-328380/1-A
Matrix: Water
Analysis Batch: 329042

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 328380

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.0	0.68	ug/L		12/19/22 07:02	12/20/22 11:37	1
Calcium	ND		100	50	ug/L		12/19/22 07:02	12/20/22 11:37	1
Lead	ND		0.50	0.071	ug/L		12/19/22 07:02	12/20/22 11:37	1
Magnesium	ND		50	16	ug/L		12/19/22 07:02	12/20/22 11:37	1
Potassium	ND		200	65	ug/L		12/19/22 07:02	12/20/22 11:37	1
Sodium	ND		200	90	ug/L		12/19/22 07:02	12/20/22 11:37	1

Lab Sample ID: LCS 410-328380/2-A
Matrix: Water
Analysis Batch: 329042

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 328380

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	500	491		ug/L		98	85 - 120
Calcium	5000	4950		ug/L		99	85 - 120
Lead	50.0	52.9		ug/L		106	90 - 115
Magnesium	5000	5140		ug/L		103	90 - 112
Potassium	5000	5020		ug/L		100	90 - 112
Sodium	5000	5110		ug/L		102	89 - 112

Method: 2320B-2011 - Alkalinity, Total

Lab Sample ID: MB 410-329011/31
Matrix: Water
Analysis Batch: 329011

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	ND		8.0	2.6	mg/L			12/19/22 23:03	1

Lab Sample ID: MB 410-329011/4
Matrix: Water
Analysis Batch: 329011

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	ND		8.0	2.6	mg/L			12/19/22 20:33	1

Lab Sample ID: LCS 410-329011/32
Matrix: Water
Analysis Batch: 329011

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Alkalinity as CaCO3 to pH 4.5	189	184		mg/L		97	82 - 106

Lab Sample ID: LCS 410-329011/7
Matrix: Water
Analysis Batch: 329011

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Alkalinity as CaCO3 to pH 4.5	189	183		mg/L		97	82 - 106

Lab Sample ID: LCSD 410-329011/33
Matrix: Water
Analysis Batch: 329011

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Alkalinity as CaCO3 to pH 4.5	189	183		mg/L		97	82 - 106	0	10

Lab Sample ID: LCSD 410-329011/8
Matrix: Water
Analysis Batch: 329011

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Alkalinity as CaCO3 to pH 4.5	189	183		mg/L		97	82 - 106	0	10

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 410-328480/22
Matrix: Water
Analysis Batch: 328480

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.10	0.040	mg/L			12/19/22 07:21	1

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: MB 410-328480/62
Matrix: Water
Analysis Batch: 328480

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.10	0.040	mg/L			12/19/22 08:41	1

Lab Sample ID: LCS 410-328480/20
Matrix: Water
Analysis Batch: 328480

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate Nitrite as N			2.50	2.70		mg/L		108	90 - 110		

Lab Sample ID: LCS 410-328480/60
Matrix: Water
Analysis Batch: 328480

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate Nitrite as N			2.50	2.49		mg/L		99	90 - 110		

Lab Sample ID: LCSD 410-328480/21
Matrix: Water
Analysis Batch: 328480

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N			2.50	2.56		mg/L		102	90 - 110	5	20

Lab Sample ID: LCSD 410-328480/84
Matrix: Water
Analysis Batch: 328480

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N			2.50	2.72		mg/L		109	90 - 110	9	20

GC/MS VOA

Analysis Batch: 330580

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-109453-1	2212993-001A-F / WUABFF MW01	Total/NA	Water	8260D	
410-109453-2	2212993-002A / Field Blank	Total/NA	Water	8260D	
410-109453-3	2212993-003A / Equip Blank	Total/NA	Water	8260D	
410-109453-4	2212993-004A / Trip Blank	Total/NA	Water	8260D	
MB 410-330580/6	Method Blank	Total/NA	Water	8260D	
LCS 410-330580/4	Lab Control Sample	Total/NA	Water	8260D	

GC/MS Semi VOA

Prep Batch: 329310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-109453-1	2212993-001A-F / WUABFF MW01	Total/NA	Water	3510C	
MB 410-329310/1-A	Method Blank	Total/NA	Water	3510C	
LCS 410-329310/2-A	Lab Control Sample	Total/NA	Water	3510C	

Analysis Batch: 329552

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-109453-1	2212993-001A-F / WUABFF MW01	Total/NA	Water	8270E	329310
MB 410-329310/1-A	Method Blank	Total/NA	Water	8270E	329310
LCS 410-329310/2-A	Lab Control Sample	Total/NA	Water	8270E	329310

GC Semi VOA

Prep Batch: 328763

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-109453-1	2212993-001A-F / WUABFF MW01	Total/NA	Water	8011	
MB 410-328763/1-A	Method Blank	Total/NA	Water	8011	
LCS 410-328763/2-A	Lab Control Sample	Total/NA	Water	8011	
LCSD 410-328763/3-A	Lab Control Sample Dup	Total/NA	Water	8011	

Analysis Batch: 328781

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-109453-1	2212993-001A-F / WUABFF MW01	Total/NA	Water	8011	328763
MB 410-328763/1-A	Method Blank	Total/NA	Water	8011	328763
LCS 410-328763/2-A	Lab Control Sample	Total/NA	Water	8011	328763
LCSD 410-328763/3-A	Lab Control Sample Dup	Total/NA	Water	8011	328763

HPLC/IC

Analysis Batch: 329905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-109453-1	2212993-001A-F / WUABFF MW01	Total/NA	Water	EPA 300.0 R2.1	
410-109453-1	2212993-001A-F / WUABFF MW01	Total/NA	Water	EPA 300.0 R2.1	
MB 410-329905/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 410-329905/3	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCSD 410-329905/4	Lab Control Sample Dup	Total/NA	Water	EPA 300.0 R2.1	

Metals

Prep Batch: 328380

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-109453-1	2212993-001A-F / WUABFF MW01	Total Recoverable	Water	3005A	

Metals (Continued)

Prep Batch: 328380 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-328380/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 410-328380/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 329042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-109453-1	2212993-001A-F / WUABFF MW01	Total Recoverable	Water	6020B	328380
410-109453-1	2212993-001A-F / WUABFF MW01	Total Recoverable	Water	6020B	328380
MB 410-328380/1-A	Method Blank	Total Recoverable	Water	6020B	328380
LCS 410-328380/2-A	Lab Control Sample	Total Recoverable	Water	6020B	328380

Prep Batch: 329814

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-109453-1	2212993-001A-F / WUABFF MW01	Dissolved	Water	Non-Digest Prep	
MB 410-329814/1-A	Method Blank	Total/NA	Water	Non-Digest Prep	
LCS 410-329814/2-A	Lab Control Sample	Total/NA	Water	Non-Digest Prep	

Analysis Batch: 330460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-109453-1	2212993-001A-F / WUABFF MW01	Dissolved	Water	6020B	329814
MB 410-329814/1-A	Method Blank	Total/NA	Water	6020B	329814
LCS 410-329814/2-A	Lab Control Sample	Total/NA	Water	6020B	329814

General Chemistry

Analysis Batch: 328480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-109453-1	2212993-001A-F / WUABFF MW01	Total/NA	Water	353.2	
MB 410-328480/22	Method Blank	Total/NA	Water	353.2	
MB 410-328480/62	Method Blank	Total/NA	Water	353.2	
LCS 410-328480/20	Lab Control Sample	Total/NA	Water	353.2	
LCS 410-328480/60	Lab Control Sample	Total/NA	Water	353.2	
LCSD 410-328480/21	Lab Control Sample Dup	Total/NA	Water	353.2	
LCSD 410-328480/84	Lab Control Sample Dup	Total/NA	Water	353.2	

Analysis Batch: 329011

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-109453-1	2212993-001A-F / WUABFF MW01	Total/NA	Water	2320B-2011	
MB 410-329011/31	Method Blank	Total/NA	Water	2320B-2011	
MB 410-329011/4	Method Blank	Total/NA	Water	2320B-2011	
LCS 410-329011/32	Lab Control Sample	Total/NA	Water	2320B-2011	
LCS 410-329011/7	Lab Control Sample	Total/NA	Water	2320B-2011	
LCSD 410-329011/33	Lab Control Sample Dup	Total/NA	Water	2320B-2011	
LCSD 410-329011/8	Lab Control Sample Dup	Total/NA	Water	2320B-2011	

Lab Chronicle

Client: Hall Environmental Analysis Laboratory
Project/Site: 2212993

Job ID: 410-109453-1

Client Sample ID: 2212993-001A-F / WUABFF MW01

Lab Sample ID: 410-109453-1

Date Collected: 12/14/22 14:20
Matrix: Water
Date Received: 12/16/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	330580	DVW2	ELLE	12/28/22 06:27
Total/NA	Prep	3510C			329310	YDF5	ELLE	12/21/22 08:01
Total/NA	Analysis	8270E		1	329552	AH7C	ELLE	12/21/22 23:05
Total/NA	Prep	8011			328763	USL7	ELLE	12/19/22 23:42
Total/NA	Analysis	8011		1	328781	JC94	ELLE	12/20/22 19:19
Total/NA	Analysis	EPA 300.0 R2.1		1	329905	L4QM	ELLE	12/22/22 16:13
Total/NA	Analysis	EPA 300.0 R2.1		5	329905	L4QM	ELLE	12/22/22 16:22
Dissolved	Prep	Non-Digest Prep			329814	UAMX	ELLE	12/22/22 10:07
Dissolved	Analysis	6020B		1	330460	S4PD	ELLE	12/27/22 12:21
Total Recoverable	Prep	3005A			328380	HUH3	ELLE	12/19/22 07:02
Total Recoverable	Analysis	6020B		1	329042	F7JF	ELLE	12/20/22 12:01
Total Recoverable	Prep	3005A			328380	HUH3	ELLE	12/19/22 07:02
Total Recoverable	Analysis	6020B		1	329042	F7JF	ELLE	12/20/22 13:11
Total/NA	Analysis	2320B-2011		1	329011	DI9Q	ELLE	12/19/22 22:54
Total/NA	Analysis	353.2		1	328480	CBM8	ELLE	12/19/22 08:53

Client Sample ID: 2212993-002A / Field Blank

Lab Sample ID: 410-109453-2

Date Collected: 12/14/22 14:35
Matrix: Water
Date Received: 12/16/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	330580	DVW2	ELLE	12/28/22 02:26

Client Sample ID: 2212993-003A / Equip Blank

Lab Sample ID: 410-109453-3

Date Collected: 12/14/22 16:10
Matrix: Water
Date Received: 12/16/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	330580	DVW2	ELLE	12/28/22 02:48

Client Sample ID: 2212993-004A / Trip Blank

Lab Sample ID: 410-109453-4

Date Collected: 12/14/22 08:00
Matrix: Water
Date Received: 12/16/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8260D		1	330580	DVW2	ELLE	12/28/22 03:10

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Hall Environmental Analysis Laboratory
Job ID: 410-109453-1
Project/Site: 2212993

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
Pennsylvania	NELAP	36-00037	01-31-23

Method Summary

Client: Hall Environmental Analysis Laboratory
Project/Site: 2212993

Job ID: 410-109453-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	ELLE
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	ELLE
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	ELLE
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	ELLE
6020B	Metals (ICP/MS)	SW846	ELLE
2320B-2011	Alkalinity, Total	SM	ELLE
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	ELLE
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	ELLE
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ELLE
5030C	Purge and Trap	SW846	ELLE
8011	Microextraction	SW846	ELLE
Non-Digest Prep	Preparation, Non-Digested Aqueous Metals	EPA	ELLE

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

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

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

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Hall Environmental Analysis Laboratory
Project/Site: 2212993

Job ID: 410-109453-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-109453-1	2212993-001A-F / WUABFF MW01	Water	12/14/22 14:20	12/16/22 10:20
410-109453-2	2212993-002A / Field Blank	Water	12/14/22 14:35	12/16/22 10:20
410-109453-3	2212993-003A / Equip Blank	Water	12/14/22 16:10	12/16/22 10:20
410-109453-4	2212993-004A / Trip Blank	Water	12/14/22 08:00	12/16/22 10:20

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

410-109453 Chain of Custody

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: www.hallenvironmental.com

SUB CONTRATOR:	Eurofins-Lancaster	COMPANY:	Eurofins Lancaster Laboratorie	PHONE: (717) 656-2300	FAX:
ADDRESS:	2425 New Holland Pike			ACCOUNT #:	EMAIL:
CITY, STATE, ZIP:	Lancaster, PA 17601				

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2212993-001A	WVABFF MW01	VOAHCL	Groundwater	12/14/2022 2:20:00 PM	3	8260
2	2212993-001B	WVABFF MW01	VOANA2S2O3	Groundwater	12/14/2022 2:20:00 PM	3	504.1
3	2212993-001C	WVABFF MW01	1LAMGU	Groundwater	12/14/2022 2:20:00 PM	2	8270
4	2212993-001D	WVABFF MW01	500ML COMBO	Groundwater	12/14/2022 2:20:00 PM	2	300.0 / SM2320
5	2212993-001E	WVABFF MW01	250HDPEHNO3	Groundwater	12/14/2022 2:20:00 PM	1	Metals Total As, Pb, Mg, K, Na CMC 12/15/22
6	2212993-001F	WVABFF MW01	125HDPHNO3	Groundwater	12/14/2022 2:20:00 PM	1	Dissolved Metals Fe, Mn
7	2212993-002A	Field Blank	VOAHCL	Aqueous	12/14/2022 2:35:00 PM	3	8260
8	2212993-003A	Equip Blank	VOAHCL	Aqueous	12/14/2022 4:10:00 PM	3	
9	2212993-004A	Trip Blank	VOAHCL	Trip Blank	12/14/2022 8:00:00 AM	2	

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 12/15/2022	Time: 2:51 PM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date: 12/16/22	Time: 1020

TAT: Standard ☐ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples 1.9 °C Attempt to Cool ?

Comments

Login Sample Receipt Checklist

Client: Hall Environmental Analysis Laboratory

Job Number: 410-109453-1

Login Number: 109453
List Number: 1
Creator: McCaskey, Jonathan

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable (</=6C, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	True	

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Intera, Inc. Work Order Number: 2212993 RcptNo: 1

Received By: Sean Livingston 12/15/2022 10:15:00 AM S Livgston

Completed By: Isaiah Ortiz 12/15/2022 2:45:00 PM I-Ox

Reviewed By: 12.15.22

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Client		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☑	No ☐	NA ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: 13 KPC 12.15.22
(<2 or >12 unless noted)
Adjusted? NO
Checked by: KPC 12.15.22

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.9	Good	Not Present			

Chain-of-Custody Record

Client: INTERA Incorporated

Mailing Address: 2440 Louisiana Blvd Suite 700 ABQ, NM 87110

Phone #: 505-246-1600

email or Fax#: jtracy@intera.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance ☐ NELAC ☐ Other

☒ EDD (Type) .xlsx

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Data Gap Well

Project #: ABCWUA.0009.KAFB

Project Manager: Joe Tracy

Sampler: B. Archuleta/A. Hafner

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp (Including CF): ~~1.1+0=1.~~ 2.9+0=2.9 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2217993
12/14/22	1420	GW	WUABFFMW01	3 VOAs 2 VOA	HCl NaThiosulfate	001
				2 L Amber 250 mL Plas	none HNO_3	
				125 mL plus 2-500 mL	HNO_3 - filtered H_2SO_4, None	
12/14/22	1435	AQ	Field Blank	3 VOAs	HCl	002
12/14/22	1610	AQ	Equip Blank	3 VOAs	HCl	003
12/14/22	0800	AQ	Trip Blank	2 VOAs	HCl	004

Analysis Request

BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Alkalinity SM2320B	Anions E300 (Br, Cl, SO_4, NO_3, Nitrate, Nitrite, F)	Total Metals 6010 (As, Pb, Ca, Mg, K, Na)	Dissolved Metals 6010 Fe, Mn
			X				X	X		X	X	X	X
							X						
							X						
							X						

Date	Time	Relinquished by	Received by	Via	Date	Time
12/15/22	1015	Alex Hafner INTERA	Sec	ice	12/15/22	10:15
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks:
Send samples to: Eurofins Lancaster Lab. Env. LLC
2425 New Holland Pike
Lancaster, PA 17601

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

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CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

SUB CONTRATOR: **Eurofins-Lancaster**	COMPANY: **Eurofins Lancaster Laboratorie**	PHONE: **(717) 656-2300**	FAX:
ADDRESS: **2425 New Holland Pike**		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: **Lancaster, PA 17601**			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2212993-001A	WVABFF MW01	VOAHCL	Groundwater	12/14/2022 2:20:00 PM	3	8260
2	2212993-001B	WVABFF MW01	VOANA2S2O3	Groundwater	12/14/2022 2:20:00 PM	3	504.1
3	2212993-001C	WVABFF MW01	1LAMGU	Groundwater	12/14/2022 2:20:00 PM	2	8270
4	2212993-001D	WVABFF MW01	500ML COMPO	Groundwater	12/14/2022 2:20:00 PM	2	300.0 / SM2320
5	2212993-001E	WVABFF MW01	250HDPEHNO3	Groundwater	12/14/2022 2:20:00 PM	1	Metals Total As, Ca, Pb, Mg, K, Na CMC 12/15/22
6	2212993-001F	WVABFF MW01	125HDPHNO3	Groundwater	12/14/2022 2:20:00 PM	1	Dissolved Metals Fe, ~~Mn~~ Mn
7	2212993-002A	Field Blank	VOAHCL	Aqueous	12/14/2022 2:35:00 PM	3	8260
8	2212993-003A	Equip Blank	VOAHCL	Aqueous	12/14/2022 4:10:00 PM	3	|
9	2212993-004A	Trip Blank	VOAHCL	Trip Blank	12/14/2022 8:00:00 AM	2	

IO 12.15.22

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By: IQ	Date: 12/15/2022	Time: 2:51 PM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ■ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples _____ °C Attempt to Cool ? _____

Comments: _____

Appendix C

Waste Manifest

Please print or type
(Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number: V5QG
2. Page 1 of: 1
3. Emergency Response Phone: 505-861-1700
4. Waste Tracking Number: 13788-11

GENERATOR

5. Generator's Name and Mailing Address
Albuquerque Bernalillo County Water Authority
1 Civic Plaza NW
Albuquerque, NM 87103
Generator's Phone: 505-289-3008

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name: Advanced Environmental Solutions, Inc
U.S. EPA ID Number: NMR000006502

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Advanced Environmental Solutions, Inc.
2318 Roldan Drive, Belen, NM 87002
Facility's Phone: 505-861-1700
U.S. EPA ID Number: NMR000006502

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non RCRA Regulated, Non DOT Hazardous Water	001	TP	200	G	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information
1)(L) AES Profile #AES1005
NON-HAZ
9.1) A9960
Job # J13788

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Andy L. Saiz - On Behalf of ABQ, City
Signature:
Month: 12 Day: 15 Year: 22

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Lynda Price
Signature:
Month: 12 Day: 15 Year: 22

Transporter 2 Printed/Typed Name
Signature
Month Day Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

17c. Signature of Alternate Facility (or Generator)
Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Chris Rael
Signature:
Month: 12 Day: 15 Year: 22

DESIGNATED FACILITY TO GENERATOR