Third Quarter 2022

Groundwater Data Analysis Report

TAYLOR WAY AND ALEXANDER AVENUE FILL AREA SITE
TACOMA, WASHINGTON

Cleanup Site ID: 4692

November 23, 2022

Prepared by:

DALTON, OLMSTED, & FUGLEVAND
1001 SW Klickitat Way, Suite 200B
Seattle, WA 98134

Prepared for:

GENERAL METALS OF TACOMA
GLENN SPRINGS HOLDINGS
PORT OF TACOMA
CLEAN EARTH

DOF DALTON OLMSTED FUGLEVAND

November 23, 2022

Table of Contents

TABLES

FIGURES

APPENDICES

1.0 Introduction

Dalton, Olmsted, and Fuglevand, Inc. (DOF) prepared this Third Quarter Groundwater Data Analysis Report for the Taylor Way and Alexander Avenue Fill Area (TWAAFA) Site (Figure 1) on behalf of Glenn Springs Holdings, Inc. (Occidental Chemical Corporation), General Metals of Tacoma (GMT), and Clean Earth Inc. (Clean Earth) formerly known as Stericycle Environmental Solutions, Inc. and Burlington Environmental (Burlington). These parties are among those identified in Agreed Order (AO) Number 14260 (issued December 4, 2020) by the Washington State Department of Ecology (Ecology) as potentially liable parties at the TWAAFA Site (each a "PLP", collectively, the "PLPs" or "AO parties"). The Port of Tacoma (Port) is also a PLP to the TWAAFA Site, identified by Ecology in Enforcement Order Number DE 19410 (issued December 4, 2020).

This Report was prepared to summarize the data collected and activities performed by AO and EO PLPs with respect to the TWAAFA Site groundwater monitoring program during the third quarter of 2022, in accordance with the Revised Groundwater Monitoring Plan (DOF, 2022). The July 2020 Groundwater Monitoring Plan was revised in April 2022 to account for the installation of new monitoring wells and updated survey information at the TWAAFA Site. On October 13, 2022, the AO Parties received an email from Ecology that included comments on the first and second quarter Groundwater Data Analysis Reports. The AO parties responded to Ecology via letter dated November 3, 2022, and agreed to address Ecology's comments specific to the reports as part of the Third Quarter 2022 Groundwater Data Analysis Report and subsequent fourth quarter 2022 groundwater monitoring event.

1.1 Background and Objective

The Revised Groundwater Monitoring Plan was designed to monitor the groundwater at the TWAAFA Site utilizing 55 groundwater monitoring wells, including monitoring wells installed as agreed to in the Data Gaps Work Plan (DWGP) (DOF, 2020). The monitoring wells and analyses required are summarized in Table 1. The monitoring wells are located at the TWAAFA Site to provide adequate information regarding (1) groundwater flow at the TWAAFA Site, (2) groundwater units underlying the TWAAFA Site; and (3) groundwater leaving the TWAAFA Site and flowing to off-site, downgradient and cross-gradient locations.

The third quarter 2022 monitoring event was completed as the third of four planned events in 2022 to be conducted for the TWAAFA Site under the Data Gaps Work Plan (DOF, 2020).

1.2 TWAAFA Site Description

As shown in Figure 2, the TWAAFA Site is composed of multiple parcels under ownership by different parties – the Port, Burlington, and Pierce County (owner of the former CleanCare parcels). For the third quarter 2022 monitoring event, wells located on Port parcels were monitored by the Port's consultant Maul, Foster, and Alongi (MFA) and all other wells were monitored by DOF. MFA and DOF coordinated the monitoring event simultaneously and utilized the same laboratory as used for prior work conducted under the DGWP (DOF, 2020).

2.0 Methodology

During the third quarter 2022, DOF and the Port completed the following work related to groundwater

monitoring in accordance with the Revised Groundwater Monitoring Plan (DOF, 2022):

- Measured groundwater levels and collected groundwater samples from the groundwater monitoring network wells within the TWAAFA Site;
- Submitted groundwater samples to an independent laboratory for analysis; and
- Reviewed laboratory analytical reports for data quality validation.

The monitoring well network at the TWAAFA Site is shown on Figure 2. Measurement of water levels and sampling of wells on the Port parcels was completed by MFA on behalf of the Port, in coordination with DOF. Measurement of water levels and sampling of wells on Burlington and the former CleanCare parcels was conducted by DOF on behalf of the AO parties.

2.1 Water Level Measurements

On August 22, 2022, DOF and MFA conducted a water level measuring event that consisted of gauging depth to water surface and depth to light non-aqueous phase liquid (LNAPL), if present, at all monitoring wells within the TWAAFA Site following the procedures described in the Revised Groundwater Monitoring Plan (DOF, 2022). All network monitoring wells were measured within a 12-hour period. Groundwater measurements and observations of LNAPL are summarized in Table 2.

Figures 3 and 4 present the groundwater elevations measured during this event for the shallow and deep aquifers, respectively.

2.2 Groundwater Quality Sample Collection and Analysis

Groundwater samples were collected from 30 of 32 scheduled monitoring wells during the third quarter 2022 monitoring event (Table 1) from August 22 to 26, 2022. Two wells, CCW-1A and CCW-2A, had insufficient water present within the screened interval to allow for sampling during this current monitoring event.

Samples were collected in accordance with the Revised Groundwater Monitoring Plan (DOF, 2022). Prior to sampling, groundwater purging was conducted at each well. During groundwater purging, water quality parameters were recorded, and once stabilization criteria were met, a groundwater sample was collected. Field forms documenting data collected during monitoring well sampling are included in Appendix A.

Groundwater samples were analyzed for the following constituents as shown on Table 1:

- Volatile organic compounds (VOCs).
- Semi-volatile organic compounds (SVOCs).
- Total petroleum hydrocarbons (TPHs) as gasoline-range organics (TPH-Gx), diesel-range organics (TPH-Dx), and lube oil. TPH-Dx was analyzed without silica gel cleanup.
- Extractable Petroleum Hydrocarbons (EPH) analyzed at select wells.
- Polychlorinated biphenyls (PCBs) analyzed as individual Aroclors.
- Metals including arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc, and manganese.

Groundwater samples collected by DOF and MFA were submitted to Friedman and Bruya, Inc. (FBI) for chemical analysis. Laboratory analytical reports produced by FBI for the groundwater samples collected by DOF were submitted to data validation reviewers, QA/QC Solutions, LLC. MFA conducted an in-house independent review of the laboratory analytical reports on groundwater samples collected for the Port. Data validation reports are included along with the laboratory data reports in Appendix B.

2.3 Investigation-Derived Waste

The primary waste stream generated during the monitoring event was purged groundwater, which was containerized as it was generated. Groundwater was containerized in separate 55-gallon drums based on the parcel ownership and characterized based on sampling results. The Port manages purged groundwater generated from wells on Port-owned parcels whereas Clean Earth manages purged groundwater generated from wells on Burlington-owned parcels. DOF coordinates disposal of purged groundwater with Pierce County and Ecology for purged groundwater generated from wells on the former CleanCare parcels.

3.0 Results

This section presents the results of data collected during the third quarter 2022 monitoring event.

3.1 Groundwater Elevations

Depth to water measurements were converted to elevation using survey data and mapped to determine hydraulic gradient for both the shallow and deep aquifers. Groundwater elevations for the shallow and deep aquifers from the third quarter 2022 monitoring event are provided in Table 2 and illustrated on Figures 3 and 4, respectively. LNAPL was recorded at MW-1 (<0.01 ft) and CTMW-1 (0.3 ft). To address comments received from Ecology (Ecology, 2022), groundwater elevation contours presented in this third quarter 2022 report were interpolated beyond the TWAAFA Site and data-set boundaries. These interpolated contours represent an expression of trends suggested in the data based on geostatistical gridding.

Potentiometric surface elevation contours for the shallow aquifer are generally consistent with historically reported observations, exhibited by a generally radial outflow from a central mound beneath the Burlington parcels. This same pattern appears to be present even when compared to seasonal differences in overall groundwater elevations on the order of three feet. Where well clusters included multiple wells screened within the shallow aquifer, as is the case with several of the “CCW-” well clusters on the former CleanCare parcels, the “B” interval measurements were used for mapping groundwater elevations as their screen depths are more consistent with wells across the TWAAFA Site. The measured groundwater elevation at PZ-1 (installed at 7 feet below ground surface) appeared anomalous and was not used for contouring. Closer examination of this piezometer during this monitoring event revealed that the upper casing appeared to be compromised. Therefore, we recommend decommissioning the PZ-1 piezometer.

The deep aquifer displayed a generally flat hydraulic gradient, which is consistent with historical observations.

3.2 Quality Assurance/Quality Control (QA/QC) Discussion

Analytical data quality review was conducted on all groundwater samples collected during this monitoring event analyzed and reported by FBI as specified in the Quality Assurance Project Plan (QAPP) (DOF, 2020). The data validation reports were completed by QA/QC solutions for DOF-collected samples on Burlington and former CleanCare parcels and by MFA for MFA-collected samples on Port parcels. Analytical reports and associated data validation reports are included in Appendix B.

Hold times, initial and continuing calibrations, method blanks, surrogate recoveries, laboratory duplicate results, field duplicate results, matrix spike/matrix spike duplicate results, and reporting limits were reviewed to assess compliance with applicable methods and project requirements. Qualified data were deemed to be of acceptable quality for their intended use, with the appropriate final data qualifiers assigned, except for results that were rejected due to insufficient surrogate recovery. Final data qualifiers represent qualifiers originating from the laboratory and accepted by the reviewer, as well as data qualifiers assigned by the reviewer during validation.

In several instances, results for TPH diesel range and motor oil range were qualified as 'NJ,' defined as a *tentatively identified compound*, because the sample chromatographic pattern did not resemble the fuel standard used for quantitation. As summarized in the data validation memorandum (Appendix B), the NJ qualifier was assigned based on a variety of factors. To address comments from Ecology's October 13, 2022, email (Ecology, 2022), additional information was included in the data validation to explain the assessment. Among those reasons are:

> "DRO and RRO are operational definitions that equate to a possible range of compounds that may elute within a given boiling point range. Compounds that may yield a chromatographic response may (or may not) be related to petroleum product(s)…. Since there is not a definitive chromatographic confirmation of the DRO/RRO results reported using the referenced analytical method all results should be considered only as tentative (N)."[1]
>
> "The laboratory noted (and confirmed during data validation) that chromatographic patterns for samples in which DRO/RRO were reported as detected did not match the chromatographic patterns of the standards used for quantification and so flagged the affected results with an "x" laboratory flag. Since the concentrations reported as detected for DRO/RRO are based on mis-matched chromatographic patterns there is an inherent indeterminate bias associated with the concentration quantified and reported. Therefore, at a minimum, the DRO/RRO results reported as detected should be considered as estimated (J)."

Additional detail is provided in the data validation memorandum (Appendix B).

3.3 Groundwater Chemistry Analytical Results

Validated analytical results of groundwater samples collected during the third quarter 2022 monitoring event at the TWAAFA Site are included in Tables 3 through 7. Screening levels used in this report for comparison of analytical results were those identified in the 2020 DGWP (DOF, 2020). These screening levels were based on levels developed in the 2005 Burlington RI Report and also applied in the Port's

[1] DRO = Diesel Range Organics; RRO = Oil Range Organics

2006 1514 Taylor Way RI. These screening levels were site-specific screening levels developed under Ecology's Model Toxics Control Act (MTCA) in consideration of the conceptual model identifying non-potable groundwater and industrial/commercial use. After Ecology's review of the Draft DGWP, Ecology requested that several screening levels be revised to default table values available in Ecology's Cleanup Levels and Risk Calculation (CLARC) tables. Ecology's requested changes to the screening levels were implemented in the Final 2020 DGWP. In addition, Ecology's lowest current MTCA Method A or B Groundwater Screening Levels are included in Tables 3 through 7 as a reference for analytes that did not have a screening level included in the DGWP.

Results of the third quarter 2022 monitoring event are summarized below and select frequently detected constituents are shown on Figures 5 through 16.

Summary of TPH and EPH analytical results (Table 3)

- TPH-Gx was detected at concentrations above its respective DGWP screening level, primarily in shallow wells located on the former CleanCare parcels (CCW-2B and CCW-7B). The highest concentration of TPH-Gx (5,200J micrograms per liter [µg/L]) was detected at CCW-2B, which is centrally located on the former CleanCare parcels. Concentrations were below their respective DGWP screening level in all deep wells and all other shallow wells analyzed for TPH-Gx. TPH-Gx concentrations are illustrated on Figures 5 and 6.
- TPH-Dx and oil range hydrocarbons were detected above their respective DGWP screening levels in wells throughout the TWAAFA Site when analyzed without silica gel cleanup. Of the 30 wells sampled, results from eight samples were below DGWP screening levels (SB-1A, SB-2A, TWA-4D, TWA-6D, TWA-7D, TWA-8D, TWA-9D, TWA-10D). The highest concentrations of TPH-Dx and oil range hydrocarbons were in the shallow aquifer (11,000NJ µg/L at MW-1). TPH-Dx concentrations are illustrated on Figures 7 and 8.
- EPH was sampled at wells CCW-3A, CCW-5B, CCW-8B, MW-1, TWA-1, and TWA-6D. EPH was detected at all wells sampled, except TWA-1 and TWA-6D, at concentrations ranging from 39.5 µg/L (CW-8B) to 126J+ µg/L (MW-1). The EPH concentrations were in the shallow aquifer. No DGWP screening levels are assigned to EPHs.

Summary of VOC analytical results (Table 4)

- Select VOCs were detected at concentrations above their respective DGWP screening level: 1,4-dichlorobenzene (CCW-2B, CCW-7B), benzene (CCW-2B, CCW-3A, CCW-3B, CCW-5B, CCW-6B, CCW-7B, CCW-7C, MW-1, MW-4, TWA-1), toluene (CCW-2B), and vinyl chloride (CCW-2B, CCW-3B, MW-4). Benzene and vinyl chloride concentrations are illustrated on Figures 9 through 12.
- The highest concentrations of VOCs were detected in a sample from the former CleanCare parcels (at well CCW-2B) which included benzene (81 µg/L), toluene (180 µg/L), and vinyl chloride (1.2µg/L) in the shallow aquifer.
- Concentrations of VOCs were generally below their respective DGWP screening levels at wells farther away from the center of the TWAAFA Site.

Summary of SVOC analytical results (Table 5)

Several SVOCs were detected above laboratory reporting limits at generally low concentrations. Only 1,4 dichlorobenzene was detected above its respective DGWP screening level of 10 µg/L at CCW-2B (18 µg/L).

Summary of metals analytical results (Table 6)

- Metals detected above their respective DGWP screening levels included arsenic, chromium, copper, lead, manganese, nickel, and zinc. Concentrations of two of the most widely detected metals (arsenic and copper) are illustrated on Figures 13 through 16.
- Arsenic concentrations ranged from less than 1 µg/L (not detected) to 1,180 µg/L (CCW-5B). Of the 30 wells sampled, 15 samples recorded concentrations that exceeded the DGWP screening level of 5 µg/L for arsenic. Arsenic concentrations were highest on the former CleanCare parcels in samples collected in the shallow aquifer.
- Chromium concentrations ranged from less than 1 µg/L (not detected) to 29.8 µg/L (TWA-6D). Of the 30 wells sampled, only two samples (CCW-6C and TWA-6D) exceeded the DGWP screening level of 11 µg/L for chromium. Chromium was detected in deep aquifer wells located in the central and southwest areas of the TWAAFA Site.
- Copper concentrations ranged from less than 2.4 µg/L (not detected) to 7.73 µg/L J+, or estimated with a potentially high bias, (TWA-2). Of the 30 wells sampled, results from seven samples exceeded the DGWP screening level of 2.4 µg/L for copper. Copper concentrations were highest in the shallow aquifer and were detected primarily on the former CleanCare parcels.
- Lead concentrations ranged from less than 1 µg/L (not detected) to 17.9 µg/L (CCW-3A. Of the 30 wells sampled, only two samples (CCW-3A and CCW-6B) exceeded the DGWP screening level of 8.1 µg/L for lead. Lead was only detected in the shallow aquifer wells and detections were limited to the former CleanCare parcels, centrally located within the TWAAFA Site.
- Manganese was detected throughout the TWAAFA Site at concentrations ranging from 65.1 µg/L (TWA-9D) to 3,520 µg/L (TWA-1). Of the 30 wells sampled, all sample results except two (TWA-9D and TWA-10D) exceeded the DGWP screening level of 100 µg/L for manganese. Manganese was detected in shallow and deep aquifer wells with concentrations highest in the north-central area of the TWAAFA Site.
- Nickel was detected throughout the TWAAFA Site at concentrations ranging from 1.4 µg/L (CCW-6C) to 155 µg/L (CCW-3A). Of the 30 wells sampled, detected nickel concentrations exceeded the DGWP screening level of 10 µg/L in only one sample (CCW-3A), within the shallow aquifer.
- Zinc concentrations ranged from less than 5 µg/L (not detected) to 385 µg/L (CCW-3A). Of the 30 wells sampled, only one sample (CCW-3A) exceeded the DGWP screening level of 81 µg/L for zinc. Zinc was detected in the shallow aquifer on CleanCare property, centrally located within the TWAAFA Site.

Summary analytical results of PCBs (Table 7)

- PCBs were detected above laboratory reporting limits only in samples from wells located at the former CleanCare parcels (CCW-3A and MW-4) which are screened in the shallow aquifer. PCB

concentrations in these wells ranged from 0.025 to 0.14 µg/L. The PCB concentration for Aroclor-1260 detected in CCW-3A and MW-4 exceeded its DGWP screening level of 0.00607 µg/L.

3.4 Conclusions

The third quarter 2022 groundwater monitoring event at the TWAAFA Site was completed successfully following the objectives set forth in the DGWP (DOF, 2020) and procedures outlined in the Revised Groundwater Monitoring Plan (DOF, 2022).

Fewer wells were sampled during this current monitoring event than during the second quarter monitoring event (Table 1). The observed groundwater flow patterns during this current monitoring event (derived from field measurements) were similar to those observed during the first and second quarter 2022 monitoring events. LNAPL was recorded at MW-1 (<0.01 ft) and CTMW-1 (0.3 ft). TPH, metals, and limited VOCs and SVOCs constituents exceeded their respective DGWP screening levels in sampled wells. Similar to the first quarter monitoring event, the highest concentrations of compounds that exceeded DGWP screening levels were generally in the shallow aquifer and centrally located within the TWAAFA Site.

4.0 Upcoming Schedule

In accordance with the Revised Groundwater Monitoring Plan (DOF, 2022) under the AO, four quarters of groundwater monitoring events are to be completed at the TWAAFA Site in 2022. The fourth quarter 2022 groundwater monitoring event is scheduled to be conducted at the TWAFAA Site in December 2022.

Ecology's October 13, 2022, email included a request to coordinate the timing of the fourth quarter 2022 groundwater monitoring event with a groundwater monitoring event to be accomplished in the fourth quarter by Emerald Services on the adjacent property operated by Emerald Services to the southeast of the TWAAFA Site. To satisfy Ecology's request, the AO and EO PLP groups are working to coordinate the timing of the fourth quarter 2022 groundwater monitoring event with Emerald Services for it to occur simultaneously.

5.0 References

DOF, 2020. Final Data Gaps Work Plan, TWAAFA Site, Tacoma, Washington. July.

DOF, 2022. Revised Groundwater Monitoring Plan, TWAAFA Site, Tacoma, Washington. April.

Washington State Department of Ecology (Ecology), 2022. Email, *Ecology comments on first and second quarter 2022 groundwater monitoring reports and the recent sub-slab vapor sampling results from the Former Potter Property.* October 13.

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Tables

Table 1
Groundwater Monitoring Schedule
Third Quarter 2022 Groundwater Analysis Report
TWAAFA Site
Tacoma, Washington

Well ID	Water Levels	Analyses								
		VOCs by 8260B	VOCs by 8260B w/SIM	TPH-Diesel by NWTPH-Dx[1]	TPH-Gasoline by NWTPH-Gx	Total Metals[2] by 6020 & Mercury by 1631E	SVOCs by 8270	cPAHS only by 8270	1,4-Dioxane by 8260	PCBs by 8082
CCW-1A	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	--	1,2,3,4	1,2,3,4
CCW-1B	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	--	1,2,3,4	1,2,3,4
CCW-1C	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**--**	**1,2,3,4**	**1,2,3,4**
CCW-2A	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	--	1,2,3,4	1,2,3,4
CCW-2B	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	--	1,2,3,4	1,2,3,4
CCW-2C	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**--**	**1,2,3,4**	**1,2,3,4**
CCW-3A	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	--	1,2,3,4	1,2,3,4
CCW-3B	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	--	1,2,3,4	1,2,3,4
CCW-3C	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**--**	**1,2,3,4**	**1,2,3,4**
CCW-4C	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**--**	**1,2,3,4**	**1,2,3,4**
CCW-5B	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	--	1,2,3,4	1,2,3,4
CCW-5C	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**--**	**1,2,3,4**	**1,2,3,4**
CCW-6B	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	--	1,2,3,4	1,2,3,4
CCW-6C	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**--**	**1,2,3,4**	**1,2,3,4**
CCW-7B	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	--	1,2,3,4	1,2,3,4
CCW-7C	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**--**	**1,2,3,4**	**1,2,3,4**
CCW-8B	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	--	1,2,3,4	1,2,3,4
MW-1[3]	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	--	1,2,3,4	1,2,3,4
MW-4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	--	1,2,3,4	1,2,3,4
SB-1A	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	--	1,2,3,4	1,2,3,4
SB-2A	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	--	1,2,3,4	1,2,3,4
SB-3A	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	--	1,2,3,4	1,2,3,4
CTMW-1	1,2,3,4	--	--	--	--	--	--	--	--	--
CTMW-5	1,2,3,4	2	2	2	--	2	--			--
CTMW-7	**1,2,3,4**	**2**	**2**	**2**		**2**	**--**	**2**	**2**	**--**
CTMW-8	1,2,3,4	2	2	2	--	2	--	--	--	--
CTMW-9	**1,2,3,4**	**2**	**2**	**2**		**2**	**--**		**2**	**--**
CTMW-10[3]	1,2,3,4	--	--	--	--	--	--	--	--	--
CTMW-11R2	1,2,3,4	2	2	2	--	2	--	--	--	--
CTMW-12	**1,2,3,4**	**2**	**2**	**2**		**2**	**--**	**2**		**--**
CTMW-14	1,2,3,4	2	2	2	--	2	--	2		--
CTMW-15	1,2,3,4	2	2	2	--	2	--	2	2	--
CTMW-17	1,2,3,4	2	2	2	--	2	--		2	--
CTMW-17D	**1,2,3,4**	**2**	**2**	**2**		**2**	**--**			**--**
CTMW-18	1,2,3,4	2	2	2	2	2	--			--

DOF

Table 1
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		VOCs by 8260B	VOCs by 8260B w/SIM	TPH-Diesel by NWTPH-Dx[1]	TPH-Gasoline by NWTPH-Gx	Total Metals[2] by 6020 & Mercury by 1631E	SVOCs by 8270	cPAHS only by 8270	1,4-Dioxane by 8260	PCBs by 8082
CTMW-20	1,2,3,4	2	2	2	2	2	--			--
CTMW-23R	1,2,3,4	2	2	2	--	2	--			--
CTMW-24	1,2,3,4	2	2	2	--	2	--	2		--
CTMW-24D	**1,2,3,4**	**2**	**2**	**2**	**--**	**2**	**--**			**--**
CTMW-25D	**1,2,3,4**	**2**	**2**	**2**	**--**	**2**	**--**	**2**	**2**	**--**
PZ-1[3]	1,2,3,4	--	--	--	--	--	--	--	--	--
PZ-5	1,2,3,4	--	--	--	--	--	--	--	--	--
PZ-7	1,2,3,4	--	--	--	--	--	--	--	--	--
PZ-8	1,2,3,4	--	--	--	--	--	--	--	--	--
PZ-9	1,2,3,4	--	--	--	--	--	--	--	--	--
TWA-1	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	--	1,2,3,4	1,2,3,4
TWA-2	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	--	1,2,3,4	1,2,3,4
TWA-3	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	1,2,3,4	--	1,2,3,4	1,2,3,4
TWA-4D	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**--**	**1,2,3,4**	**--**	**2**	**2**	**--**
TWA-5D	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**--**	**1,2,3,4**	**1,2,3,4**
TWA-6D	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**--**	**1,2,3,4**	**1,2,3,4**
TWA-7D	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**--**	**1,2,3,4**	**--**	**2**	**2**	**--**
TWA-8D	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**--**	**1,2,3,4**	**1,2,3,4**
TWA-9D	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**--**	**1,2,3,4**	**1,2,3,4**
TWA-10D	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**1,2,3,4**	**--**	**1,2,3,4**	**1,2,3,4**

Notes
1. Will be analyzed with and without silica gel cleanup during the first sampling event and sample prep methods assessed in cooperation with Ecology for future events.
2. Metals: Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc, and Manganese
3. Wells that historically had LNAPL.
4. Additional wells installed as agreed to in Data Gaps Work Plan (DOF, 2020): TWA-1, TWA-2, TWA-3, TWA-4D, TWA-7D, TWA-8D, TWA-9D, TWA-10D

Bold font indicates well is screened in deep aquifer

Gray shading indicates wells on the Port of Tacoma property and monitored by the Port's consultant

Abbreviations

1,2,3,4 = sampling to occur in first, second, third, and/or fourth quarter.
-- = Sampling not required
VOC = volatile organic compound
TPH = total petroleum hydrocarbon
SVOC = semi-volatile organic compound
cPAH = carcinogenic polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
LNAPL = light non-aqueous phase liquid

DOF

Table 2

Groundwater Elevation Data

Third Quarter 2022 Groundwater Analysis Report

TWAAFA Site

Tacoma, Washington

Well ID	Date	Depth to LNAPL(ft)	Depth to Water (ft)	Water Surface Elevation (Ft)	Top of Casing Elevaton NAVD 88 (ft)
CCW-1A	8/22/2022	--	dry	--	15.81
CCW-1B	8/22/2022	--	5.53	9.77	15.30
CCW-1C	8/22/2022	**--**	**10.55**	**5.59**	**16.14**
CCW-2A	8/22/2022	--	4.55	10.79	15.34
CCW-2B	8/22/2022	--	4.33	10.91	15.24
CCW-2C	8/22/2022	**--**	**9.55**	**5.63**	**15.18**
CCW-3A	8/22/2022	--	5.48	11.39	16.87
CCW-3B	8/22/2022	--	6.20	11.03	17.23
CCW-3C	8/22/2022	**--**	**13.15**	**5.65**	**18.80**
CCW-4C	8/22/2022	**--**	**11.35**	**5.49**	**16.84**
CCW-5B	8/22/2022	--	4.89	10.85	15.74
CCW-5C	8/22/2022	**--**	**9.78**	**5.74**	**15.52**
CCW-6B	8/22/2022	--	4.20	11.23	15.43
CCW-6C	8/22/2022	**--**	**9.45**	**5.80**	**15.25**
CCW-7B	8/22/2022	--	4.15	10.88	15.03
CCW-7C	8/22/2022	**--**	**9.44**	**5.74**	**15.18**
CCW-8B	8/22/2022	--	5.76	10.68	16.44
MW-1	8/22/2022	sheen	3.33	10.74	14.07
MW-4	8/22/2022	--	7.89	11.33	19.22
SB-1A	8/22/2022	--	6.07	9.39	15.46
SB-2A	8/22/2022	--	6.46	8.57	15.03
SB-3A	8/22/2022	--	6.03	10.67	16.70
CTMW-1	8/22/2022	5.84	6.14	10.41	16.55
CTMW-5	8/22/2022	--	6.40	10.82	17.22
CTMW-7	8/22/2022	**--**	**12.52**	**5.81**	**18.33**
CTMW-8	8/22/2022	--	6.86	11.05	17.91
CTMW-9	8/22/2022	**--**	**12.40**	**5.10**	**17.50**
CTMW-10	8/22/2022	--	5.16	10.76	15.92
CTMW-11R2	8/22/2022	--	7.70	13.07	20.77
CTMW-12	8/22/2022	**--**	**16.15**	**5.26**	**21.41**
CTMW-14	8/22/2022	--	8.40	7.85	16.25

DOF

Table 2
Groundwater Elevation Data
Third Quarter 2022 Groundwater Analysis Report
TWAAFA Site
Tacoma, Washington

Well ID	Date	Depth to LNAPL(ft)	Depth to Water (ft)	Water Surface Elevation (Ft)	Top of Casing Elevaton NAVD 88 (ft)
CTMW-15	8/22/2022	--	6.83	9.57	16.40
CTMW-17	8/22/2022	--	10.36	12.08	22.44
CTMW-17D	8/22/2022	**--**	**14.15**	**5.61**	**19.76**
CTMW-18	8/22/2022	--	10.10	12.40	22.50
CTMW-20	8/22/2022	--	3.46	10.69	14.15
CTMW-23R	8/22/2022	--	7.97	11.91	19.88
CTMW-24	8/22/2022	--	9.06	10.41	19.47
CTMW-24D	8/22/2022	**--**	**14.15**	**5.36**	**19.51**
CTMW-25D	8/22/2022	**--**	**11.50**	**4.68**	**16.18**
PZ-1	8/22/2022	--	4.25	12.64	16.89
PZ-5	8/22/2022	--	5.18	10.80	15.98
PZ-7	8/22/2022	--	13.15	10.94	24.09
PZ-8	8/22/2022	--	8.92	9.04	17.96
PZ-9	8/22/2022	--	7.69	10.98	18.67
TWA-1	8/22/2022	--	7.02	7.76	14.78
TWA-2	8/22/2022	--	4.87	6.82	11.69
TWA-3	8/22/2022	--	7.86	7.62	15.48
TWA-4D	8/22/2022	**--**	**10.45**	**4.83**	**15.28**
TWA-5D	8/22/2022	**--**	**12.26**	**5.88**	**18.14**
TWA-6D	8/22/2022	**--**	**12.65**	**5.00**	**17.65**
TWA-7D	8/22/2022	**--**	**10.50**	**4.90**	**15.40**
TWA-8D	8/22/2022	**--**	**9.90**	**5.02**	**14.92**
TWA-9D	8/22/2022	**--**	**10.25**	**5.59**	**15.84**
TWA-10D	8/22/2022	**--**	**10.29**	**5.68**	**15.97**

Notes

Gray shading indicates wells on the Port of Tacoma property and monitored by the Port's consultant

Bold font indicates well is screened in deep aquifer

-- = LNAPL not detected during measurement

Abbreviations

NAVD 88 = North American Vertical Datum

LNAPL = light non-aqueous phase liquid

DOF

Table 3
Groundwater Analytical Results - Total and Extractable Petroleum Hydrocarbons
Third Quarter 2022 Groundwater Data Analysis Report
TWAAFA Site
Tacoma, Washington

Total Petroleum Hydrocarbons	DGWP Screening Level	CCW-1B	CCW-1C	CCW-2B	CCW-2C	CCW-3A	CCW-3B	CCW-3C	CCW-4C	CCW-5B	CCW-5B (DUPLICATE)	CCW-5C	CCW-6B	CCW-6B (DUPLICATE)	CCW-6C	CCW-7B	CCW-7C
	Date Sampled	8/26/2022	8/26/2022	8/24/2022	8/24/2022	8/25/2022	8/25/2022	8/25/2022	8/26/2022	8/26/2022	8/26/2022	8/26/2022	8/25/2022	8/25/2022	8/25/2022	8/25/2022	8/25/2022
Gasoline Range Organics	800	100 U	100 U	**5,200 J**	100 U	**380**	**690**	100 U	100 U	**760**	**760**	100 U	**300**	**320**	100 U	**1,100**	100 U
Diesel Range Organics	500	**640 NJ**	**730 NJ**	**2,600 NJ**	**530 NJ**	**10,000 NJ**	**2,300 NJ**	**750 NJ**	**1,200 NJ**	**2,300 NJ**	**2,400 NJ**	**1,700 NJ**	**830 NJ**	**660 NJ**	**930 NJ**	**1,500 NJ**	**660 NJ**
Oil Range Organics	500	250 U	250 U	**1,000 NJ**	**280 NJ**	**4,200 NJ**	**1,100 NJ**	250 U	**420 NJ**	**660 NJ**	**800 NJ**	**410 NJ**	250 U	250 U	250 U	**400 NJ**	250 U

Total Petroleum Hydrocarbons	DGWP Screening Level	CCW-8B	MW-1	MW-1 (DUPLICATE)	MW-4	SB-1A	SB-2A	SB-3A	TWA-1	TWA-2	TWA-3	TWA-4D	TWA-5D	TWA-6D	TWA-7D	TWA-8D	TWA-9D	TWA-10D
	Date Sampled	8/26/2022	8/23/2022	8/23/2022	8/26/2022	8/23/2022	8/23/2022	8/23/2022	8/22/2022	8/22/2022	8/22/2022	8/23/2022	8/23/2022	8/23/2022	8/23/2022	8/23/2022	8/24/2022	8/22/2022
Gasoline Range Organics	800	100 U	**220**	**220**	**130**	100 U	**100**	100 U	**140**	100 U	**110**	--	100 U	100 U	--	100 U	100 U	100 U
Diesel Range Organics	500	**2,900 NJ**	**10,000 J+, ***	**11,000 J+, ***	**7,100 NJ**	**54 ***	**110 ***	**750 ***	**1,100 ***	**650 ***	**290 ***	50 U	**570 ***	**440 ***	**66 NJ+**	**110 NJ+**	**120 NJ+**	**51 ***
Oil Range Organics	500	**860 NJ**	**2,800 J+, ***	**3,900 J+, ***	**2,900 NJ**	250 U	250 U	**520 ***	**550 ***	**640 ***	**530 ***	250 U	**300 ***	250 U	250 U	250 U	250 U	250 U

Extractable Petroleum Hydrocarbons	DGWP Screening Level	CCW-3A	CCW-5B	CCW-8B	MW-1	MW-1 (DUPLICATE)	TWA-1	TWA-6D
	Date Sampled	8/25/2022	8/26/2022	8/26/2022	8/23/2022	8/23/2022	8/22/2022	8/23/2022
Aliphatic Hydrocarbons								
C8-C10	--	77.9 U	78.8 U	78.4 U	78.4 U	78.3 U	79.3 U	78.2 UJ
C10-C12	--	39 UJ-	39.4 UJ-	39.2 UJ-	39.2 UJ	39.1 UJ	39.7 UJ	39.1 UJ
C12-C16	--	39 U	39.4 U	39.2 U	39.2 U	39.1 U	39.7 U	39.1 UJ
C16-C21	--	39 U	39.4 U	39.2 U	39.2 U	39.1 U	39.7 U	39.1 UJ
C21-C34	--	39 U	39.4 U	39.2 U	39.2 U	39.1 U	39.7 U	39.1 UJ
Aromatic Hydrocarbons								
C8-C10	--	77.9 U	78.8 U	78.4 U	78.4 U	78.3 U	79.3 U	78.2 UJ
C10-C12	--	39 UJ-	**63.1 J-**	39.2 UJ-	39.2 UJ	39.1 UJ	39.7 UJ	39.1 UJ
C12-C16	--	39 U	**76.7**	**39.5**	**126 J+**	**117 J+**	39.7 U	39.1 UJ
C16-C21	--	39 U	**83.1**	39.2 U	110 J-	**92.9 J-**	39.7 UJ	39.1 UJ
C21-C34	--	**59.6**	39.4 U	39.2 U	39.2 U	39.1 U	39.7 U	39.1 UJ

Notes:
all concentrations in micrograms per liter (µg/L)
DGWP Screening Level = Screening Levels used in the Data Gaps Work Plan (DOF, 2020)
No screening level assigned for Extractable Petroleum Hydrocarbons
Bold values indicate detections
Yellow shading indicates detection above DGWP Screening Levels

Abbreviations:
J = Result is estimated
J+ = Result is estimated, but the result may be biased high
NJ = Tentatively identified compound, estimated value
NS = not sampled for analyte
U = Not Detected above the value shown at left
UJ = Not detected above the estimated value shown at left
UJ- = Not detected above the estimated value, which may be biased low
-- = not analyzed
* = Flagged by the laboratory because the sample chromatographic pattern did not resemble the fuel standard used for quantitation

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Table 4
Groundwater Analytical Results - Volatile Organic Compounds
Third Quarter 2022 Groundwater Data Analysis Report
TWAAFA Site
Tacoma, Washington

VOCs	DGWP Screening Level	MTCA A/B Screening Level	CCW-1B		CCW-1C		CCW-2B		CCW-2C		CCW-3A		CCW-3B		CCW-3C	
		Date Sampled	8/26/2022		8/26/2022		8/24/2022		8/24/2022		8/25/2022		8/25/2022		8/25/2022	
1,1,1,2-Tetrachloroethane	NA	1.7	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	341,000	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	NA	0.22	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
1,1,2-Trichloroethane	25.3	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	120,000	--	1	U	1	U	**2.7**		1	U	1	U	1	U	1	U
1,1-Dichloroethene	4,000	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloropropene	5	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene	NA	6.4	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,3-Trichloropropane	NA	0.00038	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	NA	1.5	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene	3,870	--	1	U	1	U	**130**		1	U	**3.6**		1	U	1	U
1,2-Dibromo-3-chloropropane	NA	NA	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dibromoethane	NA	0.01	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	4,200	--	1	U	1	U	**7**		1	U	1	U	1	U	1	U
1,2-Dichloroethane	59.4	--	0.2	U	0.2	U	0.2	U	0.2	U	**0.41**		0.2	U	0.2	U
1,2-Dichloropropane	23.2	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene	5730	--	1	U	1	U	**19**		1	U	**1.1**		1	U	1	U
1,3-Dichlorobenzene	110	--	1	U	1	U	**14**		1	U	1	U	1	U	1	U
1,3-Dichloropropane	NA	160	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	10	--	1	U	1	U	**93**		1	U	1	U	1	U	1	U
2,2-Dichloropropane	NA	NA	1	U	1	U	1	U	1	U	1	U	1	U	1	U
2-Butanone	1,420,000	--	20	U	20	U	20	U	20	U	20	U	20	U	20	U
2-Chlorotoluene	NA	160	1	U	1	U	**15**		1	U	**1**		1	U	1	U
2-Hexanone	1,960,000	--	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Chlorotoluene	NA	NA	1	U	1	U	**3**		1	U	1	U	1	U	1	U
Acetone	426,000	--	50	U	50	U	50	U	50	U	50	U	50	U	50	U
Benzene	1.6	--	0.35	U	0.35	U	**81**		0.35	U	**13**		**2.5**		0.35	U
Bromobenzene	NA	64	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	NA	5.5	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromomethane	968	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Carbon tetrachloride	5	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CFC-11	NA	2400	1	U	1	U	1	U	1	U	1	U	1	U	1	U
CFC-12	NA	1600	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	5,030	--	1	U	1	U	**810**		1	U	1	U	1	U	1	U
Chloroethane	64,900	--	1	U	1	U	**2.1**		1	U	1	U	1	U	1	U
Chloroform	283	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	133	--	10	U	10	U	10	U	10	U	10	U	10	U	10	U
cis-1,2-Dichloroethene	16	--	1	U	1	U	**1.1**		1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene	NA	0.44	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Dibromochloromethane	20.6	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dibromomethane	NA	80	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorobromomethane	NA	1600	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	887	--	1	U	1	U	**39**		1	U	**25**		1	U	1	U
Hexachlorobutadiene	17.7	0.56	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Hexane	NA	480	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Isopropylbenzene (Cumene)	8,000	--	1	U	1	U	**4.9**		1	U	**1.1**		1	U	1	U
m, p-Xylene	266,000	--	2	U	2	U	**100**		2	U	**9.9**		2	U	2	U
Methyl isobutyl ketone	NA	640	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methyl t-butyl ether	NA	20	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methylene chloride	960	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Naphthalene	3,090	--	1	U	1	U	**64**		1	U	**4**		**5.1**		1	U
n-Propylbenzene	737	--	1	U	1	U	**8.2**		1	U	1	U	1	U	1	U
o-Xylene	266,000	--	1	U	1	U	**69**		1	U	**8**		1	U	1	U
p-Isopropyltoluene	4,520	--	1	U	1	U	**3.1**		1	U	1	U	1	U	1	U
sec-Butylbenzene	359	--	1	U	1	U	**1.2**		1	U	1	U	1	U	1	U
Styrene	819	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U
tert-Butylbenzene	NA	800	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	2.9	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	130	--	1	U	1	U	**180**		1	U	**26**		**5.3**		1	U
trans-1,2-Dichloroethene	21,300	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	NA	0.44	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Trichloroethene	0.7	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	0.18	--	**0.031**		0.02	U	**1.2**		0.02	U	**0.12**		**0.75**		0.02	U

Notes:
all concentrations in micrograms per liter (µg/L)
DGWP Screening Level = Screening Levels used in Data Gaps Work Plan (DOF, 2020)
MTCA A/B Screening Level = minimum screening level for Model Toxics Control Act Methods A or B groundwater, provided for reference
Bold values indicate detections
Yellow shading indicates detection above DGWP Screening Levels
Abbreviations:
U = Not Detected above the value shown at left
J = Result is estimated
NA = Screening Level not available
-- = Screening level available from DGWP (DOF, 2020)

Table 4
Groundwater Analytical Results - Volatile Organic Compounds
Third Quarter 2022 Groundwater Data Analysis Report
TWAAFA Site
Tacoma, Washington

VOCs	DGWP Screening Level	MTCA A/B Screening Level	CCW-4C		CCW-5B		CCW-5B (DUPLICATE)		CCW-5C		CCW-6B		CCW-6B (DUPLICATE)		CCW-6C		CCW-7B		CCW-7C	
		Date Sampled	8/26/2022		8/26/2022		8/26/2022		8/26/2022		8/25/2022		8/25/2022		8/25/2022		8/25/2022		8/25/2022	
1,1,1,2-Tetrachloroethane	NA	1.7	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	341,000	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	NA	0.22	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
1,1,2-Trichloroethane	25.3	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	120,000	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	4,000	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloropropene	5	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene	NA	6.4	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,3-Trichloropropane	NA	0.00038	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	NA	1.5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene	3,870	--	1	U	**7.3**		**7.2**		1	U	1	U	1	U	1	U	**4.6**		1	U
1,2-Dibromo-3-chloropropane	NA	NA	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dibromoethane	NA	0.01	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	4,200	--	1	U	**1.7**		**1.5**		1	U	**3**		**3.1**		1	U	**15**		1	U
1,2-Dichloroethane	59.4	--	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
1,2-Dichloropropane	23.2	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene	5730	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	110	--	1	U	1	U	1	U	1	U	**1.1**		**1.1**		1	U	**5.8**		1	U
1,3-Dichloropropane	NA	160	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	10	--	1	U	**1.3**		**1.1**		1	U	**2.6**		**2.6**		1	U	**16**		1	U
2,2-Dichloropropane	NA	NA	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
2-Butanone	1,420,000	--	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
2-Chlorotoluene	NA	160	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
2-Hexanone	1,960,000	--	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Chlorotoluene	NA	NA	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Acetone	426,000	--	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
Benzene	1.6	--	0.35	U	**35**		**34**		0.35	U	**17**		**16**		0.35	U	**24**		**3.3**	
Bromobenzene	NA	64	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	NA	5.5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromomethane	968	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Carbon tetrachloride	5	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CFC-11	NA	2400	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
CFC-12	NA	1600	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	5,030	--	1	U	**67**		**54**		1	U	**20**		**20**		1	U	**63**		1	U
Chloroethane	64,900	--	1	U	**2.2**		**1.9**		1	U	1	U	1	U	1	U	1	U	1	U
Chloroform	283	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	133	--	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
cis-1,2-Dichloroethene	16	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene	NA	0.44	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Dibromochloromethane	20.6	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dibromomethane	NA	80	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorobromomethane	NA	1600	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	887	--	1	U	**42**		**44**		1	U	**21**		**22**		1	U	**91**		1	U
Hexachlorobutadiene	17.7	0.56	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Hexane	NA	480	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Isopropylbenzene (Cumene)	8,000	--	1	U	**5.8**		**6.3**		1	U	**2.6**		**2.5**		1	U	**9.9**		1	U
m, p-Xylene	266,000	--	2	U	**9.1**		**9.3**		2	U	**2.1**		**2.1**		2	U	**10**		2	U
Methyl isobutyl ketone	NA	640	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methyl t-butyl ether	NA	20	**3.6**		1	U	1	U	**1.2**		1	U	1	U	1	U	1	U	1	U
Methylene chloride	960	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Naphthalene	3,090	--	1	U	**11**		**8.9**		1	U	**8.8**		**9.6**		1	U	**130**		1	U
n-Propylbenzene	737	--	1	U	**11**		**12**		1	U	**2.9**		**2.9**		1	U	**17**		1	U
o-Xylene	266,000	--	1	U	**17**		**16**		1	U	**4.8**		**4.8**		1	U	**19**		1	U
p-Isopropyltoluene	4,520	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
sec-Butylbenzene	359	--	1	U	**1.4**		**1.6**		1	U	1	U	1	U	1	U	**2.5**		1	U
Styrene	819	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
tert-Butylbenzene	NA	800	1	U	1	U	1	U	1	U	1	U	1	U	1	U	**1.2**		1	U
Tetrachloroethene	2.9	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	130	--	1	U	**15**		**14**		1	U	**8**		**7.9**		1	U	**33**		1	U
trans-1,2-Dichloroethene	21,300	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	NA	0.44	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Trichloroethene	0.7	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	0.18	--	0.02	U	**0.16**		**0.17**		0.02	U	**0.15**		**0.16**		0.02	U	**0.21**		0.02	U

Notes:
all concentrations in micrograms per liter (µg/L)
DGWP Screening Level = Screening Levels used in Data Gaps Work Plan (DOF, 2020
MTCA A/B Screening Level = minimum screening level for Model Toxics Control Act Methods A or B groundwater, provided for reference
Bold values indicate detections
Yellow shading indicates detection above DGWP Screening Levels
Abbreviations:
U = Not Detected above the value shown at left
J = Result is estimated
NA = Screening Level not available
-- = Screening level available from DGWP (DOF, 2020)

Table 4
Groundwater Analytical Results - Volatile Organic Compounds
Third Quarter 2022 Groundwater Data Analysis Report
TWAAFA Site
Tacoma, Washington

VOCs	DGWP Screening Level	MTCA A/B Screening Level	CCW-8B		MW-1		MW-1 (DUPLICATE)		MW-4		SB-1A		SB-2A		SB-3A		TWA-1		TWA-2	
		Date Sampled	8/26/2022		8/23/2022		8/23/2022		8/26/2022		8/23/2022		8/23/2022		8/23/2022		8/22/2022		8/22/2022	
1,1,1,2-Tetrachloroethane	NA	1.7	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	341,000	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	NA	0.22	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
1,1,2-Trichloroethane	25.3	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	120,000	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	4,000	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloropropene	5	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene	NA	6.4	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,3-Trichloropropane	NA	0.00038	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	NA	1.5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene	3,870	--	1	U	1	U	1	U	**1**		1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	NA	NA	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dibromoethane	NA	0.01	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	4,200	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	59.4	--	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
1,2-Dichloropropane	23.2	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene	5730	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	110	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichloropropane	NA	160	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	10	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
2,2-Dichloropropane	NA	NA	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
2-Butanone	1,420,000	--	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
2-Chlorotoluene	NA	160	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
2-Hexanone	1,960,000	--	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Chlorotoluene	NA	NA	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Acetone	426,000	--	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
Benzene	1.6	--	**0.51**		**42**		**40**		**4.7**		0.35	U	0.35	U	0.35	U	**6.6**		0.35	U
Bromobenzene	NA	64	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	NA	5.5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromomethane	968	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Carbon tetrachloride	5	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CFC-11	NA	2400	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
CFC-12	NA	1600	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	5,030	--	**4.2**		1	U	1	U	**1.2**		1	U	1	U	1	U	**1.1**		1	U
Chloroethane	64,900	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroform	283	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	133	--	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
cis-1,2-Dichloroethene	16	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene	NA	0.44	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Dibromochloromethane	20.6	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dibromomethane	NA	80	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorobromomethane	NA	1600	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	887	--	1	U	1	U	1	U	**2.4**		1	U	1	U	1	U	1	U	1	U
Hexachlorobutadiene	17.7	0.56	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Hexane	NA	480	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Isopropylbenzene (Cumene)	8,000	--	**1.3**		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
m, p-Xylene	266,000	--	2	U	2	U	2	U	**2.7**		2	U	2	U	2	U	2	U	2	U
Methyl isobutyl ketone	NA	640	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methyl t-butyl ether	NA	20	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methylene chloride	960	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Naphthalene	3,090	--	1	U	1	U	1	U	**1.3**		1	U	1	U	1	U	1	U	1	U
n-Propylbenzene	737	--	**1.4**		**1.4**		**1.5**		1	U	1	U	1	U	1	U	1	U	1	U
o-Xylene	266,000	--	1	U	1	U	1	U	**5**		1	U	1	U	1	U	1	U	1	U
p-Isopropyltoluene	4,520	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
sec-Butylbenzene	359	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Styrene	819	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
tert-Butylbenzene	NA	800	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	2.9	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	130	--	1	U	1	U	1	U	**4.5**		1	U	1	U	1	U	**1.9**		1	U
trans-1,2-Dichloroethene	21,300	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	NA	0.44	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Trichloroethene	0.7	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	0.18	--	**0.047**		**0.022**		**0.022**		**1.2**		0.02	U	0.02	U	0.02	U	**0.032**		0.02	U

Notes:
all concentrations in micrograms per liter (µg/L)
DGWP Screening Level = Screening Levels used in Data Gaps Work Plan (DOF, 2020
MTCA A/B Screening Level = minimum screening level for Model Toxics Control Act Methods A or B groundwater, provided for reference
Bold values indicate detections
Yellow shading indicates detection above DGWP Screening Levels
Abbreviations:
U = Not Detected above the value shown at left
J = Result is estimated
NA = Screening Level not available
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Table 4
Groundwater Analytical Results - Volatile Organic Compounds
Third Quarter 2022 Groundwater Data Analysis Report
TWAAFA Site
Tacoma, Washington

VOCs	DGWP Screening Level	MTCA A/B Screening Level	TWA-3		TWA-4D		TWA-5D		TWA-6D		TWA-7D		TWA-8D		TWA-9D		TWA-10D	
		Date Sampled	8/22/2022		8/23/2022		8/23/2022		8/23/2022		8/23/2022		8/23/2022		8/24/2022		8/22/2022	
1,1,1,2-Tetrachloroethane	NA	1.7	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,1-Trichloroethane	341,000	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	NA	0.22	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
1,1,2-Trichloroethane	25.3	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	120,000	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	4,000	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloropropene	5	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene	NA	6.4	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,3-Trichloropropane	NA	0.00038	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	NA	1.5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trimethylbenzene	3,870	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane	NA	NA	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dibromoethane	NA	0.01	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	4,200	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	59.4	--	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
1,2-Dichloropropane	23.2	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3,5-Trimethylbenzene	5730	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	110	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichloropropane	NA	160	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	10	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
2,2-Dichloropropane	NA	NA	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
2-Butanone	1,420,000	--	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
2-Chlorotoluene	NA	160	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
2-Hexanone	1,960,000	--	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Chlorotoluene	NA	NA	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Acetone	426,000	--	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
Benzene	1.6	--	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U	0.35	U
Bromobenzene	NA	64	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	NA	5.5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromomethane	968	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Carbon tetrachloride	5	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CFC-11	NA	2400	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
CFC-12	NA	1600	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	5,030	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	64,900	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroform	283	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	133	--	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
cis-1,2-Dichloroethene	16	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene	NA	0.44	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Dibromochloromethane	20.6	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dibromomethane	NA	80	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorobromomethane	NA	1600	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	887	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Hexachlorobutadiene	17.7	0.56	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Hexane	NA	480	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Isopropylbenzene (Cumene)	8,000	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
m, p-Xylene	266,000	--	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Methyl isobutyl ketone	NA	640	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methyl t-butyl ether	NA	20	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methylene chloride	960	--	5	U	5	U	5	U	5	U	15	U	5	U	5	U	5	U
Naphthalene	3,090	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
n-Propylbenzene	737	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
o-Xylene	266,000	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
p-Isopropyltoluene	4,520	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
sec-Butylbenzene	359	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Styrene	819	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
tert-Butylbenzene	NA	800	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	2.9	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	130	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	21,300	--	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	NA	0.44	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U
Trichloroethene	0.7	--	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl chloride	0.18	--	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U

Notes:
all concentrations in micrograms per liter (µg/L)
DGWP Screening Level = Screening Levels used in Data Gaps Work Plan (DOF, 2020
MTCA A/B Screening Level = minimum screening level for Model Toxics Control Act Methods A or B groundwater, provided for reference
Bold values indicate detections
Yellow shading indicates detection above DGWP Screening Levels
Abbreviations:
U = Not Detected above the value shown at left
J = Result is estimated
NA = Screening Level not available
-- = Screening level available from DGWP (DOF, 2020)

Table 5

Groundwater Analytical Results - Semi-Volatile Organic Compounds

Third Quarter 2022 Groundwater Data Analysis Report

TWAAFA Site

Tacoma, Washington

SVOCs	DGWP Screening Level	MTCA A/B Screening Level	CCW-1B	CCW-1C	CCW-2B	CCW-2C	CCW-3A	CCW-3B	CCW-3C	CCW-4C	CCW-5B	CCW-5B (DUPLICATE)
		Date Sampled	8/26/2022	8/26/2022	8/24/2022	8/24/2022	8/25/2022	8/25/2022	8/25/2022	8/26/2022	8/26/2022	8/26/2022
1,2,4-Trichlorobenzene	NA	1.5	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,2-Dichlorobenzene	4,200	720	0.1 U	0.1 U	**1.6**	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.46**	**0.42**
1,3-Dichlorobenzene	110	NA	0.1 U	0.1 U	**2.6**	0.1 U	0.1 U	**0.18**	0.1 U	0.1 U	0.1 U	0.1 U
1,4-Dichlorobenzene	10	8.1	0.1 U	0.1 U	**18**	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.3**	**0.3**
1-Methylnaphthalene	NA	1.5	0.1 U	0.1 U	**3**	0.1 U	**0.28**	**2.2**	0.1 U	0.1 U	**8.3**	**9.9**
2,2'-Oxybis(1-chloropropane)	NA	0.63	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,4,5-Trichlorophenol	NA	800	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4,6-Trichlorophenol	NA	4	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dichlorophenol	NA	24	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dimethylphenol	553	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dinitrophenol	3,460	--	3 UJ	3 UJ	3 U	3 U	3 UJ	3 UJ	3 UJ	3 U	3 U	3 U
2,4-Dinitrotoluene	1,360	--	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U
2,6-Dinitrotoluene	4,260	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chloronaphthalene	1,030	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2-Chlorophenol	96.7	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Methylnaphthalene	994	--	0.1 U	0.1 U	**1.6**	0.1 U	**0.25**	**1.4**	0.1 U	0.1 U	**1.7**	**2.2**
2-Methylphenol	33,300	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Nitroaniline	210	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Nitrophenol	NA	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
3-Methylphenol + 4-Methylphenol	2,960	--	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
3-Nitroaniline	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	NA	1.3	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
4-Bromophenyl phenyl ether	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4-Chloro-3-methylphenol	20	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4-Chloroaniline	6,730	--	10 UJ-	10 U	10 U	10 U	10 UJ-	10 UJ-	10 UJ-	10 UJ-	10 UJ-	10 UJ-
4-Chlorophenyl phenyl ether	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4-Nitroaniline	NA	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitrophenol	15,200	--	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
Acenaphthene	643	--	**0.49**	0.01 U	**1.1**	0.01 U	**0.29**	**0.42**	0.01 U	**0.029**	**1.6**	**1.5**
Acenaphthylene	4,530	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.049**	**0.045**
Anthracene	14,200	--	0.01 U	0.01 U	**0.15**	0.01 U	0.01 U	**0.018**	0.01 U	0.01 U	**0.065**	**0.049**
Benz[a]anthracene	10	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ-	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Benzo(a)pyrene	0.05	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ-	0.01 UJ-	0.01 U	0.01 U	0.01 U	0.01 U
Benzo(b)fluoranthene	10	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ-	0.01 UJ-	0.01 U	0.01 U	0.01 U	0.01 U
Benzo(ghi)perylene	739	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 UJ-	0.02 UJ-	0.02 U	0.02 U	0.02 U	0.02 U
Benzo(k)fluoranthene	10	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ-	0.01 UJ-	0.01 U	0.01 U	0.01 U	0.01 U
Benzoic acid	5,830,000	--	R	R	5 U	5 U	R	R	R	R	R	R
Benzyl alcohol	1,270,000	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bis(2-chloroethoxy)methane	10	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Bis(2-chloroethyl) ether	NA	0.04	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Bis(2-ethylhexyl) phthalate	0.046	--	1.4 U	1.4 U	1.6 U	1.8 U	2 U	0.83 U	1.4 U	1.4 U	1.4 U	2.1 U
Butylbenzyl phthalate	NA	46	1 U	1 U	1 U	1 U	1 UJ-	1 U	1 U	1 U	1 U	1 U
Carbazole	236	--	0.1 U	0.1 U	**0.52**	0.1 U	**0.47**	**0.2**	0.1 U	0.1 U	**0.79**	**0.83**
Chrysene	10	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ-	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Dibenzo(a,h)anthracene	10	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ-	0.01 UJ-	0.01 U	0.01 U	0.01 U	0.01 U
Dibenzofuran	260	--	0.1 U	0.1 U	**0.36**	0.1 U	**0.1**	**0.11**	0.1 U	0.1 U	**0.5**	**0.46**
Diethyl phthalate	28,400	--	1 U	1 U	1 U	1 U	**1.2**	1 U	1 U	1 U	1 U	1 U
Dimethyl phthalate	72,000	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Di-n-butyl phthalate	2,910	--	1 U	1 UJ-	1 U	1 U	**1.5**	1 U	**1.1**	1 U	1 U	1 U
Di-n-octyl phthalate	10	--	1 U	1 U	1 U	1 U	1 UJ-	1 UJ-	1 U	1 U	1 U	1 U
Fluoranthene	90.2	--	**0.02**	0.01 U	**0.17**	0.01 U	0.01 U	**0.014**	0.01 U	0.01 U	**0.02**	**0.028**
Fluorene	2,740	--	**0.083**	0.01 U	**0.6**	0.01 U	**0.13**	**0.44**	0.01 U	**0.011**	**0.91**	**0.94**
Hexachlorobenzene	NA	0.055	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Hexachlorobutadiene	17.7	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Hexachlorocyclopentadiene	NA	48	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Hexachloroethane	NA	5.6	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Indeno(1,2,3-cd)pyrene	10	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ-	0.01 UJ-	0.01 U	0.01 U	0.01 U	0.01 U
Isophorone	1,560	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Naphthalene	3,090	--	0.1 U	0.1 U	**20**	0.1 U	**1**	**2.3**	0.1 U	0.1 U	**2.5**	**3.2**
Nitrobenzene	449	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
N-Nitroso-di-n-propylamine	10	--	0.1 U	0.1 U	0.1 U	0.1 U	**1.3**	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
N-Nitrosodiphenylamine	10	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Pentachlorophenol	50	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Phenanthrene	139	--	**0.12**	0.015 U	**0.96**	**0.021**	0.06 U	**0.28**	0.015 U	0.01 U	**0.22**	**0.32**
Phenol	789,000	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Pyrene	603	--	**0.013**	0.01 U	**0.11**	0.01 U	**0.038** J-	0.01 U	0.01 U	0.01 U	**0.016**	**0.023**
1,4-Dioxane	160	--	**4.3**	**16**	**0.89**	**3.6**	**1.5**	**1.6**	**2.1**	**20**	**1.4**	**1.1**

Notes:

all concentrations in micrograms per liter (µg/L)

DGWP Screening Level = Screening Levels from the Data Gaps Work Plan (DOF, 2020)

MTCA A/B Screening Level = minimum screening level for Model Toxics Control Act Methods A or B groundwater, provided for reference

Bold values indicate detections

Yellow shading indicates detection above DGWP Screening Levels

Abbreviations:

U = Not Detected above the value shown at left

J = Result is estimated.

UJ- = Not detected above the estimated value, which may be biased low

J- = qualified as estimated with an associated negative bias

R = Result Rejected

NA = Screening Level not available

-- = Screening level available in DGWP (DOF, 2020)

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Table 5

Groundwater Analytical Results - Semi-Volatile Organic Compounds

Third Quarter 2022 Groundwater Data Analysis Report

TWAAFA Site

Tacoma, Washington

SVOCs	DGWP Screening Level	MTCA A/B Screening Level	CCW-5C	CCW-6B (DUPLICATE)	CCW-6B	CCW-6C	CCW-7B	CCW-7C	CCW-8B	MW-1	MW-1 (DUPLICATE)	MW-4
		Date Sampled	8/26/2022	8/25/2022	8/25/2022	8/25/2022	8/25/2022	8/25/2022	8/26/2022	8/23/2022	8/23/2022	8/26/2022
1,2,4-Trichlorobenzene	NA	1.5	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,2-Dichlorobenzene	4,200	720	0.1 U	**1.2**	**1.1**	0.1 U	**5.4**	0.1 U	**0.27**	**0.12**	**0.13**	0.1 U
1,3-Dichlorobenzene	110	NA	0.1 U	**0.34**	**0.33**	0.1 U	**1.8**	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,4-Dichlorobenzene	10	8.1	0.1 U	**0.91**	**0.91**	0.1 U	**5**	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1-Methylnaphthalene	NA	1.5	0.1 U	**2**	**2**	0.1 U	**26**	0.1 U	**4.8**	**9.2**	**9.2**	**0.14**
2,2'-Oxybis(1-chloropropane)	NA	0.63	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,4,5-Trichlorophenol	NA	800	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4,6-Trichlorophenol	NA	4	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dichlorophenol	NA	24	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dimethylphenol	553	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dinitrophenol	3,460	--	3 U	3 U	3 U	3 UJ	3 UJ	3 UJ	3 UJ	3 U	3 U	3 U
2,4-Dinitrotoluene	1,360	--	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U
2,6-Dinitrotoluene	4,260	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chloronaphthalene	1,030	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2-Chlorophenol	96.7	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Methylnaphthalene	994	--	0.1 U	0.1 U	0.1 U	0.1 U	**4.3**	0.1 U	**2.6**	**0.28**	0.1 U	0.1 U
2-Methylphenol	33,300	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Nitroaniline	210	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Nitrophenol	NA	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
3-Methylphenol + 4-Methylphenol	2,960	--	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
3-Nitroaniline	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	NA	1.3	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
4-Bromophenyl phenyl ether	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4-Chloro-3-methylphenol	20	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4-Chloroaniline	6,730	--	10 UJ-	10 UJ-	10 UJ-	10 UJ-	10 UJ-	10 UJ-	10 UJ-	10 U	10 U	10 UJ-
4-Chlorophenyl phenyl ether	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4-Nitroaniline	NA	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitrophenol	15,200	--	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
Acenaphthene	643	--	**0.071**	**2.1**	**2.2**	0.01 U	**20**	0.01 U	**0.7**	**1.1**	**1.2**	**0.22**
Acenaphthylene	4,530	--	0.01 U	**0.018**	**0.018**	0.01 U	**0.19**	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Anthracene	14,200	--	0.01 U	**0.036**	**0.038**	0.01 U	**0.98**	0.01 U	0.01 U	**0.66**	**0.83**	0.01 U
Benz[a]anthracene	10	--	0.01 U	0.01 U	0.01 U	0.01 U	**0.047**	0.01 U	0.01 U	**0.014**	**0.025**	0.01 U
Benzo(a)pyrene	0.05	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ-	0.01 U	**0.011**	0.01 UJ-
Benzo(b)fluoranthene	10	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ-	0.01 U	0.01 U	0.01 UJ-
Benzo(ghi)perylene	739	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 UJ-	0.02 U	0.02 U	0.02 UJ-
Benzo(k)fluoranthene	10	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ-	0.01 U	0.01 U	0.01 UJ-
Benzoic acid	5,830,000	--	R	R	R	R	R	R	R	5 U	5 U	R
Benzyl alcohol	1,270,000	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bis(2-chloroethoxy)methane	10	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Bis(2-chloroethyl) ether	NA	0.04	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Bis(2-ethylhexyl) phthalate	0.046	--	1.4 U	2.6 U	2.7 U	0.83 U	0.84 U	1.1 U	1.4 UJ	**2.3 J+**	**3.3 J+**	1.4 UJ
Butylbenzyl phthalate	NA	46	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbazole	236	--	0.1 U	**0.85**	**0.96**	0.1 U	**8.6**	0.1 U	0.1 U	**6.1 J**	**3.3 J**	**0.45**
Chrysene	10	--	0.01 U	0.01 U	0.01 U	0.01 U	**0.046**	0.01 U	0.01 U	**0.025**	**0.048**	0.01 U
Dibenzo(a,h)anthracene	10	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ-	0.01 U	0.01 U	0.01 UJ-
Dibenzofuran	260	--	0.1 U	**0.63**	**0.66**	0.1 U	**10**	0.1 U	0.1 U	**0.35**	**0.43**	0.1 U
Diethyl phthalate	28,400	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dimethyl phthalate	72,000	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Di-n-butyl phthalate	2,910	--	1 U	**2**	**2**	1 U	1 U	1 U	1 U	1 U	**2.1**	1 U
Di-n-octyl phthalate	10	--	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ-	1 U	1 U	1 UJ-
Fluoranthene	90.2	--	**0.01**	**0.032**	**0.036**	0.01 U	**1.8**	0.01 U	**0.099**	**0.11**	**0.15**	**0.021**
Fluorene	2,740	--	0.01 U	**0.94**	**0.99**	0.01 U	**12**	0.01 U	**0.26**	**1.4**	**1.8**	**0.17**
Hexachlorobenzene	NA	0.055	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Hexachlorobutadiene	17.7	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Hexachlorocyclopentadiene	NA	48	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Hexachloroethane	NA	5.6	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Indeno(1,2,3-cd)pyrene	10	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ-	0.01 U	0.01 U	0.01 UJ-
Isophorone	1,560	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Naphthalene	3,090	--	0.1 U	**4.6**	**4.9**	0.1 U	**55**	0.1 U	0.1 U	**0.16**	**0.22**	**0.18**
Nitrobenzene	449	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
N-Nitroso-di-n-propylamine	10	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.99**
N-Nitrosodiphenylamine	10	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Pentachlorophenol	50	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Phenanthrene	139	--	0.01 U	**0.038**	**0.042**	**0.017**	**1.8**	**0.018**	0.036 U	**0.56 J**	**1.3 J**	0.057 U
Phenol	789,000	--	1 U	**1.2**	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Pyrene	603	--	0.01 U	**0.02**	**0.021**	0.01 U	**0.98**	0.01 U	0.01 U	**0.22**	**0.3**	0.01 U
1,4-Dioxane	160	--	**7.7**	0.4 U	0.4 U	**8.9**	0.4 U	**14**	**1.5**	**0.62**	**0.85**	**120**

Notes:

all concentrations in micrograms per liter (µg/L)

DGWP Screening Level = Screening Levels from the Data Gaps Work

MTCA A/B Screening Level = minimum screening level for Model Toxics Control Act Methods A or B groundwater, provided for reference

Bold values indicate detections

Yellow shading indicates detection above DGWP Screening Levels

Abbreviations:

U = Not Detected above the value shown at left

J = Result is estimated.

UJ- = Not detected above the estimated value, which may be biased

J- = qualified as estimated with an associated negative bias

R = Result Rejected

NA = Screening Level not available

-- = Screening level available in DGWP (DOF, 2020)

Table 5

Groundwater Analytical Results - Semi-Volatile Organic Compounds

Third Quarter 2022 Groundwater Data Analysis Report

TWAAFA Site

Tacoma, Washington

SVOCs	DGWP Screening Level	MTCA A/B Screening Level	SB-1A	SB-2A	SB-3A	TWA-1	TWA-2	TWA-3	TWA-5D	TWA-6D	TWA-8D	TWA-9D	TWA-10D
		Date Sampled	8/23/2022	8/23/2022	8/23/2022	8/22/2022	8/22/2022	8/22/2022	8/23/2022	8/23/2022	8/23/2022	8/24/2022	8/22/2022
1,2,4-Trichlorobenzene	NA	1.5	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,2-Dichlorobenzene	4,200	720	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,3-Dichlorobenzene	110	NA	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,4-Dichlorobenzene	10	8.1	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1-Methylnaphthalene	NA	1.5	0.1 U	0.1 U	0.1 U	**0.2**	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,2'-Oxybis(1-chloropropane)	NA	0.63	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2,4,5-Trichlorophenol	NA	800	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4,6-Trichlorophenol	NA	4	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dichlorophenol	NA	24	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dimethylphenol	553	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,4-Dinitrophenol	3,460	--	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 UJ	3 U	3 U
2,4-Dinitrotoluene	1,360	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U
2,6-Dinitrotoluene	4,260	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Chloronaphthalene	1,030	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2-Chlorophenol	96.7	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Methylnaphthalene	994	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2-Methylphenol	33,300	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Nitroaniline	210	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Nitrophenol	NA	NA	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
3-Methylphenol + 4-Methylphenol	2,960	--	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
3-Nitroaniline	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol	NA	1.3	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
4-Bromophenyl phenyl ether	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4-Chloro-3-methylphenol	20	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4-Chloroaniline	6,730	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4-Nitroaniline	NA	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitrophenol	15,200	--	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
Acenaphthene	643	--	0.01 U	0.01 U	**0.047**	**1.1**	**0.018**	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Acenaphthylene	4,530	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Anthracene	14,200	--	0.01 U	0.01 U	**0.032**	**0.016**	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Benz[a]anthracene	10	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Benzo(a)pyrene	0.05	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Benzo(b)fluoranthene	10	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Benzo(ghi)perylene	739	--	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Benzo(k)fluoranthene	10	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Benzoic acid	5,830,000	--	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzyl alcohol	1,270,000	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bis(2-chloroethoxy)methane	10	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Bis(2-chloroethyl) ether	NA	0.04	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Bis(2-ethylhexyl) phthalate	0.046	--	1.2 U	**1.6 J+**	1.1 U	**1.6 J+**	1.4 U	1.3 U	1.1 U	1.3 U	1.9 U	1.6 U	1.1 U
Butylbenzyl phthalate	NA	46	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbazole	236	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Chrysene	10	--	0.01 U	0.01 U	0.01 U	0.01 U	**0.013**	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Dibenzo(a,h)anthracene	10	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Dibenzofuran	260	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Diethyl phthalate	28,400	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dimethyl phthalate	72,000	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Di-n-butyl phthalate	2,910	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Di-n-octyl phthalate	10	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Fluoranthene	90.2	--	0.01 U	0.01 U	0.01 U	0.01 U	**0.012**	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Fluorene	2,740	--	0.01 U	0.01 U	0.01 U	**0.29**	**0.015**	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Hexachlorobenzene	NA	0.055	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Hexachlorobutadiene	17.7	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Hexachlorocyclopentadiene	NA	48	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Hexachloroethane	NA	5.6	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Indeno(1,2,3-cd)pyrene	10	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Isophorone	1,560	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Naphthalene	3,090	--	0.1 U	0.1 U	0.1 U	**0.19**	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nitrobenzene	449	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
N-Nitroso-di-n-propylamine	10	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
N-Nitrosodiphenylamine	10	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Pentachlorophenol	50	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Phenanthrene	139	--	**0.012 J+**	0.01 U	**0.012 J+**	**0.019 J+**	**0.024 J+**	**0.017 J+**	**0.014 J+**	**0.012 J+**	**0.014**	**0.014**	0.01 U
Phenol	789,000	--	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Pyrene	603	--	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
1,4-Dioxane	160	--	0.4 U	0.4 U	0.4 U	**1.1**	0.4 U	0.4 U	**0.65**	**4.6**	0.4 U	**1.3**	0.4 U

Notes:

all concentrations in micrograms per liter (µg/L)

DGWP Screening Level = Screening Levels from the Data Gaps Work

MTCA A/B Screening Level = minimum screening level for Model Toxics Control Act Methods A or B groundwater, provided for reference

Bold values indicate detections

Yellow shading indicates detection above DGWP Screening Levels

Abbreviations:

U = Not Detected above the value shown at left

J = Result is estimated.

UJ- = Not detected above the estimated value, which may be biased

J- = qualified as estimated with an associated negative bias

R = Result Rejected

NA = Screening Level not available

-- = Screening level available in DGWP (DOF, 2020)

DOF DALTON OLMSTED FUGLEVAND

Table 6
Groundwater Analytical Results - Total Metals
Third Quarter 2022 Groundwater Data Analysis Report
TWAAFA Site
Tacoma, Washington

Metals	DGWP Screening Level	CCW-1B	CCW-1C	CCW-2B	CCW-2C	CCW-3A	CCW-3B	CCW-3C	CCW-4C	CCW-5B	CCW-5B (DUPLICATE)	CCW-5C	CCW-6B	CCW-6B (DUPLICATE)	CCW-6C	CCW-7B	CCW-7C
Date Sampled		8/26/2022	8/26/2022	8/24/2022	8/24/2022	8/25/2022	8/25/2022	8/25/2022	8/26/2022	8/26/2022	8/26/2022	8/26/2022	8/25/2022	8/25/2022	8/25/2022	8/25/2022	8/25/2022
Mercury	0.025	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Arsenic	5	1 U	**2.93**	**1,170**	5 U	**70.1**	**2.62**	**1.54**	**2.27**	**1,050**	**1,180**	**2.1**	**2.18**	**2.13**	**6.38**	**2.51**	**2.16**
Cadmium	40	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chromium	11	1 U	**4.35**	1 U	**2.15**	**2.5**	1 U	**2.44**	**3.48**	1 U	1 U	**3.04**	**1.26**	**1.25**	**22.3**	**1.06**	**7.55**
Copper	2.4	2.4 U	2.4 U	2.4 U	2.4 U	**2.4**	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	**2.53**	2.4 U	2.4 U
Lead	8.1	1 U	1 U	1 U	1 U	**17.9**	5 U	1 U	1 U	**4.12**	**4.24**	1 U	**9.37**	**9.15**	1 U	**1.89**	1 U
Manganese	100	**497**	**306**	**268**	**317**	**76.1**	**1,450**	**1,450**	**538**	**718**	**740**	**949**	**727**	**718**	**267**	**724**	**204**
Nickel	10	**2.29**	**3.83**	**7.32**	**4.07**	**155**	**4.28**	**2.23**	**3.22**	**3.19**	**3.28**	**2.19**	**2.29**	**2.3**	**1.4**	**1.67**	**1.42**
Zinc	81	5 U	5 U	5 U	5 U	**385**	5 U	5 U	5 U	5 U	5 U	5 U	**10.9**	**11**	5 U	5 U	5 U

Metals	DGWP Screening Level	CCW-8B	MW-1	MW-1 (DUPLICATE)	MW-4	SB-1A	SB-2A	SB-3A	TWA-1	TWA-2	TWA-3	TWA-4D	TWA-5D	TWA-6D	TWA-7D	TWA-8D	TWA-9D	TWA-10D
Date Sampled		8/26/2022	8/23/2022	8/23/2022	8/26/2022	8/23/2022	8/23/2022	8/23/2022	8/22/2022	8/22/2022	8/22/2022	8/23/2022	8/23/2022	8/23/2022	8/23/2022	8/23/2022	8/24/2022	8/22/2022
Mercury	0.025	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U
Arsenic	5	**1.09**	**1.61**	**1.69**	**2.01**	**2.71**	**5.62**	**1.23**	**9.01**	**203**	**20.3**	**10.7**	**5.66**	**7.77**	**8.27**	**11.1**	**9.32**	**8.57**
Cadmium	40	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	5 U	5 U	1 U	1 U
Chromium	11	1 U	**1.71 J+**	**1.78 J+**	1 U	1 U	1 U	1 U	1 U	1 U	**1.06 J+**	**1.69**	**5.98 J+**	**29.8**	**1.63**	**1.61**	**5.47**	**3.2 J+**
Copper	2.4	2.4 U	**5.44 J+**	**5.7 J+**	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	**7.73 J+**	2.4 U	**2.44**	2.4 U	2.4 U	2.4 U	2.4 U	**3.02**	2.4 U
Lead	8.1	1 U	1.29	**1.33**	**3.7**	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U
Manganese	100	**419**	**190**	**194**	**164**	**316**	**425**	**201**	**3,520**	**2,090**	**1,070**	**239**	**179**	**793**	**344**	**277**	**65.1**	**72.7**
Nickel	10	**2.56**	**3.04**	**3.28**	**6.07**	**4.44**	**4.11**	**2.23**	**2.83**	**8.21**	**6.27**	**5 U**	**2.04**	**3.08**	5 U	**3.57**	**2.18**	**2.94**
Zinc	81	5 U	5 U	5 U	**24.1**	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Notes:
all concentrations in micrograms per liter (µg/L)
DGWP Screening Level = Screening Levels from the Data Gaps Work Plan (DOF, 2020)
Bold values indicate detections
Yellow shading indicates detection above DGWP Screening Levels
Abbreviations:
U = Not Detected above the value shown at left
J = Result is estimated.
J+ = Result is estimated, but the result may be biased high
NJ = Tentatively identified compound, estimated value.

Table 7
Groundwater Analytical Results - Polychlorinated Biphenyls
Third Quarter 2022 Groundwater Data Analysis Report
TWAAFA Site
Tacoma, Washington

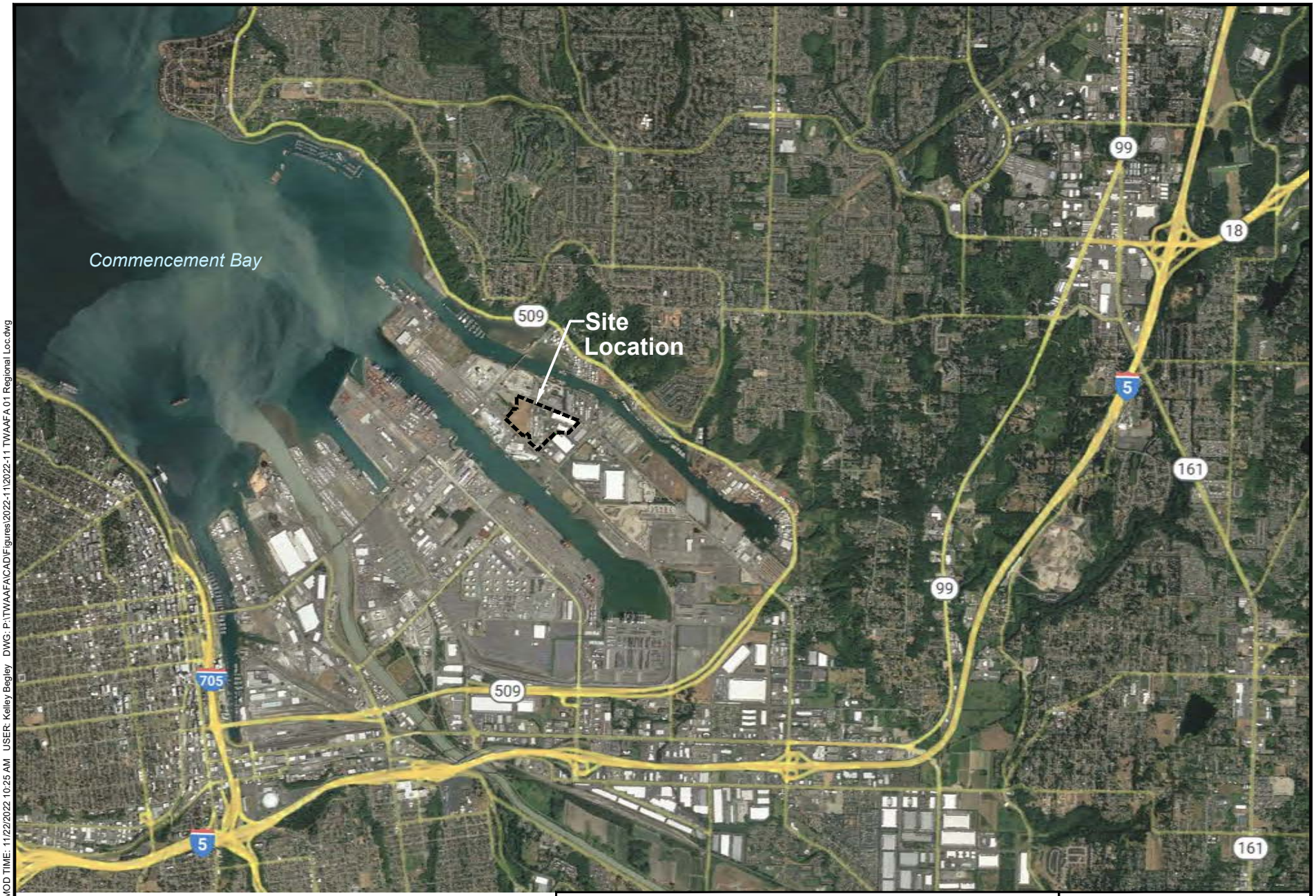
PCBs	DGWP Screening Level	MTCA A/B Screening Level	CCW-1B	CCW-1C	CCW-2B	CCW-2C	CCW-3A	CCW-3B	CCW-3C	CCW-4C	CCW-5B	CCW-5B (DUPLICATE)	CCW-5C	CCW-6B	CCW-6B (DUPLICATE)	CCW-6C	CCW-7B
		Date Sampled	8/26/2022	8/26/2022	8/24/2022	8/24/2022	8/25/2022	8/25/2022	8/25/2022	8/26/2022	8/26/2022	8/26/2022	8/26/2022	8/25/2022	8/25/2022	8/25/2022	8/25/2022
Aroclor 1016	NA	1.1	0.0055 U	0.0054 U	0.0054 U	0.0051 U	0.0052 U	0.0054 U	0.0057 U	0.0054 U	0.0054 U	0.0055 U	0.0053 U	0.0053 U	0.0056 U	0.0054 U	0.0053 U
Aroclor 1221	NA	--	0.0055 U	0.0054 U	0.0054 U	0.0051 U	0.0052 U	0.0054 U	0.0057 U	0.0054 U	0.0054 U	0.0055 U	0.0053 U	0.0053 U	0.0056 U	0.0054 U	0.0053 U
Aroclor 1232	NA	--	0.0055 U	0.0054 U	0.0054 U	0.0051 U	0.0052 U	0.0054 U	0.0057 U	0.0054 U	0.0054 U	0.0055 U	0.0053 U	0.0053 U	0.0056 U	0.0054 U	0.0053 U
Aroclor 1242	0.65	--	0.0055 U	0.0054 U	0.0054 U	0.0051 U	**0.14**	0.0054 U	0.0057 U	0.0054 U	0.0054 U	0.0055 U	0.0053 U	0.0053 U	0.0056 U	0.0054 U	0.0053 U
Aroclor 1248	NA	--	0.0077 U	0.0077 U	0.0076 U	0.0072 U	0.0074 U	0.0076 U	0.008 U	0.0077 U	0.0077 U	0.0077 U	0.0075 U	0.0075 U	0.0079 U	0.0077 U	0.0075 U
Aroclor 1254	1.3	--	0.0077 U	0.0077 U	0.0076 U	0.0072 U	**0.08**	0.0076 U	0.008 U	0.0077 U	0.0077 U	0.0077 U	0.0075 U	0.0075 U	0.0079 U	0.0077 U	0.0075 U
Aroclor 1260	0.00607	--	0.0077 U	0.0077 U	0.0076 U	0.0072 U	**0.063**	0.0076 U	0.008 U	0.0077 U	0.0077 U	0.0077 U	0.0075 U	0.0075 U	0.0079 U	0.0077 U	0.0075 U
Aroclor 1262	NA	--	0.0077 U	0.0077 U	0.0076 U	0.0072 U	0.0074 U	0.0076 U	0.008 U	0.0077 U	0.0077 U	0.0077 U	0.0075 U	0.0075 U	0.0079 U	0.0077 U	0.0075 U
Aroclor 1268	NA	--	0.0077 U	0.0077 U	0.0076 U	0.0072 U	0.0074 U	0.0076 U	0.008 U	0.0077 U	0.0077 U	0.0077 U	0.0075 U	0.0075 U	0.0079 U	0.0077 U	0.0075 U

PCBs	DGWP Screening Level	MTCA A/B Screening Level	CCW-7C	CCW-8B	MW-1	MW-1 (DUPLICATE)	MW-4	SB-1A	SB-2A	SB-3A	TWA-1	TWA-2	TWA-3	TWA-5D	TWA-6D	TWA-8D	TWA-9D	TWA-10D
		Date Sampled	8/25/2022	8/26/2022	8/23/2022	8/23/2022	8/26/2022	8/23/2022	8/23/2022	8/23/2022	8/22/2022	8/22/2022	8/22/2022	8/23/2022	8/23/2022	8/23/2022	8/24/2022	8/22/2022
Aroclor 1016	NA	1.1	0.0052 U	0.0054 U	0.0054 UJ	0.005 UJ	0.0057 U	0.0058 UJ	0.005 UJ	0.005 UJ	0.0055 UJ	0.0055 UJ	0.0058 UJ	0.005 UJ	0.005 UJ	0.0052 U	0.0055 U	0.0051 UJ
Aroclor 1221	NA	--	0.0052 U	0.0054 U	0.0054 UJ	0.005 UJ	0.0057 U	0.0058 UJ	0.005 UJ	0.005 UJ	0.0055 UJ	0.0055 UJ	0.0058 UJ	0.005 UJ	0.005 UJ	0.0052 U	0.0055 U	0.0051 UJ
Aroclor 1232	NA	--	0.0052 U	0.0054 U	0.0054 UJ	0.005 UJ	0.0057 U	0.0058 UJ	0.005 UJ	0.005 UJ	0.0055 UJ	0.0055 UJ	0.0058 UJ	0.005 UJ	0.005 UJ	0.0052 U	0.0055 U	0.0051 UJ
Aroclor 1242	0.65	--	0.0052 U	0.0054 U	0.0054 UJ	0.005 UJ	**0.025**	0.0058 UJ	0.005 UJ	0.005 UJ	0.0055 UJ	0.0055 UJ	0.0058 UJ	0.005 UJ	0.005 UJ	0.0052 U	0.0055 U	0.0051 UJ
Aroclor 1248	NA	--	0.0073 U	0.0076 U	0.0076 UJ	0.007 UJ	0.008 U	0.0083 UJ	0.007 UJ	0.007 UJ	0.0078 UJ	0.0077 UJ	0.0082 UJ	0.0071 UJ	0.007 UJ	0.0073 U	0.0078 U	0.0072 UJ
Aroclor 1254	1.3	--	0.0073 U	0.0076 U	0.0076 UJ	0.007 UJ	**0.041**	0.0083 UJ	0.007 UJ	0.007 UJ	0.0078 UJ	0.0077 UJ	0.0082 UJ	0.0071 UJ	0.007 UJ	0.0073 U	0.0078 U	0.0072 UJ
Aroclor 1260	0.00607	--	0.0073 U	0.0076 U	0.0076 UJ	0.007 UJ	**0.027**	0.0083 UJ	0.007 UJ	0.007 UJ	0.0078 UJ	0.0077 UJ	0.0082 UJ	0.0071 UJ	0.007 UJ	0.0073 U	0.0078 U	0.0072 UJ
Aroclor 1262	NA	--	0.0073 U	0.0076 U	0.0076 UJ	0.007 UJ	0.008 U	0.0083 UJ	0.007 UJ	0.007 UJ	0.0078 UJ	0.0077 UJ	0.0082 UJ	0.0071 UJ	0.007 UJ	0.0073 U	0.0078 U	0.0072 UJ
Aroclor 1268	NA	--	0.0073 U	0.0076 U	0.0076 UJ	0.007 UJ	0.008 U	0.0083 UJ	0.007 UJ	0.007 UJ	0.0078 UJ	0.0077 UJ	0.0082 UJ	0.0071 UJ	0.007 UJ	0.0073 U	0.0078 U	0.0072 UJ

Notes:
all concentrations in micrograms per liter (µg/L)
DGWP Screening Level = Screening Levels from the Data Gaps Work Plan (DOF, 2020)
MTCA A/B Screening Level = minimum screening level for Model Toxics Control Act Methods A or B groundwater, provided for reference
Bold values indicate detections
Yellow shading indicates detection above DGWP Screening Levels
Abbreviations:
U = Not Detected above the value shown at left
UJ = Not detected above the estimated value shown at left
NA = Screening Level not available
-- = MTCA Screening Level not available
PCB = Polychlorinated Biphenyl

DOF DALTON OLMSTED FUGLEVAND

Figures



Source: Aerial Photography-Google Earth Pro, 08/14/2020.

0 4500

Scale in Feet

TWAAFA Site
Tacoma, Washington
Third Quarter 2022 Groundwater Data Analysis Report

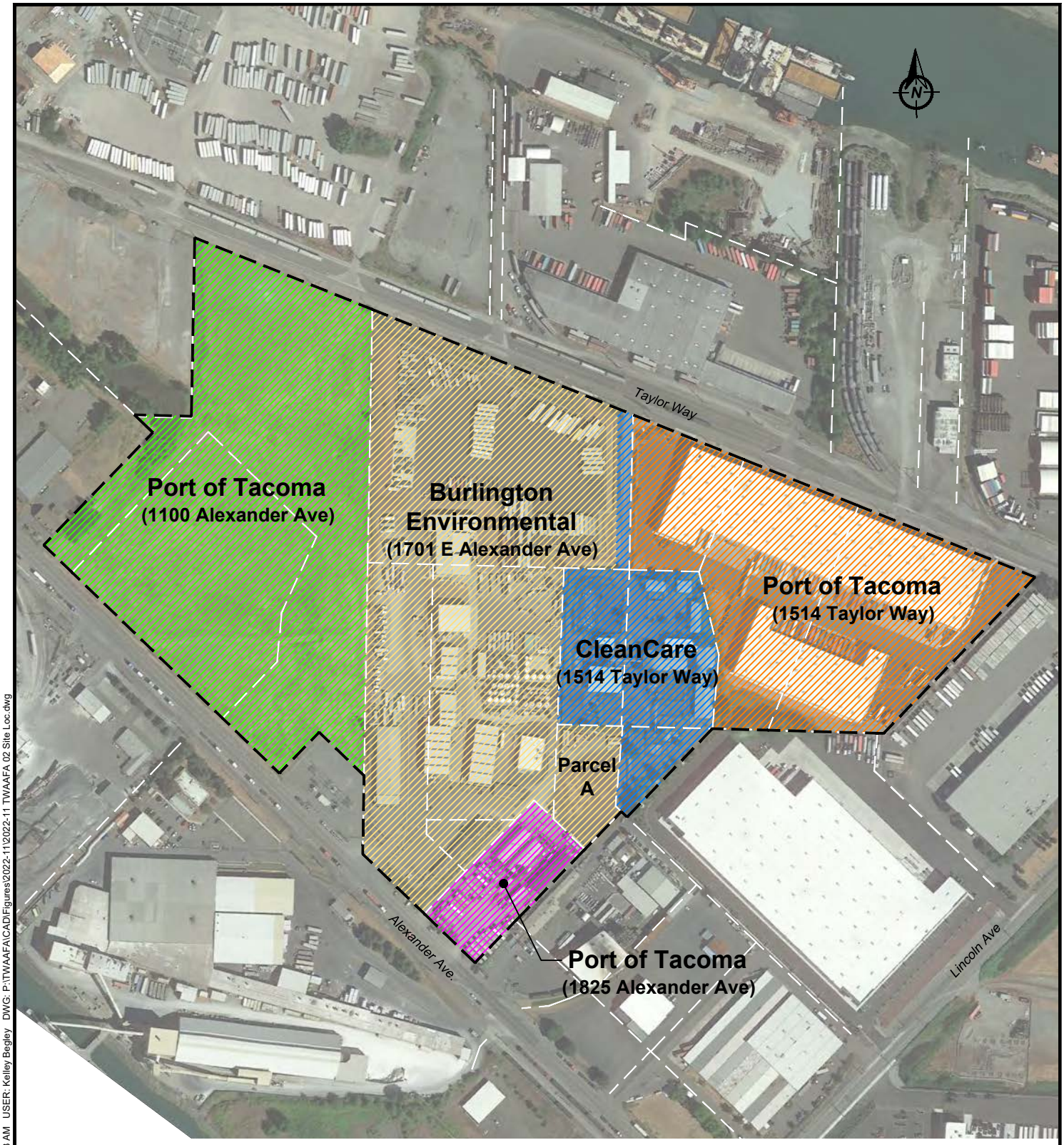
Regional Location Map

DALTON OLMSTED FUGLEVAND

FIGURE 1

11/22/2022

PLOT TIME: 11/23/2022 1:15 PM MOD TIME: 11/22/2022 10:25 AM USER: Kelley Begley DWG: P:\TWAAFA\CAD\Figures\2022-11\2022-11 TWAAFA 01 Regional Loc.dwg



Legend

TWAAFA Site Boundary

Parcel Boundary

0 350

Scale in Feet

TWAAFA Site
Tacoma, Washington
Third Quarter 2022 Groundwater Data Analysis Report

Site Location Map

DALTON OLMSTED FUGLEVAND

FIGURE 2

11/22/2022

PLOT TIME: 11/23/2022 1:15 PM MOD TIME: 11/22/2022 11:43 AM USER: Kelley Begley DWG: P:\TWAAFA\CAD\Figures\2022-11\2022-11 TWAAFA 02 Site Loc.dwg

PZ-8
9.04

TWA-1
7.76

TWA-2
6.82

TWA-3
7.62

PZ-7
10.94

PZ-9
10.98

SB-2A
8.57

SB-3A
10.67

SB-1A
9.39

CCW-3B
11.03

CCW-3A
11.39*

CCW-5B
10.85

CCW-6B
11.23

CCW-2A
10.79*

CCW-2B
10.91

CCW-7B
10.88

CTMW-11R2
13.07

CTMW-17
12.08

CTMW-23R
11.91

CTMW-18
12.40

MW-4
11.33

CTMW-5
10.82

CCW-1A
---*

CCW-1B
9.77

CCW-8B
10.68

CTMW-24
10.41

CTMW-8
11.95

PZ-5
10.80

PZ-1
12.64*

CTMW-1
10.41

CTMW-10
10.76

MW-1
10.74

CTMW-20
10.69

CTMW-14
7.85

CTMW-15
9.57

Taylor Way

Alexander Ave

Lincoln Ave

Port of Tacoma

Burlington Environmental

CleanCare

Port of Tacoma

Port of Tacoma

9.5
10.0
10.5
11.0
11.5
12.0
12.5
9.0
8.5
8.0
7.5
7.0

N

State of Washington
Hydrogeologist
1600
Licensed Geologist
David G. Cooper

Legend

- Shallow Aquifer Monitoring Well/Piezometer with Groundwater Elevation (feet)
- Groundwater Elevation Contour Contour Interval = 0.5 (feet) Datum: NAVD88
- Interpolated Groundwater Elevation Contour Interval = 0.5 (Feet) Datum : NAVD88
- TWAAFA Site Boundary
- Parcel Boundary

Notes:
1. Water levels measured on 8/22/2022.
2. Wells on properties owned by Port of Tacoma measured by the Port's consultant.

* Water levels not used for contouring as discussed in 3Q22 GW Analysis Report.

0 200
Scale in Feet

TWAAFA Site
Tacoma, Washington
Third Quarter 2022 Groundwater Data Analysis Report

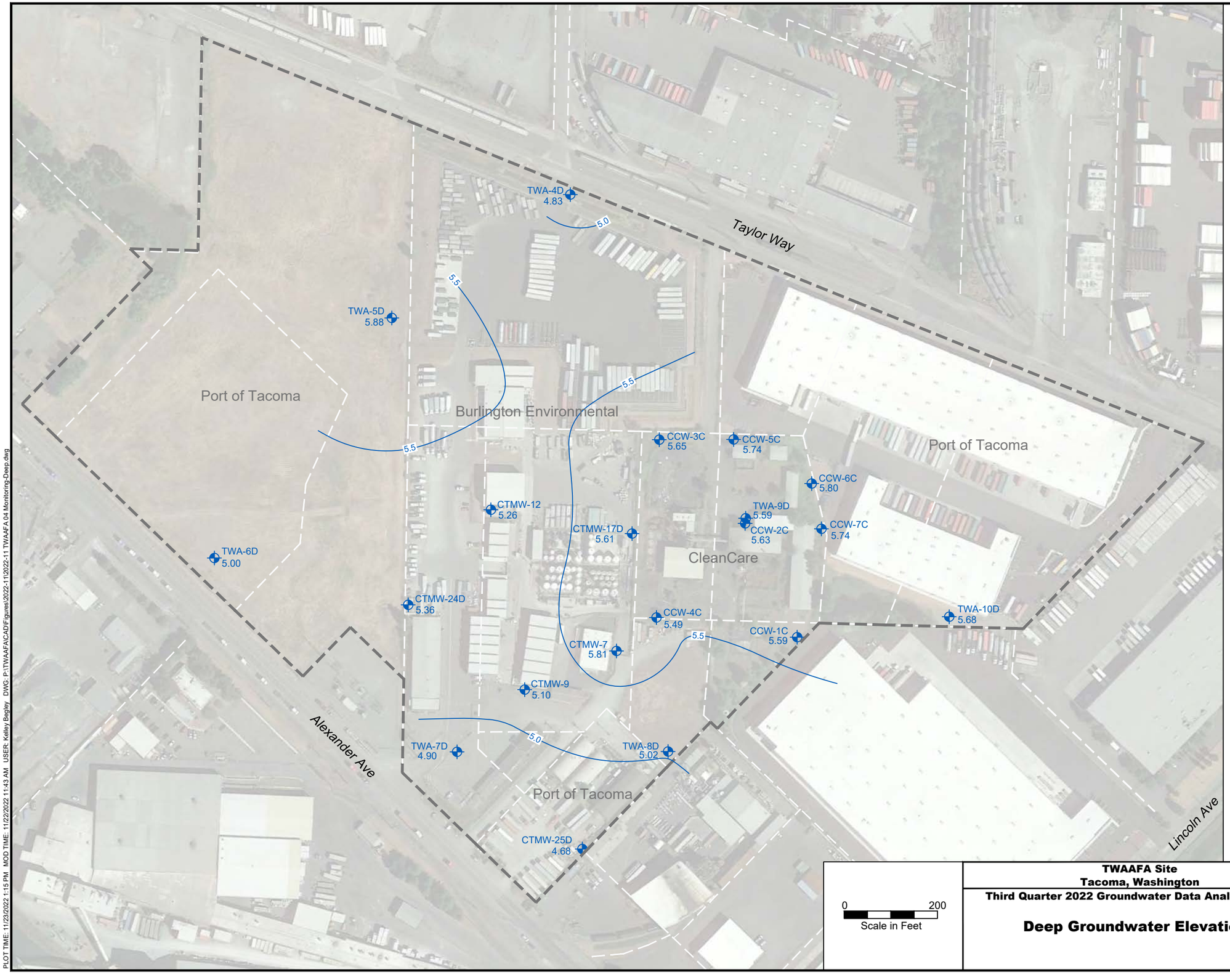
Shallow Groundwater Elevations

DALTON OLMSTED FUGLEVAND

FIGURE 3

11/22/2022

PLOT TIME: 11/23/2022 1:15 PM MOD TIME: 11/22/2022 11:43 AM USER: Kelley Begley DWG: P:\TWAAFA\CAD\Figures\2022-11\2022-11 TWAAFA 03 Monitoring-Shallow.dwg



State of Washington
Hydrogeologist
1600
Licensed Geologist
David G. Cooper

Legend

- Deep Aquifer Monitoring Well/Piezometer with Groundwater Elevation (feet)
- Groundwater Elevation Contour
  Contour Interval = 0.5 (feet)
  Datum: NAVD88
- TWAAFA Site Boundary
- Parcel Boundary

Notes:
1. Water levels measured on 8/22/2022.
2. Wells on properties owned by Port of Tacoma measured by the Port's consultant.

0 200
Scale in Feet

TWAAFA Site
Tacoma, Washington
Third Quarter 2022 Groundwater Data Analysis Report

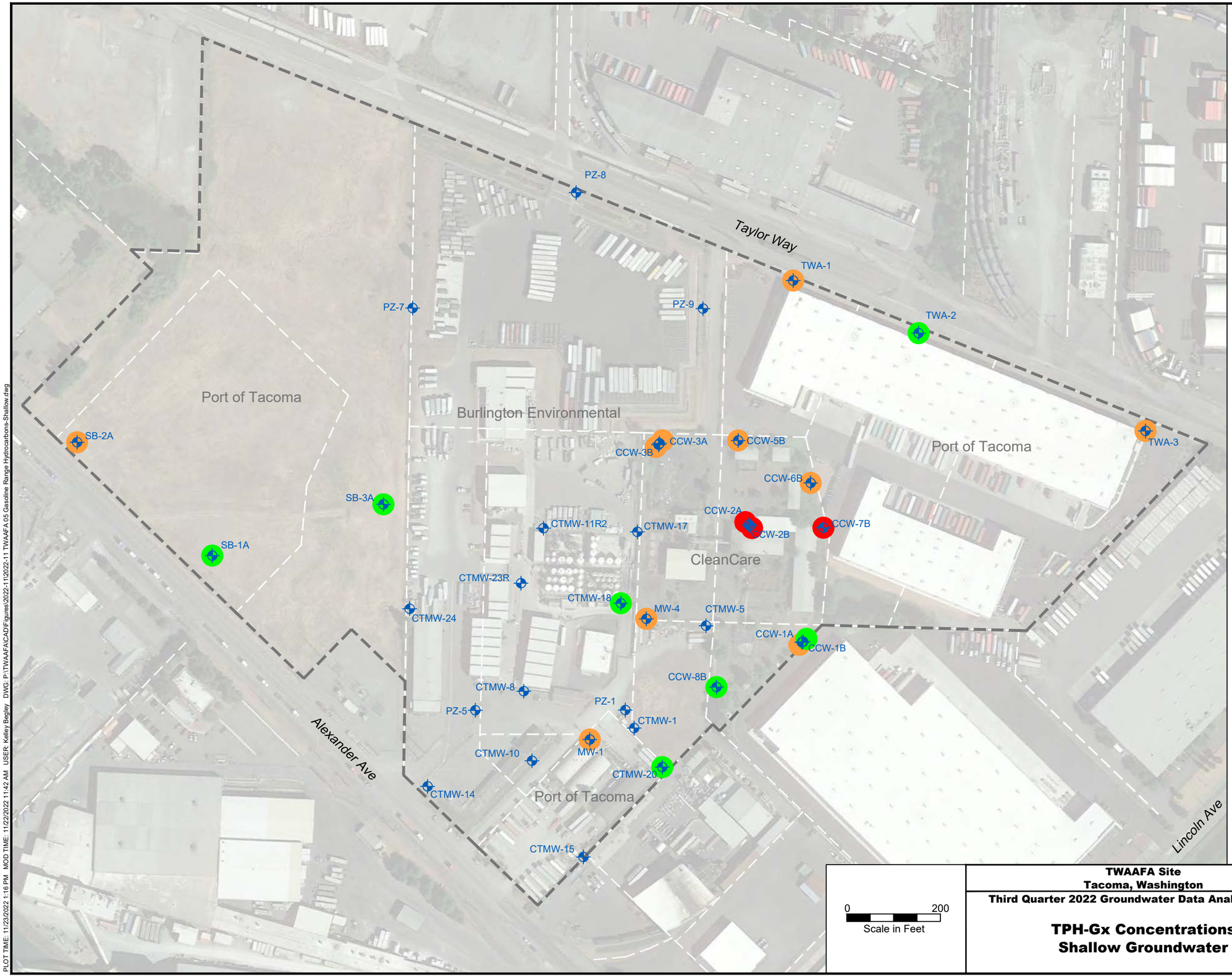
Deep Groundwater Elevations

DALTON OLMSTED FUGLEVAND

FIGURE 4

11/22/2022

PLOT TIME: 11/23/2022 1:15 PM MOD TIME: 11/22/2022 11:43 AM USER: Kelley Begley DWG: P:\TWAAFA\CAD\Figures\2022-11\2022-11 TWAAFA 04 Monitoring-Deep.dwg



Legend

- Shallow Aquifer Monitoring Well/ Piezometer
- TWAAFA Site Boundary
- Parcel Boundary
- Not Detected
- Detected Below SL from DGWP SL=800 μg/L
- Detected Above SL from DGWP SL=800 μg/L

Abbreviations:

SL = Screening Level

DGWP = Data Gaps Work Plan (DOF, 2020)

μg/L = micrograms/liter

TPH-Gx = Total Petroleum Hydrocarbons - Gasoline Range

0 200
Scale in Feet

TWAAFA Site
Tacoma, Washington

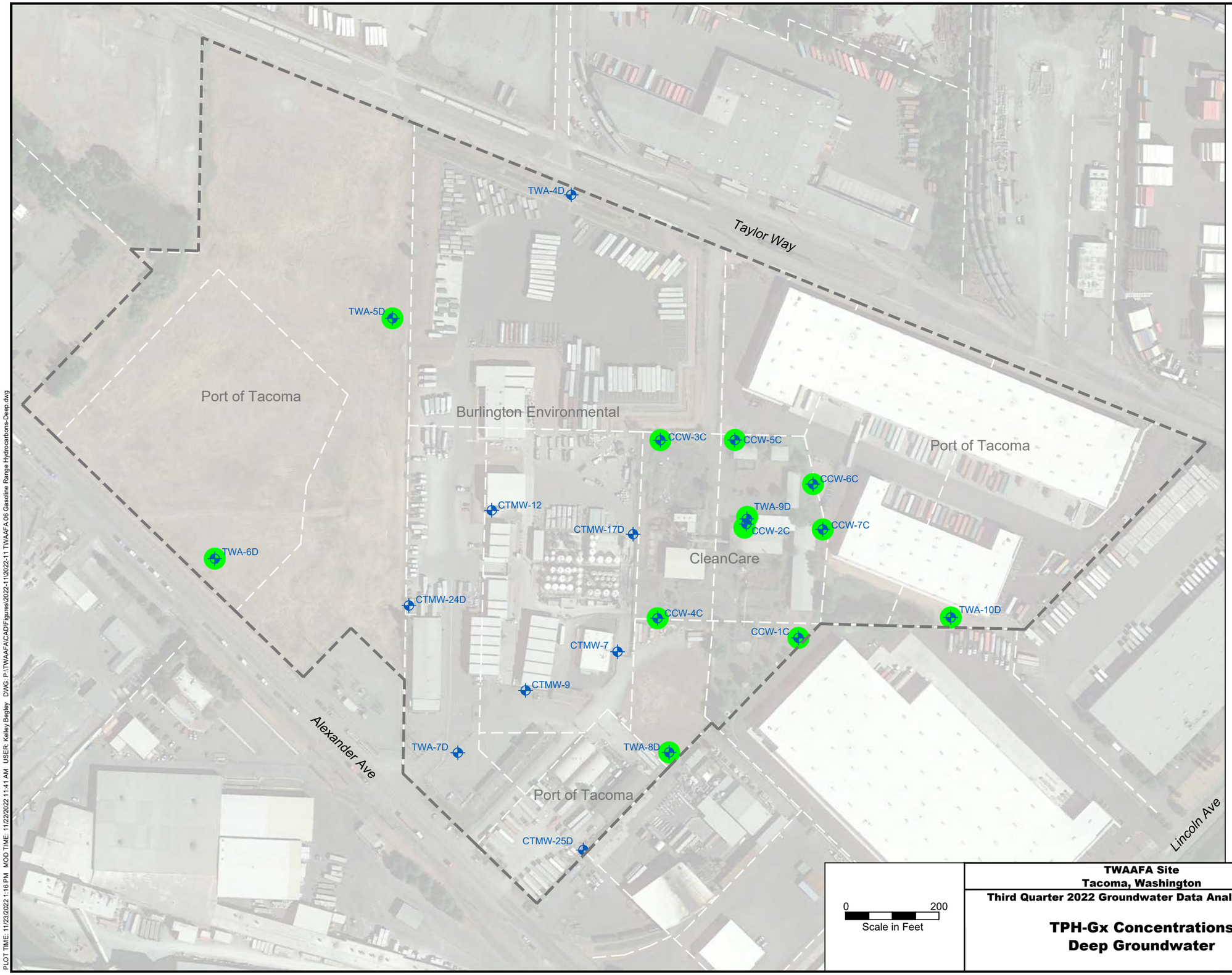
Third Quarter 2022 Groundwater Data Analysis Report

TPH-Gx Concentrations Shallow Groundwater

DALTON OLMSTED FUGLEVAND

FIGURE 5

11/22/2022



Legend

- Deep Aquifer Monitoring Well
- TWAAFA Site Boundary
- Parcel Boundary
- Not Detected
- Detected Below SL from DGWP SL=800 μg/L
- Detected Above SL from DGWP SL=800 μg/L

Abbreviations:

SL = Screening Level

DGWP = Data Gaps Work Plan (DOF, 2020)

μg/L = micrograms/liter

TPH-Gx = Total Petroleum Hydrocarbons - Gasoline Range

0 200
Scale in Feet

TWAAFA Site
Tacoma, Washington

Third Quarter 2022 Groundwater Data Analysis Report

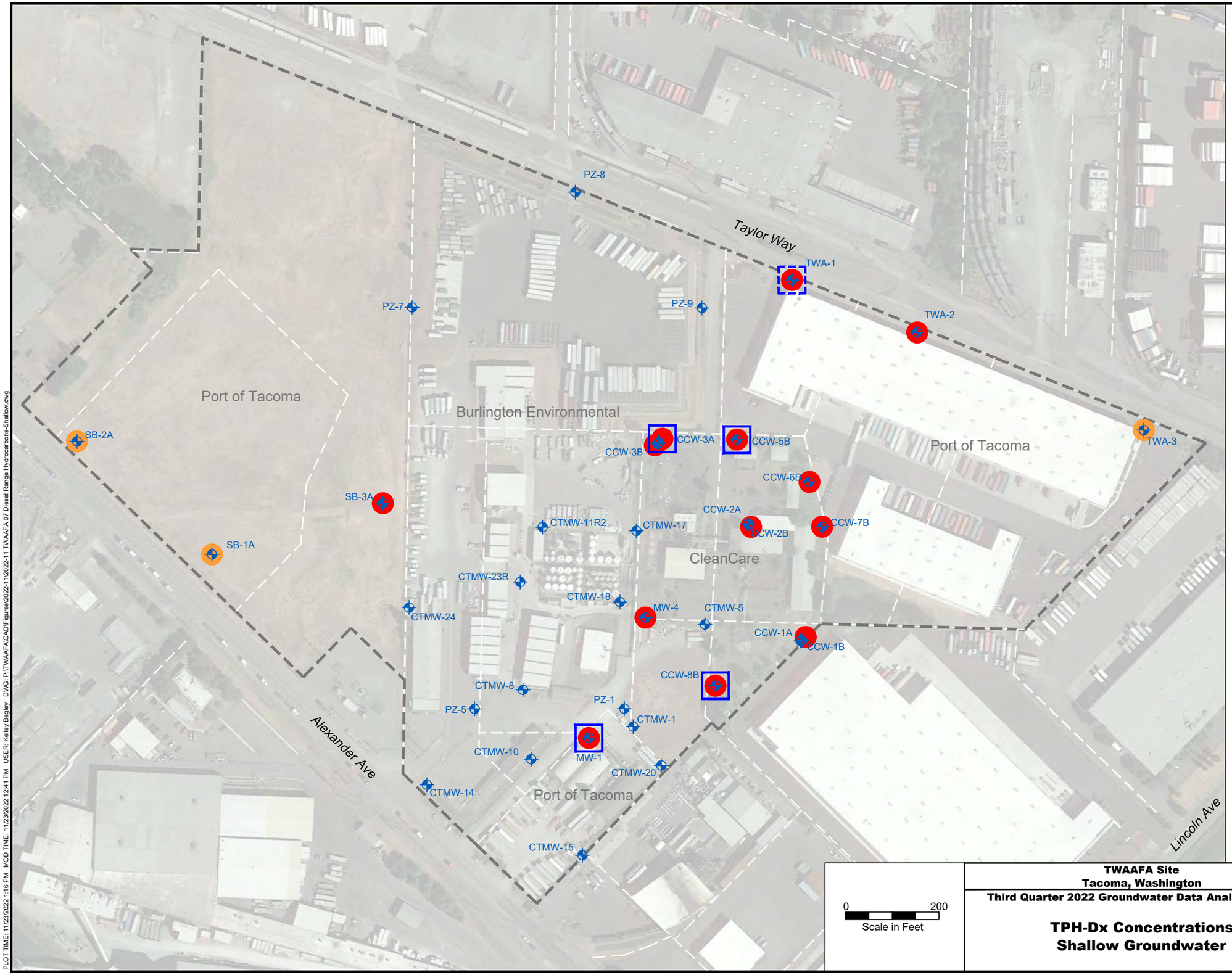
TPH-Gx Concentrations Deep Groundwater

DOF DALTON OLMSTED FUGLEVAND

FIGURE 6

11/22/2022

PLOT TIME: 11/23/2022 1:16 PM MOD TIME: 11/22/2022 11:41 AM USER: Kelley Begley DWG: P:\TWAAFA\CAD\Figures\2022-11\2022-11 TWAAFA 06 Gasoline Range Hydrocarbons-Deep.dwg



Legend

- EPH not detected above laboratory reporting limit
- EPH detected above laboratory reporting limit
- Shallow Aquifer Monitoring Well/ Piezometer
- TWAAFA Site Boundary
- Parcel Boundary
- Not Detected
- Detected Below SL from DGWP SL=500 μg/L
- Detected Above SL from DGWP SL=500 μg/L

Abbreviations:

SL = Screening Level

DGWP = Data Gaps Work Plan (DOF, 2020)

μg/L = micrograms/liter

TPH-Dx = Total Petroleum Hydrocarbons - Diesel Range

EPH = Extractable Petroleum Hydrocarbons

Note:
EPH analyzed at CCW-3A, CCW-5B, CCW-8B, MW-1, and TWA-1 only

0 200
Scale in Feet

TWAAFA Site
Tacoma, Washington
Third Quarter 2022 Groundwater Data Analysis Report

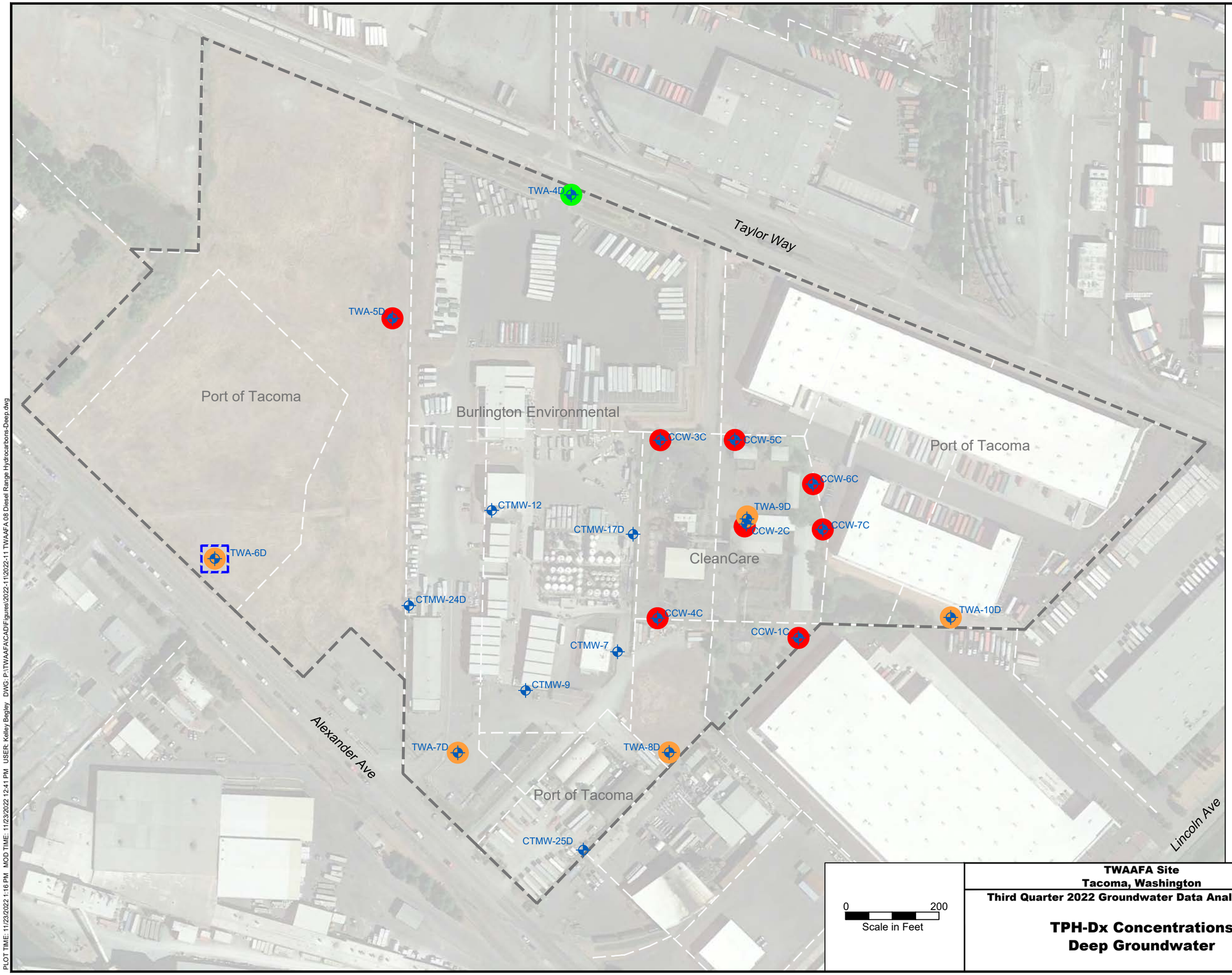
TPH-Dx Concentrations
Shallow Groundwater

DALTON OLMSTED FUGLEVAND

FIGURE 7

11/23/2022

PLOT TIME: 11/23/2022 1:16 PM MOD TIME: 11/23/2022 12:41 PM USER: Kelley Begley DWG: P:\TWAAFA\CAD\Figures\2022-11\2022-11 TWAAFA 07 Diesel Range Hydrocarbons-Shallow.dwg



Legend

- EPH not detected above laboratory reporting limit
- EPH detected above laboratory reporting limit
- Deep Aquifer Monitoring Well
- TWAAFA Site Boundary
- Parcel Boundary
- Not Detected
- Detected Below SL from DGWP SL=500 μg/L
- Detected Above SL from DGWP SL=500 μg/L

Abbreviations:

SL = Screening Level

DGWP = Data Gaps Work Plan (DOF, 2020)

μg/L = micrograms/liter

TPH-Dx = Total Petroleum Hydrocarbons - Diesel Range

EPH = Extractable Petroleum Hydrocarbons

Note:
EPH analyzed at TWA-6D only

0 200
Scale in Feet

TWAAFA Site
Tacoma, Washington
Third Quarter 2022 Groundwater Data Analysis Report

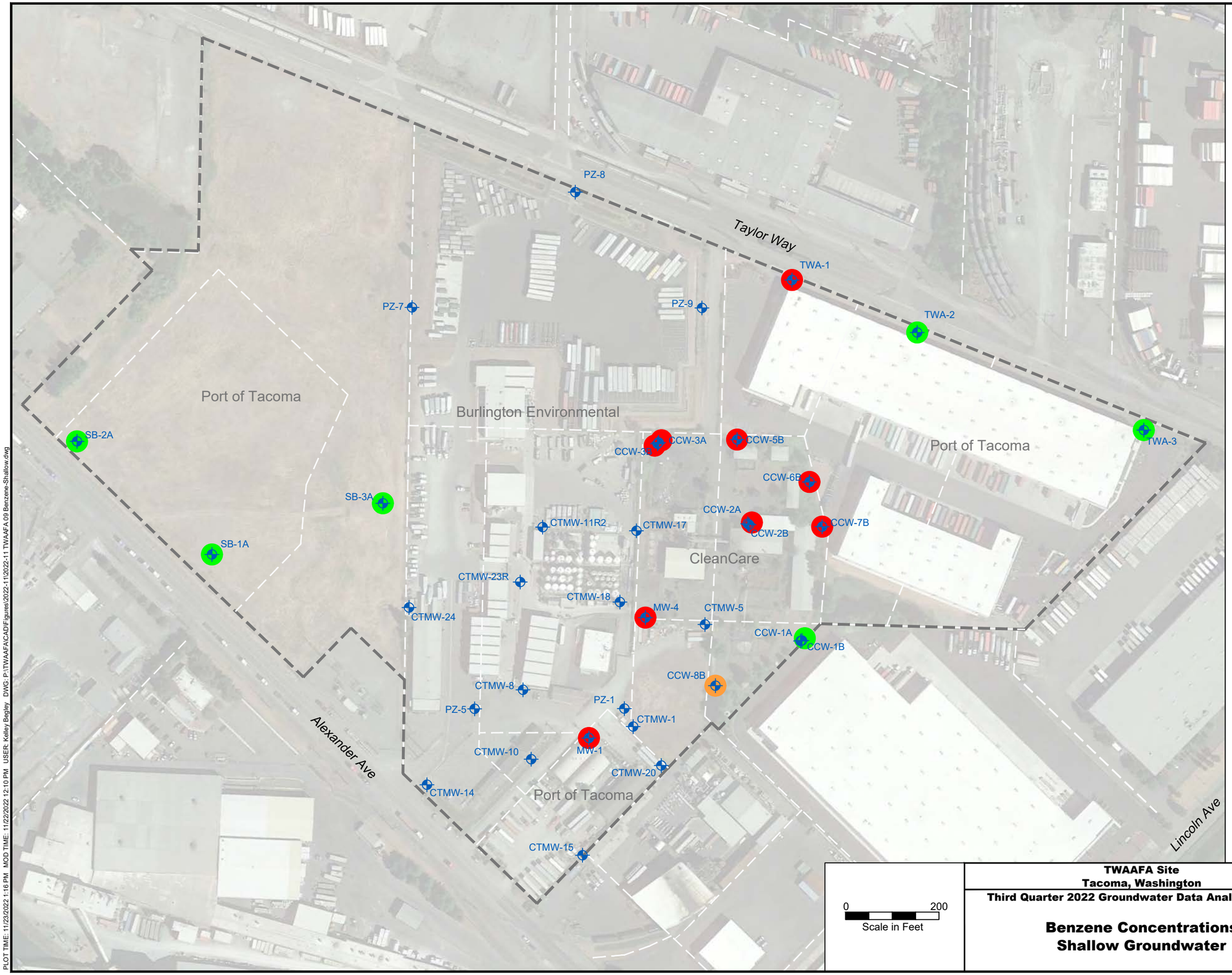
TPH-Dx Concentrations Deep Groundwater

DOF DALTON OLMSTED FUGLEVAND

FIGURE 8

11/23/2022

PLOT TIME: 11/23/2022 1:16 PM MOD TIME: 11/23/2022 12:41 PM USER: Kelley Begley DWG: P:\TWAAFA\CAD\Figures\2022-11\2022-11 TWAAFA 08 Diesel Range Hydrocarbons-Deep.dwg



PLOT TIME: 11/23/2022 1:16 PM MOD TIME: 11/22/2022 12:10 PM USER: Kelley Begley DWG: P:\TWAAFA\CAD\Figures\2022-11\2022-11 TWAAFA 09 Benzene-Shallow.dwg

Legend

- Shallow Aquifer Monitoring Well/ Piezometer
- TWAAFA Site Boundary
- Parcel Boundary
- Not Detected
- Detected Below SL from DGWP SL=1.6 μg/L
- Detected Above SL from DGWP SL=1.6 μg/L

Abbreviations:

SL = Screening Level

DGWP = Data Gaps Work Plan (DOF, 2020)

μg/L = micrograms/liter

0 200
Scale in Feet

TWAAFA Site
Tacoma, Washington

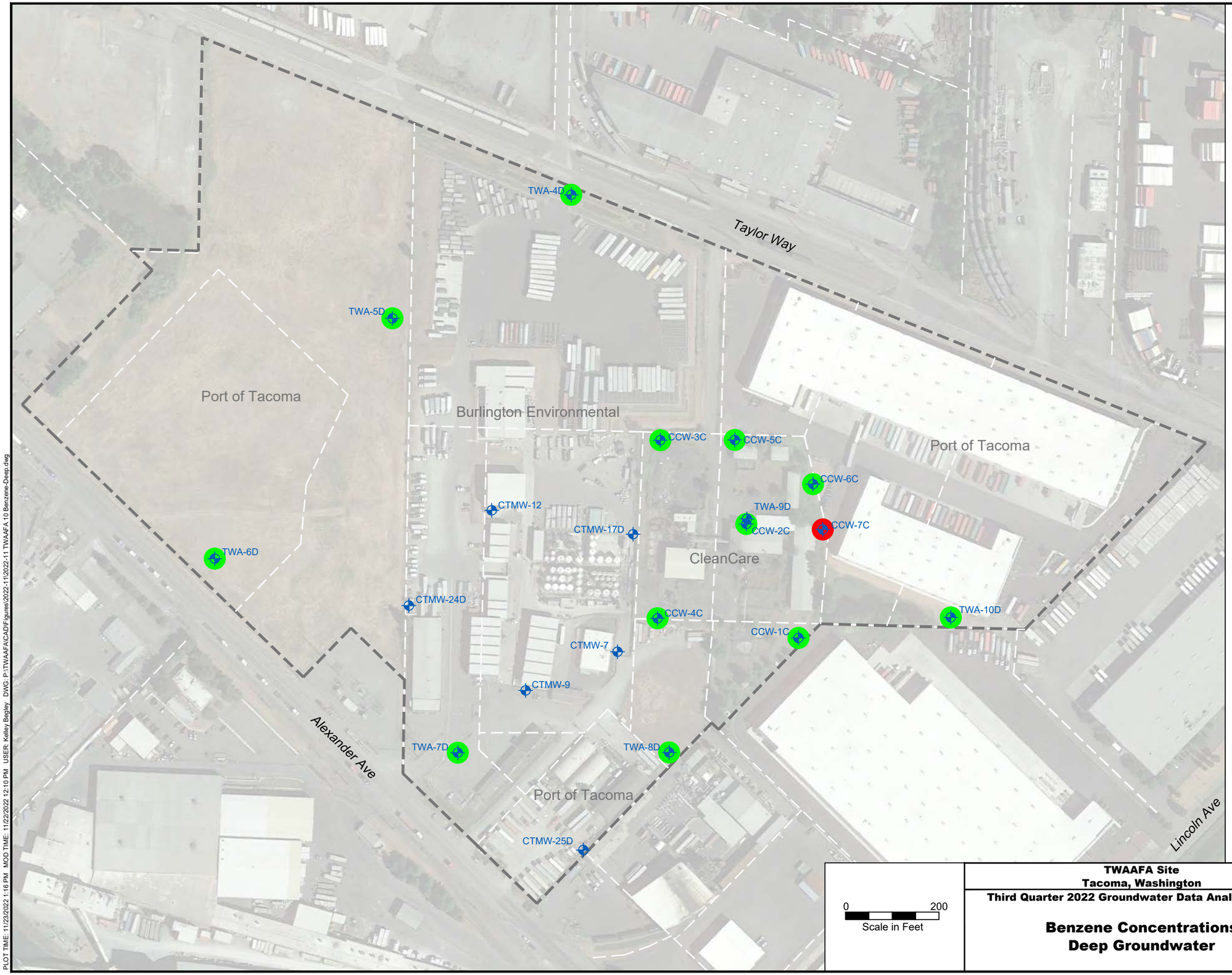
Third Quarter 2022 Groundwater Data Analysis Report

Benzene Concentrations Shallow Groundwater

DALTON OLMSTED FUGLEVAND

FIGURE 9

11/22/2022



Legend

- Deep Aquifer Monitoring Well
- TWAAFA Site Boundary
- Parcel Boundary
- Not Detected
- Detected Below SL from DGWP SL=1.6 μg/L
- Detected Above SL from DGWP SL=1.6 μg/L

Abbreviations:

SL = Screening Level

DGWP = Data Gaps Work Plan (DOF, 2020)

μg/L = micrograms/liter

0 200
Scale in Feet

TWAAFA Site
Tacoma, Washington
Third Quarter 2022 Groundwater Data Analysis Report

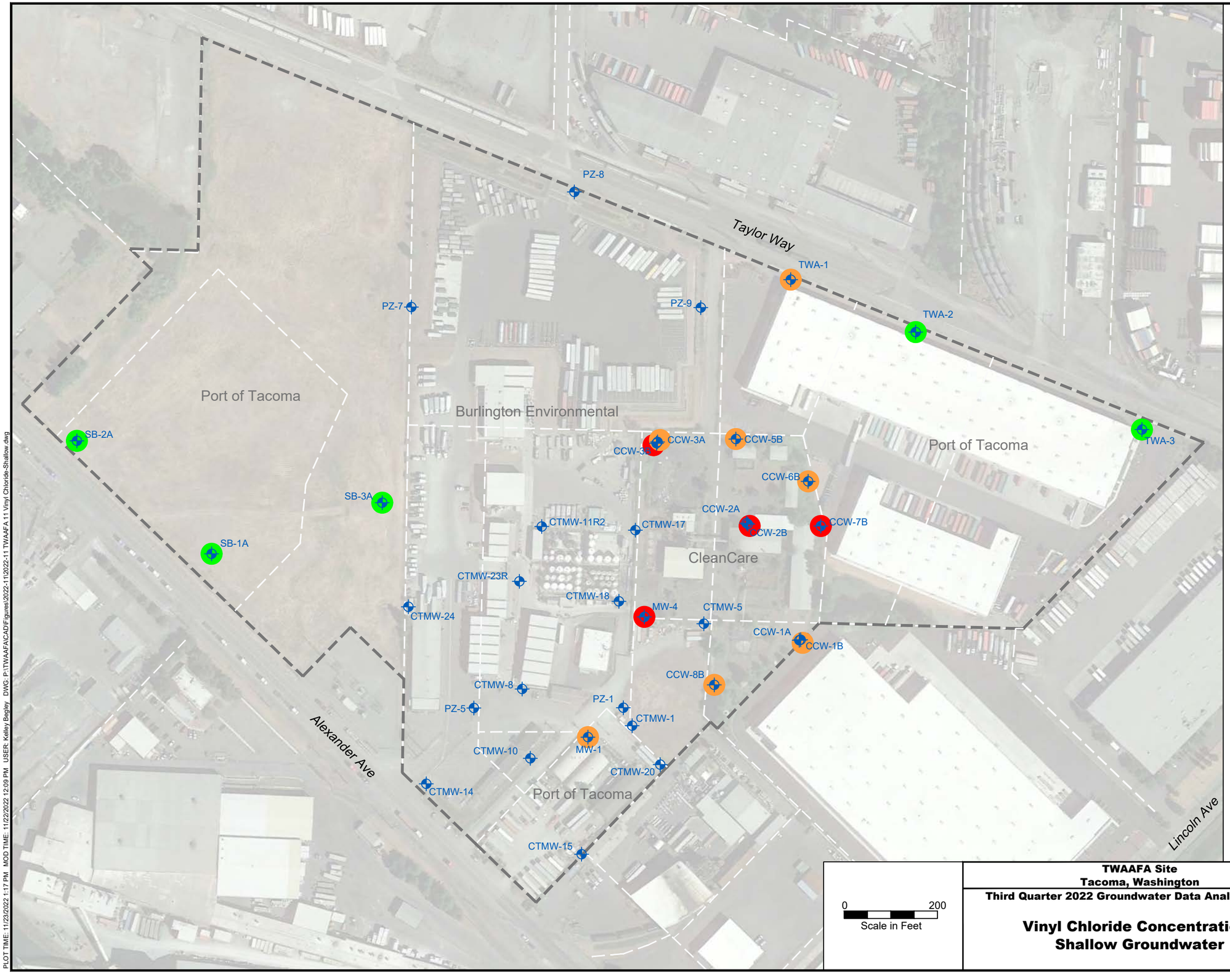
Benzene Concentrations Deep Groundwater

DOF DALTON OLMSTED FUGLEVAND

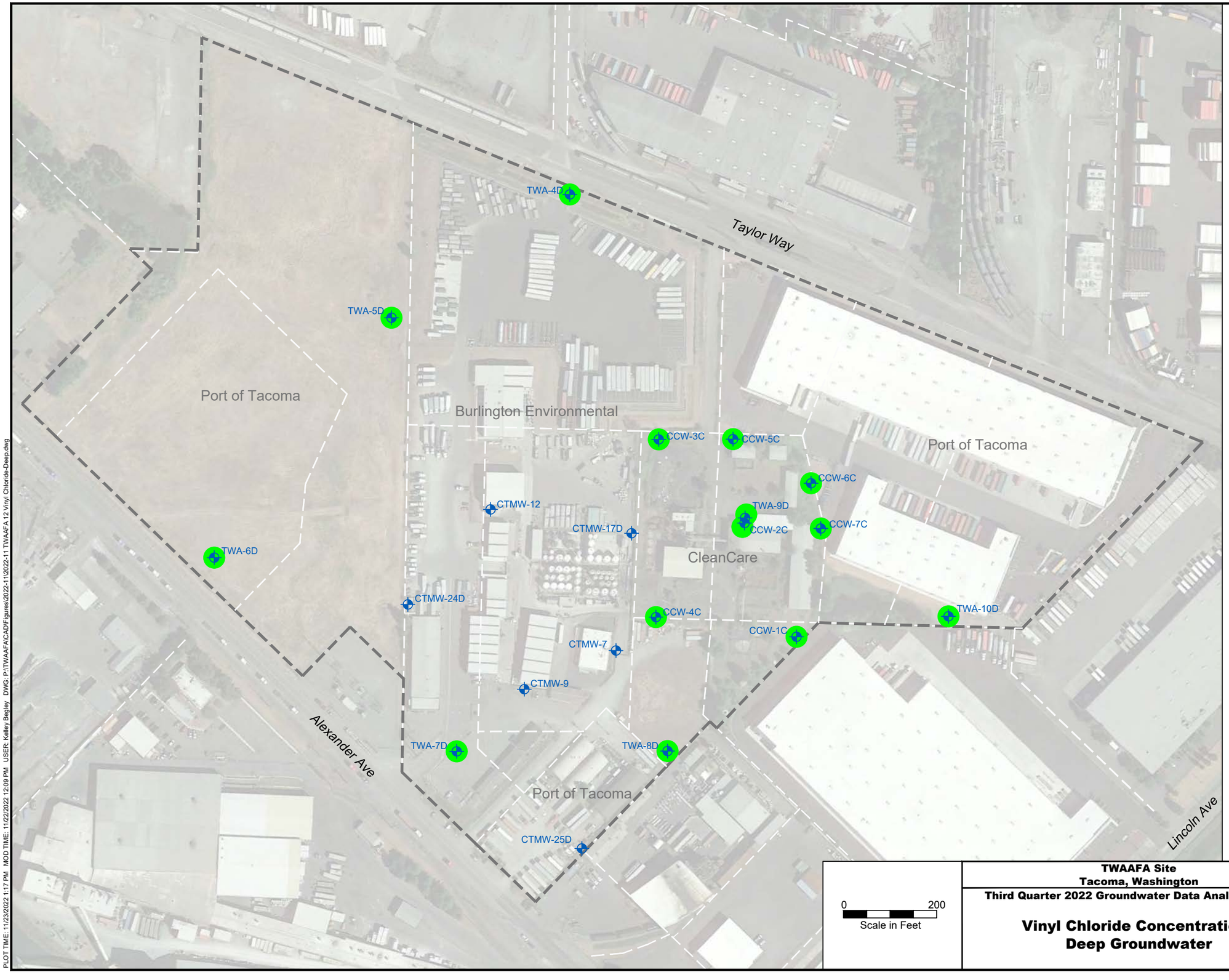
FIGURE 10

11/22/2022

PLOT TIME: 11/23/2022 1:16 PM MOD TIME: 11/22/2022 12:10 PM USER: Kelley Begley DWG: P:\TWAAFA\CAD\Figures\2022-11\2022-11 TWAAFA 10 Benzene-Deep.dwg



PLOT TIME: 11/23/2022 1:17 PM MOD TIME: 11/22/2022 12:09 PM USER: Kelley Begley DWG: P:\TWAAFA\CADD\Figures\2022-11\2022-11 TWAAFA 11 Vinyl Chloride-Shallow.dwg



Legend

- Deep Aquifer Monitoring Well
- TWAAFA Site Boundary
- Parcel Boundary
- Not Detected
- Detected Below SL from DGWP SL=1.8 μg/L
- Detected Above SL from DGWP SL=1.8 μg/L

Abbreviations:

SL = Screening Level

DGWP = Data Gaps Work Plan (DOF, 2020)

μg/L = micrograms/liter

0 200
Scale in Feet

TWAAFA Site
Tacoma, Washington

Third Quarter 2022 Groundwater Data Analysis Report

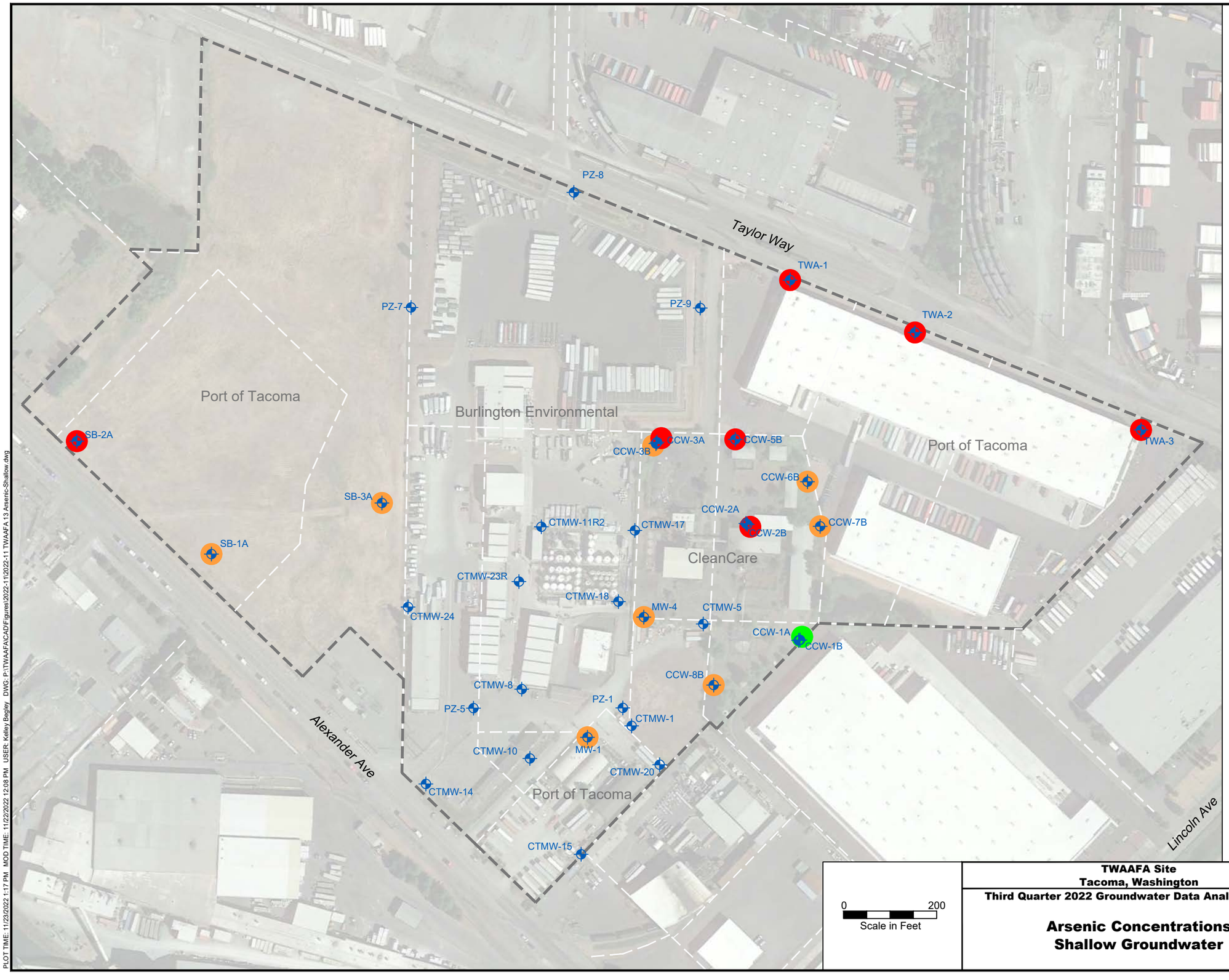
Vinyl Chloride Concentrations Deep Groundwater

DALTON OLMSTED FUGLEVAND

FIGURE 12

11/22/2022

PLOT TIME: 11/23/2022 1:17 PM MOD TIME: 11/22/2022 12:09 PM USER: Kelley Begley DWG: P:\TWAAFA\CAD\Figures\2022-11\2022-11 TWAAFA 12 Vinyl Chloride-Deep.dwg



PLOT TIME: 11/23/2022 1:17 PM MOD TIME: 11/22/2022 12:08 PM USER: Kelley Begley DWG: P:\TWAAFA\CAD\Figures\2022-11\2022-11 TWAAFA 13 Arsenic-Shallow.dwg

Legend

- Shallow Aquifer Monitoring Well/ Piezometer
- TWAAFA Site Boundary
- Parcel Boundary
- Not Detected
- Detected Below SL from DGWP SL=5 μg/L
- Detected Above SL from DGWP SL=5 μg/L

Abbreviations:

SL = Screening Level

DGWP = Data Gaps Work Plan (DOF, 2020)

μg/L = micrograms/liter

0 200
Scale in Feet

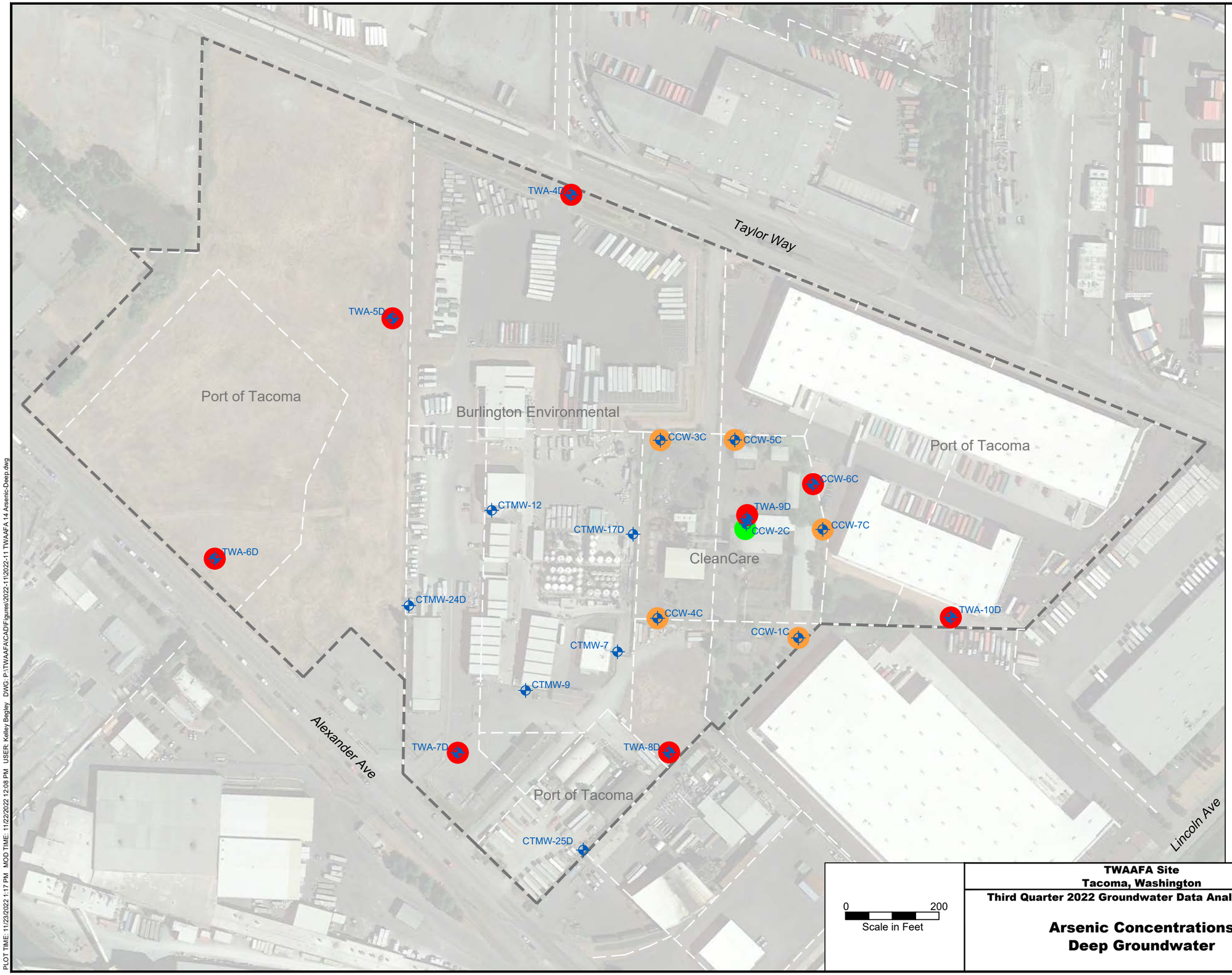
TWAAFA Site
Tacoma, Washington
Third Quarter 2022 Groundwater Data Analysis Report

Arsenic Concentrations Shallow Groundwater

DALTON OLMSTED FUGLEVAND

FIGURE 13

11/22/2022



Legend

- Deep Aquifer Monitoring Well
- TWAAFA Site Boundary
- Parcel Boundary
- Not Detected
- Detected Below SL from DGWP SL=5 μg/L
- Detected Above SL from DGWP SL=5 μg/L

Abbreviations:

SL = Screening Level

DGWP = Data Gaps Work Plan (DOF, 2020)

μg/L = micrograms/liter

0 200
Scale in Feet

TWAAFA Site
Tacoma, Washington
Third Quarter 2022 Groundwater Data Analysis Report

Arsenic Concentrations Deep Groundwater

DOF DALTON OLMSTED FUGLEVAND

FIGURE 14

11/22/2022

PLOT TIME: 11/23/2022 1:17 PM MOD TIME: 11/22/2022 12:08 PM USER: Kelley Begley DWG: P:\TWAAFA\CAD\Figures\2022-11\2022-11 TWAAFA 14 Arsenic-Deep.dwg

PZ-8
Taylor Way
TWA-1
PZ-7
PZ-9
TWA-2
Port of Tacoma
Burlington Environmental
SB-2A
CCW-3A
CCW-5B
CCW-3B
TWA-3
Port of Tacoma
CCW-6B
SB-3A
CCW-2A
CTMW-11R2
CTMW-17
CCW-2B
CCW-7B
SB-1A
CleanCare
CTMW-23R
CTMW-18
MW-4
CTMW-5
CTMW-24
CCW-1A
CCW-1B
CCW-8B
CTMW-8
PZ-1
PZ-5
CTMW-1
Alexander Ave
CTMW-10
MW-1
CTMW-20
CTMW-14
Port of Tacoma
CTMW-15
Lincoln Ave

N

Legend

- Shallow Aquifer Monitoring Well/ Piezometer
- TWAAFA Site Boundary
- Parcel Boundary
- Not Detected
- Detected Below SL from DGWP SL=2.4 μg/L
- Detected Above SL from DGWP SL=2.4 μg/L

Abbreviations:

SL = Screening Level

DGWP = Data Gaps Work Plan (DOF, 2020)

μg/L = micrograms/liter

0 200
Scale in Feet

TWAAFA Site
Tacoma, Washington

Third Quarter 2022 Groundwater Data Analysis Report

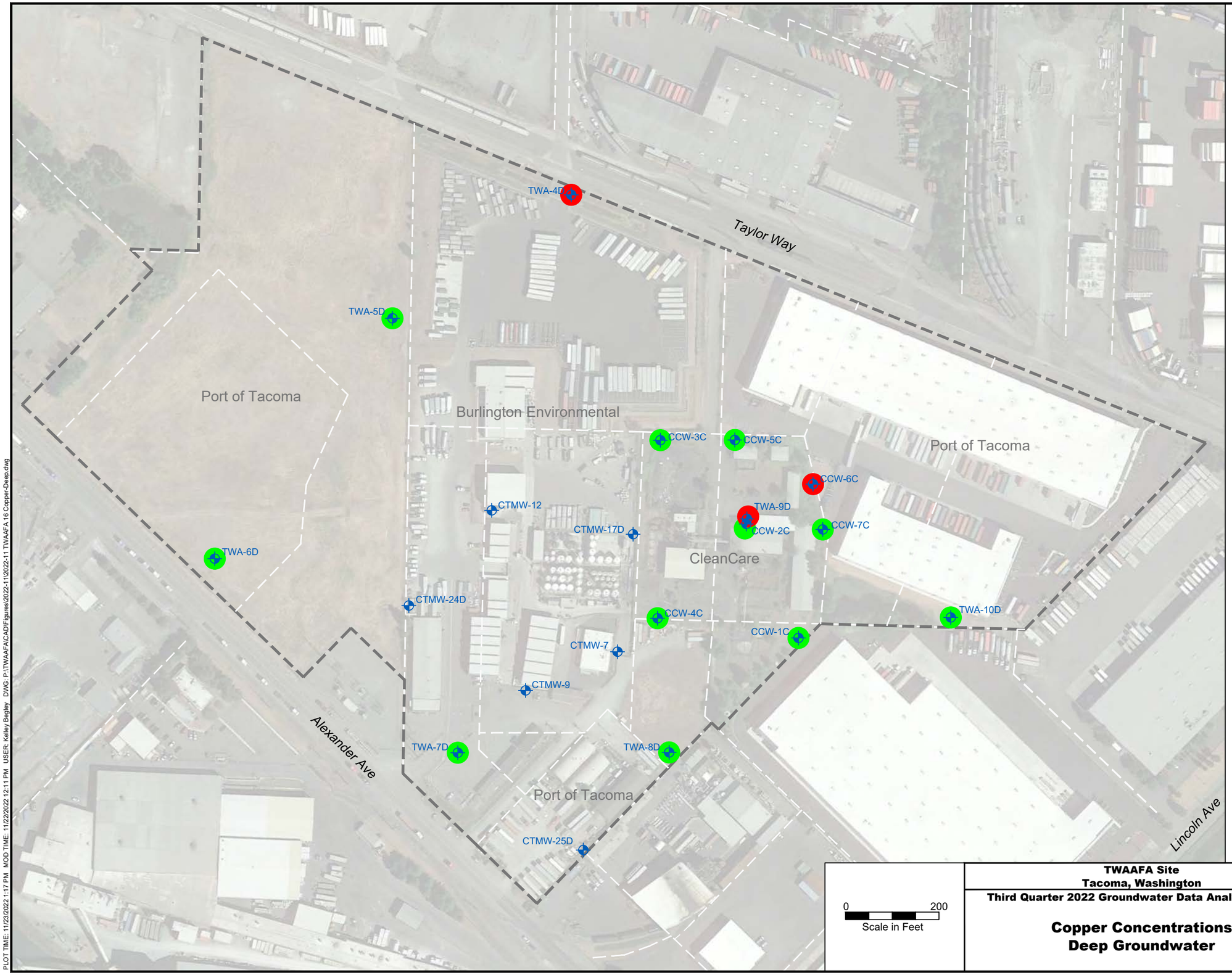
Copper Concentrations Shallow Groundwater

DALTON OLMSTED FUGLEVAND

FIGURE 15

11/22/2022

PLOT TIME: 11/23/2022 1:17 PM MOD TIME: 11/22/2022 12:07 PM USER: Kelley Begley DWG: P:\TWAAFA\CAD\Figures\2022-11\2022-11 TWAAFA 15 Copper-Shallow.dwg



Legend

- Deep Aquifer Monitoring Well
- TWAAFA Site Boundary
- Parcel Boundary
- Not Detected
- Detected Below SL from DGWP SL=2.4 μg/L
- Detected Above SL from DGWP SL=2.4 μg/L

Abbreviations:

SL = Screening Level

DGWP = Data Gaps Work Plan (DOF, 2020)

μg/L = micrograms/liter

0 200
Scale in Feet

TWAAFA Site
Tacoma, Washington

Third Quarter 2022 Groundwater Data Analysis Report

Copper Concentrations Deep Groundwater

DALTON OLMSTED FUGLEVAND

FIGURE 16

11/22/2022

PLOT TIME: 11/23/2022 1:17 PM MOD TIME: 11/22/2022 12:11 PM USER: Kelley Begley DWG: P:\TWAAFA\CAD\Figures\2022-11\2022-11 TWAAFA 16 Copper-Deep.dwg

Appendix A

Groundwater Sampling Field Sheets

DOF DALTON OLMSTED FUGLEVAND

Monitoring Well Sampling Field Sheet

Well No. CCW-1A

Facility: CLEAN CARE.

Date: 8/26/2022

Sampling Personnel: AC/MW

Initial Headspace (ppm) 0.8

Sampling Method:

Intial-Water Level before purge (ft. BTOC)

Equipment Used:
WL -
PID -
WQ -
Pump -
Turb -

Well volume = 0.17 * (total well depth - water level)

End-Water Level post purge/sample with pump on (ft. BTOC):

Well Volume =

Pump Intake Depth (ft.BTOC):

Purge start time:

Purge stop time:

Initial Flow Rate:

Final Flow Rate:

Flow cell disconnected prior to sampling : ☐

Water Quality Measurements

Time	Water level	Purge Rate	pH	Conductivity	Temperature	Dissoved Oxygen	Redox Potential	Turbidity
(military)	ft	(mL/min)	pH Units	uS/cm	°C	mg/L	mV	(NTU)
	< 0.33 ft from 2nd reading	< 500 mL	< 0.1 unit	</= 3%	< 3%	</= 0.3 mg/L	< 10 mV	(3 readings) < 5 NTU or < 10% if >5 NTU
		WELL DRY; NO SAMPLE COLLECTED.						

Notes: TOTAL DEPTH = 535' BTOC HARD BOTTOM.

Bottles and Analyses: (collected in order below)

(6) x 40 mL HCl VOA ☐ 8260/8260 SIM dual acquisition ☐ 1,4 Dioxane ☐ NWTPH-Gx

(1) x 500 mL unpreserved AG TPH-Dx and TPH-Dx with Silica Gel Cleanup

(2) x 1000 mL unpreserved AG 8270E SVOCs and 8270E cPAHs

(2) x 1000 mL unpreserved AG 8082A PCBs

(1) x 500 mL HDPE w/ HNO_3 6020 Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn) and 1613E (Hg)

(12) = Total Bottles

DALTON OLMSTED FUGLEVAND

Monitoring Well Sampling Field Sheet

Well No. CCW-1B

Facility: CLEAN CARE

Date: 8/26/2022

Sampling Personnel: AC / MW

Initial Headspace (ppm) 1.4

Sampling Method: LF PERI

Intial-Water Level before purge (ft. BTOC) 5.18

Equipment Used:
WL - HERON
WQ - YSI PLUS
Turb - OH #966
PID - RKI GX-6000
Pump - GEOTECH PERI

Well volume = 0.17 * (total well depth - water level)

Well Volume = 0.17 (9.6 - 5.18) 0.17 (4.42) = 0.75

End-Water Level post purge/sample with pump on (ft. BTOC): 5.40

Pump Intake Depth (ft.BTOC): ~7.5'

Purge start time: 0900

Purge stop time: 0941

Initial Flow Rate: 300

Final Flow Rate: 300

Flow cell disconnected prior to sampling: ☑ 0920

Water Quality Measurements

Time	Water level	Purge Rate	pH	Conductivity	Temperature	Dissoved Oxygen	Redox Potential	Turbidity
(military)	ft	(mL/min)	pH Units	uS/cm	°C	mg/L	mV	(NTU)
	< 0.33 ft from 2nd reading	< 500 mL	< 0.1 unit	</= 3%	< 3%	</= 0.3 mg/L	< 10 mV	(3 readings) < 5 NTU or < 10% if >5 NTU
0900	5.18	300						
1903	5.39	300	7.7	553	16.4	1.6	213	12.2
0906	5.46	300	7.3	475	16.3	0.9	225	9.0
0909	5.40	300	7.1	433	16.3	0.5	229	9.4
0912	5.40	300	7.0	388	16.5	0.4	233	3.9
0915	5.40	300	7.0	392	16.5	0.4	233	4.7
0918	5.40	300	7.0	379	16.8	0.5	222	3.5
0920	FLOW CELL DISCONNECTED ALL PARMS STABLE							
0925	SAMPLE COLLECTED							
0941	PUMP OFF							

Project:TWAAFA
Sampler: AC/MW
Sample ID: CCW-1B-0822
Date: 08/26/2022
Time: 09:25

Notes: -CLEAR WATER SOME FLOATERS.

Bottles and Analyses: (collected in order below)

(6)	9	x 40 mL HCl VOA	☒ 8260/8260 SIM dual acquisition ☒ 1,4 Dioxane ☒ NWTPH-Gx
(1)	1	x 500 mL unpreserved AG TPH-Dx and TPH-Dx ~~with Silica Gel Cleanup~~ AC
(2)	1	x 1000 mL unpreserved AG 8270E SVOCs and 8270E cPAHs
(2)	2	x 1000 mL unpreserved AG 8082A PCBs
(1)	1	x ~~500~~ 250 mL HDPE w/ HNO_3 6020 Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn) and 1613E (Hg)
(12)	14	= Total Bottles

14 BOTTLES

Project:TWAAFA
Sampler: AC/MW
Sample ID: FIELD BLANK#2-0822
Date: 08/26/2022
Time: 09:30

DOF DALTON OLMSTED FUGLEVAND

Monitoring Well Sampling Field Sheet

Well No. CCW-1C

Facility: CLEAN ~~EARTH~~ AC CAKE

Date: 8/26/22

Sampling Personnel: A. CERRUTI

Sampling Method: LF PERI

Initial Headspace (ppm) 1.2

Intial-Water Level before purge (ft. BTOC) 10.43

Equipment Used:
WL - HERON
WQ - YSI PRO+
Turb - ~~OTT~~ #966
PID - RKI-GX-2000
Pump - GEOTECH PERI

Well volume = 0.17 * (total well depth - water level)

Well Volume = 0.17 (23 - 10.43) = 2

End-Water Level post purge/sample with pump on (ft. BTOC): 10.46

Pump Intake Depth (ft.BTOC): ~21

Purge start time: 0810

Purge stop time: 0852

Initial Flow Rate: 400

Final Flow Rate: 400

Flow cell disconnected prior to sampling : ☑ ~~Flow~~ AC 0834

Water Quality Measurements

Time	Water level	Purge Rate	pH	Conductivity	Temperature	Dissoved Oxygen	Redox Potential	Turbidity
(milltary)	ft	(mL/min)	pH Units	uS/cm	°C	mg/L	mV	(NTU)
	< 0.33 ft from 2nd reading	< 500 mL	< 0.1 unit	</= 3%	< 3%	</= 0.3 mg/L	< 10 mV	(3 readings) < 5 NTU or < 10% if >5 NTU
0810	10.43	400	PURGE BEGINS					
0813	10.46	400	YSI NEW BATTERIES.					
0820	10.46	400	7.29	1031	14.2	1.4	244	2.52
0823	10.46	400	7.2	1045	14.1	0.8	243	1.85
0826	10.46	400	7.1	1058	14.1	0.7	243	1.34
0829	10.46	400	7.1	1070	14.2	0.5	241	0.23
0832	10.46	400	7.1	1066	14.1	0.5	240	1.05
0834	FLOW CELL DISCONNECTED							
0835	SAMPLE COLLECTED.							
0852	PUMP OFF							

Project:TWAAFA
Sampler: AC/MW
Sample ID: CCW-1C-0822
Date: 08/26/2022
Time: 08:35

Notes: - CLEAR WATER; EFFERVESCENT, SLIGHT TAN TINT.
- TOTAL PURGE = 3 gal + SAMPLE VOLUME.

Bottles and Analyses: (collected in order below)

(6)	9	x 40 mL HCl VOA ☒ 8260/8260 SIM dual acquisition ☒ 1,4 Dioxane ☒ NWTPH-Gx
(1)	1	x 500 mL unpreserved AG TPH-Dx and TPH-Dx with Silica Gel Cleanup
(2)	1	x 1000 mL unpreserved AG 8270E SVOCs and 8270E cPAHs
(2)	2	x 1000 mL unpreserved AG 8082A PCBs
(1)	1	x 500 mL HDPE w/ HNO_3 6020 Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn) and 1613E (Hg)
(12)	14	= Total Bottles

DOF DALTON OLMSTED FUGLEVAND

Monitoring Well Sampling Field Sheet

Well No. CCW-2A

Facility: CLEAN ~~EARTH~~ CARE.

Date: 8/24/2022

Sampling Personnel: A. CERRUTI

Sampling Method: LOW FLOW-PER

Initial Headspace (ppm) 6.4

Intial-Water Level before purge (ft. BTOC) 4.55

Equipment Used:
WL - HERON PID - RKI GX60CC
WQ - YSI PRO + Pump - GEOTECH TURB
Turb - OH #966

Well volume = 0.17 * (total well depth - water level)

Well Volume = 0.17 (5.8 - 4.55) = 0.21 gal.

End-Water Level post purge/sample with pump on (ft. BTOC):

Pump Intake Depth (ft.BTOC): ~5.0' → 5.5'

Purge start time: 1247

Purge stop time: 1250

Initial Flow Rate: 300

Final Flow Rate:

Flow cell disconnected prior to sampling : ☐

Water Quality Measurements

Time	Water level	Purge Rate	pH	Conductivity	Temperature	Dissoved Oxygen	Redox Potential	Turbidity
(military)	ft	(mL/min)	pH Units	uS/cm	°C	mg/L	mV	(NTU)
	< 0.33 ft from 2nd reading	< 500 mL	< 0.1 unit	</= 3%	< 3%	</= 0.3 mg/L	< 10 mV	{3 readings} < 5 NTU or < 10% if >5 NTU
1247	4.55	~300	PURGE BEGINS					
1248	4.94	180	12.1	2580	17.3	0.24	17.8	
1250	>5.5'	WL DREW DOWN W/ PURGE STOPPED. RECOVERING VERY SLOWLY	FLOW RATE	<150 mL/min.				
		NO SAMPLE COLLECTED WELL DRY.						

Notes:

Bottles and Analyses: (collected in order below)

(6) x 40 mL HCl VOA ☐ 8260/8260 SIM dual acquisition ☐ 1,4 Dioxane ☐ NWTPH-Gx

(1) x 500 mL unpreserved AG TPH-Dx and TPH-Dx with Silica Gel Cleanup

(2) x 1000 mL unpreserved AG 8270E SVOCs and 8270E cPAHs

(2) x 1000 mL unpreserved AG 8082A PCBs

(1) x 500 mL HDPE w/ HNO_3 6020 Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn) and 1613E (Hg)

(12) = Total Bottles

DALTON OLMSTED FUGLEVAND

Monitoring Well Sampling Field Sheet

Well No. CCW-2B

Facility: CLEAN CALE

Date: 8/24/2022

Sampling Personnel: A. CERRUTI

Sampling Method: LF PELI

Initial Headspace (ppm) ~~6X0~~ AC 64.0

Intial-Water Level before purge (ft. BTOC) 4.35

Equipment Used:
WL - HERON PID - RKI-GX-8000
WQ - YSI PRO+ Pump - GEO TECH PELI
Turb - OH #966

Well volume = 0.17 * (total well depth - water level)

Well Volume = 0.17 (12.8 - 4.35)

End-Water Level post purge/sample with pump on (ft. BTOC): 6.50

Pump Intake Depth (ft.BTOC): ~ 11.5'

Purge start time: 1330

Purge stop time: 1437

Initial Flow Rate: 180

Final Flow Rate: 150

Flow cell disconnected prior to sampling: ☑ @ 1355

Water Quality Measurements

Time	Water level	Purge Rate	pH	Conductivity	Temperature	Dissoved Oxygen	Redox Potential	Turbidity
(military)	ft	(mL/min)	pH Units	uS/cm	°C	mg/L	mV	(NTU)
	< 0.33 ft from 2nd reading	< 500 mL	< 0.1 unit	</= 3%	< 3%	</= 0.3 mg/L	< 10 mV	{3 readings} < 5 NTU or < 10% if >5 NTU
1330	4.35	180	PURGE BEGINS.					
1335	5.53	150	9.85	2412	14.2	0.2	38.9	8.3
1338	6.05	150	9.28	2222	14.1	0.2	47.3	3.6
1341	6.10	150	9.12	2192	14.3	0.2	53.4	2.0
1344	6.11	150	8.8	2190	14.4	0.2	61.0	2.3
1347	6.11	150	8.7	2039	14.3	0.2	68.2	1.3
1350	6.13	150	8.6	1999	14.1	0.2	73.5	1.5
1353	6.15	150	8.6	1986	14.1	0.2	76.2	1.2
1355	FLOW CELL DISCONNECTED		ALL PARMS STABLE		WL > 0.3 feet BUT STABILIZED FOR SEVERAL READINGS.			
1400	SAMPLE COLLECTED.							
1437	PUMP OFF							

Project: TWAAFA
Sampler: AC
Sample ID: CCW-2B-0822
Date: 08/24/2022
Time: 14:00

Notes:
- CLEAR. ODOROUS, LIGHT SHEEN IN PURGE BUCKET.
- TOTAL PURGE = 2.5 gal.

Bottles and Analyses: (collected in order below)

(6)	12	x 40 mL HCl VOA ☒ 8260/8260 SIM dual acquisition ☒ 1,4 Dioxane ☒ NWTPH-Gx
(1)	1	x 500 mL unpreserved AG TPH-Dx and TPH-Dx with Silica Gel Cleanup
(2)	4 >	x 1000 mL unpreserved AG 8270E SVOCs and 8270E cPAHs
(2)		x 1000 mL unpreserved AG 8082A PCBs
(1)	1	x ~~500~~ 250 mL HDPE w/ HNO_3 6020 Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn) and 1613E (Hg)
(12)	18	= Total Bottles + EXTRA VOLUME FOR EPH/VPH ANALYSIS

DALTON OLMSTED FUGLEVAND

Monitoring Well Sampling Field Sheet

Well No. CCW-2C
Facility: CLEAN EARTH
Date: 8/24/2022
Sampling Personnel: A. CERRUTI
Sampling Method: LF PERI
Initial Headspace (ppm) 0.3
Intial-Water Level before purge (ft. BTOC) 9.31
End-Water Level post purge/sample with pump on (ft. BTOC): 9.35
Equipment Used:
WL - HERON PID - RKI-4X 6000
WQ - YSI Pro+ Pump - GEOTECH
Turb - OH #966 TURB
Well volume = 0.17 * (total well depth - water level)
Well Volume = 0.17 (24 - 9.31) = 2.5 gal
Pump Intake Depth (ft.BTOC): ~22'
Purge start time: 1138
Purge stop time:
Initial Flow Rate:
Final Flow Rate:
Flow cell disconnected prior to sampling: ☑ @ 1158

Water Quality Measurements

Time	Water level	Purge Rate	pH	Conductivity	Temperature	Dissoved Oxygen	Redox Potential	Turbidity
(military)	ft	(mL/min)	pH Units	uS/cm	°C	mg/L	mV	(NTU)
	< 0.33 ft from 2nd reading	< 500 mL	< 0.1 unit	</= 3%	< 3%	</= 0.3 mg/L	< 10 mV	(3 readings) < 5 NTU or < 10% if >5 NTU
1138	9.31	400mL	PURGE	BEGINS.				
1142	9.34	400mL	8.2	2109	13.8	0.8	161	3.50
1145	9.35	400	7.7	1845	13.8	0.6	169	4.20
1148	9.35	400	7.4	1685	13.7	0.7	174	1.8
1151	9.35	400	7.2	1529	13.7	0.7	182	1.6
1154	9.35	400	7.2	1505	13.7	0.6	184	1.3
1157	9.35	400	7.2	1510	13.7	0.6	183	0.9
1158	FLOW CELL DISCONNECTED. ALL PARMS STABLE							
1200	SAMPLE COLLECTED.							
1220	PUMP OFF							

Project: TWAAFA
Sampler: AC
Sample ID: CCW-2C-0822
Date: 08/24/2022
Time: 12:00

Notes:
- CLEAR W/ TRACE FLOATERS
- TOTAL PURGE VOLUME = 2.5 gal
- CLEANED MONUMENT OF ROOTS / DEBRIS

Bottles and Analyses: (collected in order below)

☒ 8260/8260 SIM dual acquisition ☒ 1,4 Dioxane ☒ NWTPH-Gx

(6) 9 x 40 mL HCl VOA
(1) 1 x 500 mL unpreserved AG TPH-Dx and TPH-Dx ~~with Silica Gel Cleanup~~ AC
(2) 1 x 1000 mL unpreserved AG 8270E SVOCs and 8270E cPAHs
(2) 2 x 1000 mL unpreserved AG 8082A PCBs
(1) 1 x 500 ~~mL~~ 250 mL HDPE w/ HNO_3 6020 Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn) and 1613E (Hg)

(12) 14 = Total Bottles

(6) (6)

DOF DALTON OLMSTED FUGLEVAND

Monitoring Well Sampling Field Sheet

Well No. CCW-3A
Facility: CLEAN CARE

Date: 8/25/22
Sampling Personnel: A. CERRUTI
Initial Headspace (ppm) 2.0
Sampling Method: LF PERI
Intial-Water Level before purge (ft. BTOC) 5.54
Equipment Used:
WL - HERON PID - RKI 4X-6000
WQ - YSI PROT Pump - GEOTECH PERI
Turb - OH #1966
Well volume = 0.17 * (total well depth - water level)
Well Volume = $0.17(\cancel{5.8} - 7.6 - 5.54) = 0.35$ gal
End-Water Level post purge/sample with pump on (ft. BTOC): 6.65
Pump Intake Depth (ft.BTOC): ~~5~~ AC 6.5'

Purge start time: 1710
Purge stop time: 1804
Initial Flow Rate: 150
Final Flow Rate: 150
Flow cell disconnected prior to sampling: ☑ 1732

Water Quality Measurements

Time	Water level	Purge Rate	pH	Conductivity	Temperature	Dissoved Oxygen	Redox Potential	Turbidity
(military)	ft	(mL/min)	pH Units	uS/cm	°C	mg/L	mV	(NTU)
	< 0.33 ft from 2nd reading	< 500 mL	< 0.1 unit	</= 3%	< 3%	</= 0.3 mg/L	< 10 mV	(3 readings) < 5 NTU or < 10% if >5 NTU
1710	5.54	150	PURGE BEGINS					
1713	5.70	150	6.6	714	21.0	AC ~~1.95~~ 1.0	195	78.8
1716	5.71	150	6.6	754	20.8	0.5	188	16.4
1719	5.72	150	6.6	759	20.7	0.5	186	13.2
1722	5.72	150	6.6	756	20.4	0.4	185	8.4
1725	5.72	150	6.6	758	20.6	0.4	184	3.0
1728	5.76	150	6.6	756	20.6	0.4	182	2.6
1731	5.80	150	6.6	758	20.5	0.4	183	2.2
1732	FLOW CELL DISCONNECTED ALL PARMS STABLE							
1735	SAMPLE COLLECTED							
1804	PUMP OFF							

Project:TWAAFA
Sampler: AC/MW
Sample ID: CCW-3A-0822
Date: 08/25/2022
Time: 17:35

Notes: – TAN WATER BECAME CLEAR
– TOTAL VOL PURGED = 1.25 gal + SAMPLE VOL

Bottles and Analyses: (collected in order below)

(6) 12 x 40 mL HCl VOA ☒ 8260/8260 SIM dual acquisition ☒ 1,4 Dioxane ☒ NWTPH-Gx
(1) 2 x 500 mL unpreserved AG TPH-Dx and TPH-Dx ~~with Silica Gel Cleanup~~ w/ EPH/VPH
(2) 1 x 1000 mL unpreserved AG 8270E SVOCs and 8270E cPAHs
(2) 2 x 1000 mL unpreserved AG 8082A PCBs
(1) 1 x ~~500~~ 250 mL HDPE w/ HNO_3 6020 Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn) and 1613E (Hg)
(12) ~~18~~ = Total Bottles

+ FIELD BLANK #1

Project:TWAAFA
Sampler: AC/MW
Sample ID: FIELD BLANK#1-0822
Date: 08/25/2022
Time: ~~15:15~~ 17:15

DALTON OLMSTED FUGLEVAND

Monitoring Well Sampling Field Sheet

Well No. CCW-3B
Facility: CLEAN CARE

Date: 8/25/2022
Sampling Method: LF PE21
Sampling Personnel: A. CERUTTI
Initial Headspace (ppm) 9.0 ppm.
Intial-Water Level before purge (ft. BTOC) 6.25
End-Water Level post purge/sample with pump on (ft. BTOC): 6.8

Equipment Used:
WL - HERON
WQ - YSI PRO+
Turb - OH #966
PID - RKI-GX-6000
Pump - GEOTECH PE21

Well volume = 0.17 * (total well depth - water level)
Well Volume = 0.17 (10.8 - 6.25)
0.77 gal

Pump Intake Depth (ft.BTOC): ~9'

Purge start time: 1420
Purge stop time:
Initial Flow Rate: 400
Final Flow Rate:
Flow cell disconnected prior to sampling: ☑ 1440

Water Quality Measurements

Time	Water level	Purge Rate	pH	Conductivity	Temperature	Dissoved Oxygen	Redox Potential	Turbidity
(military)	ft	(mL/min)	pH Units	uS/cm	°C	mg/L	mV	(NTU)
	< 0.33 ft from 2nd reading	< 500 mL	< 0.1 unit	</= 3%	< 3%	</= 0.3 mg/L	< 10 mV	(3 readings) < 5 NTU or < 10% if >5 NTU
1417 ~~1420~~	6.25	400	PURGE BEGINS.					
1420	6.81	400						
1423	6.83	400	6.7	510	16.8	1.4	232	10.4
1426	6.80	400	6.6	630	16.3	0.7	209	8.8
1429	6.80	300	6.5	689	16.3	0.5	194	4.12
1432	6.80	300	6.5	695	16.4	0.5	183	4.30
1435	6.80	300	6.5	694	16.2	0.5	180	3.24
1438	6.80	300	6.5	696	16.2	0.4	178	2.6
1440	FLOW CELL DISCONNECTED; ALL PARMS STABLE							
1445	SAMPLE COLLECTED							
1510	PUMP OFF							

Project: TWAAFA
Sampler: AC/MW
Sample ID: CCW-3B-0822
Date: 08/25/2022
Time: 14:45

Notes: - CLEAR WATER. AIR BUBBLES COMING UP IN PURGE TUBE.
- TOTAL PURGE VOLUME = 3.5 gallons + SAMPLE VOLUME.

Bottles and Analyses: (collected in order below)

(6)	9	x 40 mL HCl VOA	☒ 8260/8260 SIM dual acquisition ☒ 1,4 Dioxane ☒ NWTPH-Gx
(1)	1	x 500 mL unpreserved AG TPH-Dx and TPH-Dx with Silica Gel Cleanup	
(2)	1	x 1000 mL unpreserved AG 8270E SVOCs and 8270E cPAHs	
(2)	2	x 1000 mL unpreserved AG 8082A PCBs	
(1)	1	x 500 mL HDPE w/ HNO_3 6020 Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn) and 1613E (Hg)	
(12)	14	= Total Bottles	

6 6

DOF DALTON OLMSTED FUGLEVAND

Monitoring Well Sampling Field Sheet

Well No. CCW-3C

Facility: CLEAN CARE.

Date: ~~8/26/2022~~ 8/25/22

Sampling Personnel: A. CERRUTI

Initial Headspace (ppm) 3.2

Sampling Method: LF PERI

Intial-Water Level before purge (ft. BTOC) 13.10

Equipment Used:
WL - HERON PID - RKI GX 6000
WQ - YSI PROT Pump - GEOTECH PERI
Turb - DH HI96

Well volume = 0.17 * (total well depth - water level)

Well Volume = 0.17 (23 - 13.1) = 1.6 gal

End-Water Level post purge/sample with pump on (ft. BTOC): 13.10

Pump Intake Depth (ft.BTOC): ~21'

Purge start time: 1810

Purge stop time: 1850

Initial Flow Rate: 300

Final Flow Rate: 300

Flow cell disconnected prior to sampling : ☑ 1825

Water Quality Measurements

Time	Water level	Purge Rate	pH	Conductivity	Temperature	Dissoved Oxygen	Redox Potential	Turbidity
(military)	ft	(mL/min)	pH Units	uS/cm	°C	mg/L	mV	(NTU)
	< 0.33 ft from 2nd reading	< 500 mL	< 0.1 unit	</= 3%	< 3%	</= 0.3 mg/L	< 10 mV	(3 readings) < 5 NTU or < 10% if >5 NTU
1810	13.10	300	PURGE	BEGINS				
1813	13.10	300	6.8	597	15.2	0.90	216	6.85
1816	13.10	300	6.8	620	15.0	0.6	208	3.50
1819	13.10	300	6.7	629	15.0	0.6	205	2.6
1822	13.10	300	6.7	635	15.0	0.6	206	3.1
1825	FLOW CELL DISCONNECTED ALL PARMS STABLE.							
1830	SAMPLE COLLECTED							
1850	PUMP OFF.							

Project:TWAAFA
Sampler: AC/MW
Sample ID: CCW-3C-0822
Date: 08/25/2022
Time: 18:30

Notes: - CLEAR WATER
- TOTAL PURGE VOLUME = 1.5 gal. + Volume of SAMPLE

Bottles and Analyses: (collected in order below)

(6)	4	x 40 mL HCl VOA	☒ 8260/8260 SIM dual acquisition ☒ 1,4 Dioxane ☒ NWTPH-Gx
(1)	1	x 500 mL unpreserved AG TPH-Dx and TPH-Dx with Silica Gel Cleanup	
(2)	1	x 1000 mL unpreserved AG 8270E SVOCs and 8270E cPAHs	
(2)	2	x 1000 mL unpreserved AG 8082A PCBs	
(1)	1	x 500 mL HDPE w/ HNO_3 6020 Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn) and 1613E (Hg)	
(12)	14	= Total Bottles	

DOF DALTON OLMSTED FUGLEVAND

Monitoring Well Sampling Field Sheet

Well No. CCW-4C
Facility: CLEAN CARE

Date: 8/26/2022
Sampling Personnel: AC/MW
Initial Headspace (ppm) 0.0
Sampling Method: LF PERI
Intial-Water Level before purge (ft. BTOC) ~~5.1~~ AC 11.06
Equipment Used:
WL - HERON PID - RKI GX-6000
WQ - YSI PRO + Pump - GEOTECH PERI
Turb - CH #966
Well volume = 0.17 * (total well depth - water level)
End-Water Level post purge/sample with pump on (ft. BTOC): 11.12
Well Volume = 0.17 (24 - 11.06) = 2 gal
Pump Intake Depth (ft.BTOC): ~22'

Purge start time:	1212	Initial Flow Rate:	400	Flow cell disconnected prior to sampling : ☑	1232
Purge stop time:	1256	Final Flow Rate:	400		

Water Quality Measurements

Time	Water level	Purge Rate	pH	Conductivity	Temperature	Dissoved Oxygen	Redox Potential	Turbidity
(military)	ft	(mL/min)	pH Units	uS/cm	°C	mg/L	mV	(NTU)
	< 0.33 ft from 2nd reading	< 500 mL	< 0.1 unit	</= 3%	< 3%	</= 0.3 mg/L	< 10 mV	{3 readings} < 5 NTU or < 10% if >5 NTU
1212	11.06	400	PURGE BEGINS					
1215	11.15	400	* AC					
1218	11.12	400	7.5	1048	14.4	1.8	218	3.7
1221	11.12	400	7.3	1053	14.5	1.3	217	2.9
1223	11.12	400	7.2	1057	14.3	0.7	214	1.0
1225	11.12	400	6.9	1040	14.4	0.5	210	0.9
1228	11.12	400	6.9	1036	14.4	0.5	207	0.8
1231	11.12	400						
1232	FLOW CELL DISCONNECTED; ALL PARMS STABLE.							
1235	SAMPLE COLLECTED,							
1256	PUMP OFF.							

Project:TWAAFA
Sampler: AC/MW
Sample ID: CCW-4C-0822
Date: 08/26/2022
Time: 12:35

Notes: - CLEAR WATER.
-
- TOTAL PURGE VOLUME = gal + SAMPLE VOLUME.

Bottles and Analyses: (collected in order below)

(6)	9	x 40 mL HCl VOA	☒ 8260/8260 SIM dual acquisition ☒ 1,4 Dioxane ☒ NWTPH-Gx
(1)	1	x ~~500~~ 1000 mL unpreserved AG TPH-Dx and TPH-Dx with Silica Gel Cleanup	
(2)	1	x 1000 mL unpreserved AG 8270E SVOCs and 8270E cPAHs	
(2)	2	x 1000 mL unpreserved AG 8082A PCBs	
(1)	1	x 500 mL HDPE w/ HNO_3 6020 Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn) and 1613E (Hg)	
(12)	14	= Total Bottles	

6 6

DOF DALTON OLMSTED FUGLEVAND

Monitoring Well Sampling Field Sheet

Well No. CCW-5B
Facility: CLEAN CARE

Date: 8/26/2022
Sampling Personnel: A. CERRUTI / MW-
Initial Headspace (ppm) 0.0
Sampling Method: LF PEGI
Intial-Water Level before purge (ft. BTOC) 4.95
Equipment Used:
WL - HERON
WQ - YSI PRO+
Turb - DH #966
PID - RAE GX 6000
Pump - GEOTECH PEGI
Well volume = 0.17 * (total well depth - water level)
Well Volume = 0.17 (10 - 4.95) = 0.85
End-Water Level post purge/sample with pump on (ft. BTOC): 5.02
Pump Intake Depth (ft.BTOC): ~8'

Purge start time:	1310	Initial Flow Rate:	400	Flow cell disconnected prior to sampling : ☑	13:26
Purge stop time:	1400	Final Flow Rate:	400		

Water Quality Measurements

Time	Water level	Purge Rate	pH	Conductivity	Temperature	Dissoved Oxygen	Redox Potential	Turbidity
(military)	ft	(mL/min)	pH Units	uS/cm	°C	mg/L	mV	(NTU)
	< 0.33 ft from 2nd reading	< 500 mL	< 0.1 unit	</= 3%	< 3%	</= 0.3 mg/L	< 10 mV	(3 readings) < 5 NTU or < 10% If >5 NTU
1310	5.02	400	PURGE BEGINS.					
1313	5.02	400	6.7	672	16.9	~~6.80~~ 0.80	210	3.2
1316	5.02	400	6.6	640	16.2	~~6.46~~ 0.90	213	2.0
1319	5.02	400	6.5	596	16.2	0.50	214	2.0
1322	5.02	400	6.4	570	16.2	0.40	213	0.9
1325	5.02	400	6.4	550	16.3	0.40	211	1.3
1326	FLOW CELL DISCONNECTED; 2 gallons PURGED. ALL PARMS BUT COND. "STABLE".							
1330	SAMPLE	COLLECTED.						
1400	PUMP	OFF.						

Project: TWAAFA
Sampler: AC/MW
Sample ID: CCW-5B-0822
Date: 08/26/2022
Time: 13:30

Notes: - CLEAR WATER
- 3.75 gal + SAMPLE VOLUME = TOTAL PURGE.

Bottles and Analyses: (collected in order below)

(6) 12 x 40 mL HCl VOA ☒ 8260/8260 SIM dual acquisition ☒ 1,4 Dioxane ☒ NWTPH-Gx
(1) 2 x ~~500~~ 1000 mL unpreserved AG TPH-Dx and TPH-Dx ~~with Silica Gel Cleanup~~
(2) 1 x 1000 mL unpreserved AG 8270E SVOCs and 8270E cPAHs
(2) 2 x 1000 mL unpreserved AG 8082A PCBs
(1) 1 x 500 mL HDPE w/ HNO_3 6020 Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn) and 1613E (Hg)
(12) 18 = Total Bottles + EXTRA VOLUME FOR EPH/VPH
+ DUPLICATE = 14 BOTTLES

F&B environmental chemists
Client: ~~MW~~ MW/AC
Sample ID: CCW-9-5B-0822
Date/Time: 8/26/22 13:35
Project: TWAAFA

DOF DALTON OLMSTED FUGLEVAND

Monitoring Well Sampling Field Sheet

Well No. CCW-5C
Facility: CLEAN CARE

Date: 8/26/2022
Sampling Personnel: A. CERRUTI / MW
Initial Headspace (ppm) 0.0
Sampling Method: LF PERI
Intial-Water Level before purge (ft. BTOC) 9.65
Equipment Used:
WL - HERON PID - RKI GX 6000
WQ - YSI PRO + Pump - GEOTECH PERI
Turb - OH #966
Well volume = 0.17 * (total well depth - water level)
End-Water Level post purge/sample with pump on (ft. BTOC): 9.75
Well Volume = 0.17 (24 - 9.65)
Pump Intake Depth (ft.BTOC): ~22'

Purge start time: 1410
Purge stop time:
Initial Flow Rate: 400
Final Flow Rate: 400
Flow cell disconnected prior to sampling: ☑ @ 1428

Water Quality Measurements

Time	Water level	Purge Rate	pH	Conductivity	Temperature	Dissoved Oxygen	Redox Potential	Turbidity
(military)	ft	(mL/min)	pH Units	uS/cm	°C	mg/L	mV	(NTU)
	< 0.33 ft from 2nd reading	< 500 mL	< 0.1 unit	</= 3%	< 3%	</= 0.3 mg/L	< 10 mV	{3 readings} < 5 NTU or < 10% if >5 NTU
1410	9.65	400	PURGE	BEGINS				
1413	9.71	400	6.6	562	14.3	1.6	252	14.3
1416	9.71	400	6.6	585	14.2	0.9	248	10.3
1419	9.71	400	6.6	621	14.1	0.6	238	9.0
1421	9.71	400	6.5	635	14.1	0.5	230	3.4
1424	9.71	400	6.5	644	14.2	0.4	225	2.0
1427	9.72	400	6.5	645	14.1	0.5	220	2.1
1428	FLOW CELL DISCONNECTED, ALL PARMS STABLE							
1430	SAMPLE COLLECTED.							
1448								

F&B environmental chemists
Client: AC/MW
Sample ID: CCW-5C-0822
Date/Time: 8/26/22 1430
Project: TWAAFA

Notes: - CLEAR WATER W/ SLIGHT YELLOW/GREEN TINT.
- TOTAL PURGE VOLUME = 2.75 gal + SAMPLE VOLUME.

Bottles and Analyses: (collected in order below)

(6)	9	x 40 mL HCl VOA ☒ 8260/8260 SIM dual acquisition ☒ 1,4 Dioxane ☒ NWTPH-Gx
(1)	1	x ~~500~~ 1000 mL unpreserved AG TPH-Dx and TPH-Dx ~~with Silica Gel Cleanup~~
(2)	1	x 1000 mL unpreserved AG 8270E SVOCs and 8270E cPAHs
(2)	2	x 1000 mL unpreserved AG 8082A PCBs
(1)	1	x ~~500~~ 250 mL HDPE w/ HNO_3 6020 Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn) and 1613E (Hg)
(12)	14	= Total Bottles

DOF DALTON OLMSTED FUGLEVAND

Monitoring Well Sampling Field Sheet

Well No. CCW-6B

Facility: CLEAN EARTH

Date: 8/25/2022

Sampling Personnel: A. CERNIK / M. WRIGHT

Sampling Method: LF PERI

Initial Headspace (ppm) 0.6

Intial-Water Level before purge (ft. BTOC) 4.24

Equipment Used:
WL - HERON PID - RKI GX 6000
WQ - YSI PROT Pump - GEOTECH PERI
Turb - OH #966

Well volume = 0.17 * (total well depth - water level)

End-Water Level post purge/sample with pump on (ft. BTOC): 4.24

Well Volume = 0.17 (8.5 − 4.2) = 0.73 = 1 WV.

Pump Intake Depth (ft.BTOC): ~6.5'

Purge start time: 0932

Purge stop time: 1022

Initial Flow Rate: 400

Final Flow Rate: 400

Flow cell disconnected prior to sampling : ☑ @ 0955

Water Quality Measurements

Time	Water level	Purge Rate	pH	Conductivity	Temperature	Dissoved Oxygen	Redox Potential	Turbidity
(military)	ft	(mL/min)	pH Units	uS/cm	°C	mg/L	mV	(NTU)
	< 0.33 ft from 2nd reading	< 500 mL	< 0.1 unit	</= 3%	< 3%	</= 0.3 mg/L	< 10 mV	{3 readings} < 5 NTU or < 10% if >5 NTU
0932	4.24	400	PURGE BEGINS					
0934	4.24	400	9.0	562	16.5	2.9	179	33
0937	4.24	400	7.9	509	16.0	1.0	196	7.6
0940	4.24	400	7.1	504	15.9	1.5	200	5.1
0943	4.24	400	6.7	487	15.9	0.6	213	4.6
0946	4.24	400	6.5	475	15.9	0.5	213	2.7
0949	4.24	400	6.4	445	15.9	0.4	210	1.8
0955	FLOW CELL DISCONNECTED.		PARMS CLOSE TO STABLE. >1 WV PURGED @ 2.5 gal PURGED					
1000	SAMPLE COLLECTED							
1005	DUPLICATE COLLECTED.							
1022	PUMP OFF.							

Project:TWAAFA
Sampler: AC/MW
Sample ID: CCW-6B-0822
Date: 08/25/2022
Time: 10:00

Notes:
- TAG = AGL-473
- WATER CLEAR.
- TOTAL PURGE VOLUME = 3.75 gallons. + SAMPLE VOLUME.

Bottles and Analyses: (collected in order below)

(6)	9 ~~8~~ MC	x 40 mL HCl VOA ☒ 8260/8260 SIM dual acquisition ☒ 1,4 Dioxane ☒ NWTPH-Gx
(1)	1	x 500 mL unpreserved AG TPH-Dx and TPH-Dx ~~with Silica Gel Cleanup~~
(2)	1	x 1000 mL unpreserved AG 8270E SVOCs and 8270E cPAHs
(2)	2	x 1000 mL unpreserved AG 8082A PCBs
(1)	1	x ~~500~~ 250 mL HDPE w/ HNO_3 6020 Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn) and 1613E (Hg)
(12)	14	= Total Bottles

Project:TWAAFA
Sampler: AC/MW
Sample ID: CCW-9-6B-0822
Date: 08/25/2022
Time: 10:05

DOF DALTON OLMSTED FUGLEVAND

Monitoring Well Sampling Field Sheet

Well No. CCW-6C

Facility: OLEAN EARTH

Date: 8/25/2022

Sampling Personnel: A. CERRUTI / M. WRIGHT.

Initial Headspace (ppm) 0.0

Sampling Method: LF PERI

Intial-Water Level before purge (ft. BTOC) 9.29

Equipment Used: 4" SC
WL - HERON PID - GX-6000
WQ - YSI PRO+ Pump - GEOTECH
Turb - HF 11900 PERI

Well volume = 0.17 * (total well depth - water level)

Well Volume = (0.17)(23 − 9.29) = 2.3 gal.

End-Water Level post purge/sample with pump on (ft. BTOC): 9.60

Pump Intake Depth (ft.BTOC): ~ 21'

Purge start time:	1035	Initial Flow Rate:	400	Flow cell disconnected prior to sampling : ☑	1100
Purge stop time:	1121	Final Flow Rate:	400		

Water Quality Measurements

Time	Water level	Purge Rate	pH	Conductivity	Temperature	Dissoved Oxygen	Redox Potential	Turbidity
(military)	ft	(mL/min)	pH Units	uS/cm	°C	mg/L	mV	(NTU)
	< 0.33 ft from 2nd reading	< 500 mL	< 0.1 unit	</= 3%	< 3%	</= 0.3 mg/L	< 10 mV	(3 readings) < 5 NTU or < 10% if >5 NTU
1035	9.29	400	PURGE BEGINS					
1038	9.51	400	6.60	1216	13.5	0.5	261	11.36
1041	9.58	400	6.61	1400	13.7	0.9	251	12.2
1044	9.55	400	6.61	1508	14.0	0.5	238	7.9
1047	9.50	400	6.61	1693	14.0	0.4	229	6.2
1050	9.50	400	6.60	1775	14.1	0.4	217	6.0
1053	9.50	400	6.60	1808	14.2	0.4	214	4.5
1056	9.50	400	6.60	1819	13.9	0.5	207	3.7
1059	9.50	400	6.60	1845	13.9	0.5	204	4.7
1100	FLOW CELL DISCONNECTED			2.5 gal PURGED & PARMS STABLE				
1100	SAMPLE COLLECTED							
1121	PUMP OFF							

Project:TWAAFA
Sampler: AC/MW
Sample ID: CCW-6C-0822
Date: 08/25/2022
Time: 11:00

Notes: - YELLOWISH/TAN COLOR WATER / EFFERVESCENT
- TOTAL VOLUME PURGED = 3.5 gallons + SAMPLE VOLUME
-

Bottles and Analyses: (collected in order below)

(6)	9	x 40 mL HCl VOA ☒ 8260/8260 SIM dual acquisition ☒ 1,4 Dioxane ☒ NWTPH-Gx
(1)	1	x 500 mL unpreserved AG TPH-Dx and TPH-Dx ~~with Silica Gel Cleanup~~ nc.
(2)	1	x 1000 mL unpreserved AG 8270E SVOCs and 8270E cPAHs
(2)	2	x 1000 mL unpreserved AG 8082A PCBs
(1)	1	x 500/250 mL HDPE w/ HNO_3 6020 Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn) and 1613E (Hg)
(12)	14	= Total Bottles

DALTON OLMSTED FUGLEVAND

Monitoring Well Sampling Field Sheet

Well No. CCW-7B
Facility: CLEAN EARTH

Date: 8/25/2022
Sampling Personnel: A. CERRUTI / M. WRIGHT
Sampling Method:
Initial Headspace (ppm) 0.0
Intial-Water Level before purge (ft. BTOC) 4.18
End-Water Level post purge/sample with pump on (ft. BTOC): 4.19

Equipment Used:
WL - HERON PID - RAE 4X-6000
WQ - YSI PRO + Pump - GEOTECH PEGI
Turb - OH #966

Well volume = 0.17 * (total well depth - water level)
Well Volume = 0.17 (9 - 4.2) = 0.8 gal.

Pump Intake Depth (ft.BTOC): ~7'

Purge start time: 1230
Purge stop time: 1330
Initial Flow Rate: 400
Final Flow Rate: 400
Flow cell disconnected prior to sampling: ☑ @ 1249

Water Quality Measurements

Time	Water level	Purge Rate	pH	Conductivity	Temperature	Dissoved Oxygen	Redox Potential	Turbidity
(military)	ft	(mL/min)	pH Units	uS/cm	°C	mg/L	mV	(NTU)
	< 0.33 ft from 2nd reading	< 500 mL	< 0.1 unit	</= 3%	< 3%	</= 0.3 mg/L	< 10 mV	(3 readings) < 5 NTU or < 10% if >5 NTU
1230	4.18	400	PURGE BEGINS					
1233	4.18	400	6.9	502	16.0	1.0	178	1.30
1236	4.18	400	6.5	440	16.3	0.6	193	1.2
1239	4.19	400	6.4	425	16.4	0.4	195	1.3
1242	4.19	400	6.3	409	16.3	0.3	194	1.2
1245	4.19	400	6.3	403	16.5	0.3	191	1.6
1248	4.19	400	6.3	400	16.4	0.3	189	1.3
1249	FLOW CELL DISCONNECTED.		ALL PARAMS	STABLE.				
1250	SAMPLE COLLECTED							
1330	PUMP OFF							

Project:TWAAFA
Sampler: AC/MW
Sample ID: CCW-7B-0822
Date: 08/25/2022
Time: 12:50

Notes: - CLEAR WATER
- TRUCKS MOVING TRAILERS @ ADJACENT PROPERTY.
- TOTAL VOLUME PURGED = 2.5 gal

Bottles and Analyses: (collected in order below)

(6)	18	x 40 mL HCl VOA	☒ 8260/8260 SIM dual acquisition ☒ 1,4 Dioxane ☒ NWTPH-Gx
(1)	3	x 500 mL unpreserved AG TPH-Dx and TPH-Dx ~~with Silica Gel Cleanup~~	
(2)	3	x 1000 mL unpreserved AG 8270E SVOCs and 8270E cPAHs	
(2)	4	x 1000 mL unpreserved AG 8082A PCBs	
(1)	2	x 500 (250) mL HDPE w/ HNO_3 6020 Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn) and 1613E (Hg)	
(12)	30	= Total Bottles	

EXTRA VOLUME COLLECTED FOR MS/MSD

DALTON OLMSTED FUGLEVAND

Monitoring Well Sampling Field Sheet

Well No. CCW-7C
Facility: CLEAN EARTH

Date: 8/25/2022
Sampling Personnel: A. CERRUTI / M. WRIGHT
Sampling Method: LF PERI
Initial Headspace (ppm) 0.1
Intial-Water Level before purge (ft. BTOC) 9.29
End-Water Level post purge/sample with pump on (ft. BTOC): 9.31
Equipment Used:
WL - HERON PID - RKI-GX-6000
WQ - YSI PROF Pump - GEOTECH PERI
Turb - OH #966
Well volume = 0.17 * (total well depth - water level)
Well Volume = 0.17 (26 - 9.29) = 2.8 gal.
Pump Intake Depth (ft.BTOC): ~24'

Purge start time: 1145
Purge stop time: 1220
Initial Flow Rate: 400
Final Flow Rate: 400
Flow cell disconnected prior to sampling: ☑ 1203

Water Quality Measurements

Time	Water level	Purge Rate	pH	Conductivity	Temperature	Dissoved Oxygen	Redox Potential	Turbidity
(military)	ft	(mL/min)	pH Units	uS/cm	°C	mg/L	mV	(NTU)
	< 0.33 ft from 2nd reading	< 500 mL	< 0.1 unit	</= 3%	< 3%	</= 0.3 mg/L	< 10 mV	(3 readings) < 5 NTU or < 10% if >5 NTU
1145	9.29	400	PURGE	BEGINS				
1148	9.31	400	6.9	1280	14.8	0.8	232	2.43
1151	9.31	400	6.9	1206	14.3	0.5	222	3.34
1154	9.31	400	6.8	1146	14.1	0.4	212	3.42
1157	9.31	400	6.7	1118	14.1	0.4	204	0.2
1200	9.31	400	6.8	1113	14.2	0.3	201	1.4
1203	FLOW CELL DISCONNECTED.		ALL PARMS	STABLE.		ORP ACCURACY	+/- 20mV	
1205	SAMPLE	COLLECTED.						

Project:TWAAFA
Sampler: AC/MW
Sample ID: CCW-7C-0822
Date: 08/25/2022
Time: 12:05

Notes:
- AGL-476
- CLEAR WATER. SLIGHT YELLOW/TAN TINT.
- TOTAL PURGE = 2.5 gal.

Bottles and Analyses: (collected in order below)

(6)	9	x 40 mL HCl VOA	☒ 8260/8260 SIM dual acquisition ☒ 1,4 Dioxane ☒ NWTPH-Gx
(1)	1	x 500 mL unpreserved AG TPH-Dx and TPH-Dx with Silica Gel Cleanup	
(2)	1	x 1000 mL unpreserved AG 8270E SVOCs and 8270E cPAHs	
(2)	2	x 1000 mL unpreserved AG 8082A PCBs	
(1)	1	x 500 mL HDPE w/ HNO_3 6020 Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn) and 1613E (Hg)	
(12)	14	= Total Bottles	

DALTON OLMSTED FUGLEVAND

Monitoring Well Sampling Field Sheet

Well No. CCW-8B

Facility: CLEAN EARTH

Date: 8/26/2022

Sampling Personnel: AC/MW

Initial Headspace (ppm) 0.0

Sampling Method: LF PERI

Intial-Water Level before purge (ft. BTOC) 5.85

Equipment Used:
WL - HERON PID - RAE 4XL000
WQ - YSI PRO+ Pump - GEOTECH PERI
Turb - HH #966

Well volume = 0.17 * (total well depth - water level)

Well Volume = 0.17 (11 - 5.85) = 0.87

End-Water Level post purge/sample with pump on (ft. BTOC): 5.93

Pump Intake Depth (ft.BTOC): ~9'

Purge start time: 1008

Purge stop time:

Initial Flow Rate: 400

Final Flow Rate: 400

Flow cell disconnected prior to sampling : ☑ 1022

Water Quality Measurements

Time	Water level	Purge Rate	pH	Conductivity	Temperature	Dissoved Oxygen	Redox Potential	Turbidity
(military)	ft	(mL/min)	pH Units	uS/cm	°C	mg/L	mV	(NTU)
	< 0.33 ft from 2nd reading	< 500 mL	< 0.1 unit	</= 3%	< 3%	</= 0.3 mg/L	< 10 mV	(3 readings) < 5 NTU or < 10% if >5 NTU
1008	5.85	400	PURGE	BEGINS				
1011	5.93	400	7.2	616	21.1	14.3	293.	7.20
1014	5.93	400	7.1	322	16.2	0.8	248	2.8
1017	5.93	400	7.1	325	16.1	0.6	248	4.2
1020	5.93	400	7.0	329	16.1	0.5	245	1.7
1022	FLOW CELL DISCONNECTED; ALL PARMS STABLE. DO < 1 mg/L						1.25 gal PURGED.	
1025	SAMPLE COLLECTED.							
1038	PUMP OFF							

Project:TWAAFA
Sampler: AC/MW
Sample ID: CCW-8B-0822
Date: 08/26/2022
Time: 10:25

Notes: - WATER CLEAR;
- TOTAL PURGE VOL = 1.25 gal + SAMPLE VOLUME,

Bottles and Analyses: (collected in order below)

(6)	4	x 40 mL HCl VOA ☒ 8260/8260 SIM dual acquisition ☒ 1,4 Dioxane ☒ NWTPH-Gx
(1)	1	x ~~500~~ 1000 mL unpreserved AG TPH-Dx and TPH-Dx with ~~Silica Gel Cleanup~~
(2)	1	x 1000 mL unpreserved AG 8270E SVOCs and 8270E cPAHs
(2)	2	x 1000 mL unpreserved AG 8082A PCBs
(1)	1	x ~~500~~ 150 mL HDPE w/ HNO_3 6020 Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn) and 1613E (Hg)
(12)	14	= Total Bottles

DOF DALTON OLMSTED FUGLEVAND

Monitoring Well Sampling Field Sheet

Well No. MW-4

Facility: CLEAN CARE

Date: 8/26/2022

Sampling Personnel: AC/MW

Initial Headspace (ppm) 0.0

Sampling Method: LF PERI

Intial-Water Level before purge (ft. BTOC) ~~8.00~~ 7.96 AC

Equipment Used:
WL - HERON
WQ - YSI PROT
Turb - OH #966
PID - RKI-GX-6000
Pump - GEOTECH PERI

Well volume = 0.17* (total well depth - water level)

Well Volume = $0.17(\cancel{11 = 8.0})(13 - 7.96)$
$= 0.85$ gal

End-Water Level post purge/sample with pump on (ft. BTOC):

Pump Intake Depth (ft.BTOC): ~11

Purge start time:	1102	Initial Flow Rate:	150	Flow cell disconnected prior to sampling :	☑ 1130
Purge stop time:	1203	Final Flow Rate:	200		

Water Quality Measurements

Time	Water level	Purge Rate	pH	Conductivity	Temperature	Dissoved Oxygen	Redox Potential	Turbidity
(military)	ft	(mL/min)	pH Units	uS/cm	°C	mg/L	mV	(NTU)
	< 0.33 ft from 2nd reading	< 500 mL	< 0.1 unit	</= 3%	< 3%	</= 0.3 mg/L	< 10 mV	(3 readings) < 5 NTU or < 10% if >5 NTU
1102	7.96	150	PURGE BEGINS					
1105	8.35	150						
1108	8.80	~~200~~ 150	7.3	888	17.9	1.5	263	17.5
1111	9.21	200	7.4	1010	16.9	1.4	259	16.8
1114	9.42	200	7.5	1091	16.7	0.8	246	13.0
1117	9.62	200	7.6	1123	16.5	0.7	238	13.2
1120	9.62	200	7.6	1154	16.2	0.6	229	13.2
1124	9.62	200	7.6	1176	16.2	0.5	220	9.1
1127	9.62	200	7.6	1181	16.2	0.5	218	7.0
1130	9.62	200	7.6	1188	16.2	0.5	215	6.0
	FLOW CELL DISCONNECTED. ALL PARMS BUT TURBIDITY STABLE							
1133						W/ FLOW CELL DISCONNECTED:		6.2
1136								5.9
						TURB. STABLE ✓		~~5.9~~ AC
1140	SAMPLE	COLLECTED						
1203	PUMP OFF.							

Project: TWAAFA
Sampler: AC/MW
Sample ID: MW-4-0822
Date: 08/26/2022
Time: 11:40

Notes:
- MEASURED TOTAL DEPTH W/ DECONNED WL METER. 13' BTOC.
- BLACK & BROWN FLOATING BLEBS.
- TOTAL PURGE = 2 gal + TOTAL SAMPLE VOL.

Bottles and Analyses: (collected in order below)

(6)	9	x 40 mL HCl VOA ☒ 8260/8260 SIM dual acquisition ☒ 1,4 Dioxane ☒ NWTPH-Gx
(1)	1	x ~~500~~ 1000 mL unpreserved AG TPH-Dx and TPH-Dx ~~with Silica Gel Cleanup~~ AC
(2)	1	x 1000 mL unpreserved AG 8270E SVOCs and 8270E cPAHs
(2)	2	x 1000 mL unpreserved AG 8082A PCBs
(1)	1	x ~~500~~ 250 mL HDPE w/ HNO_3 6020 Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn) and 1613E (Hg)
(12)	14	= Total Bottles

DOF DALTON OLMSTED FUGLEVAND

Monitoring Well Sampling Field Sheet

Well No. TWA-4D

Facility: CLEAN EARTH

Date: 8/23/22

Sampling Personnel: A.CERRUTI / M.WRIGHT

Initial Headspace (ppm) 0.2

Sampling Method: LF PERI

Intial-Water Level before purge (ft. BTOC) 10.94

Equipment Used:
WL - HERON #1989 PID - MINI RAE
WQ - YSI PRO+ Pump - GEOTECH PERI
Turb - OH #966

Well volume = 0.17 * (total well depth - water level)

Well Volume = 0.17 (57.7 - 10.94)
8 gal

End-Water Level post purge/sample with pump on (ft. BTOC): 12.37

Pump Intake Depth (ft.BTOC): 55'

Purge start time: 1254

Purge stop time: 1328

Initial Flow Rate: 210

Final Flow Rate: 210

Flow cell disconnected prior to sampling : ☑ @ 1314.

Water Quality Measurements

Time	Water level	Purge Rate	pH	Conductivity	Temperature	Dissoved Oxygen	Redox Potential	Turbidity
(military)	ft	(mL/min)	pH Units	uS/cm	°C	mg/L	mV	(NTU)
	< 0.33 ft from 2nd reading	< 500 mL	< 0.1 unit	</= 3%	< 3%	</= 0.3 mg/L	< 10 mV	{3 readings} < 5 NTU or < 10% if >5 NTU
1254	10.94							
1257	11.55	210	7.6	4268	16.8	0.4	136.1	2.70
1300	11.93	210	~~7.7~~ 7.7	4347	16.8	0.3	130.0	2.20
1303	12.13	210	~~7.7~~	4417	16.7	0.3	126.1	2.30
1306	12.18	210	7.7	4473	16.5	0.2	123.1	1.73
1309	12.23	210	7.7	4519	16.5	0.2	118.4	1.80
1312	12.24	210	7.7	4489	16.6	0.2	113.2	1.60
1314	FLOW CELL DISCONNECTED							
1315	SAMPLE COLLECTED							
1328	PUMP OFF							

Project:TWAAFA
Sampler: AC/MW
Sample ID: TWA-4D-0822
Date: 8/23/2022
Time: 13:15

Notes: -CLEAR WATER.
-TOTAL PURGE VOLUME = 2 gallons.

Bottles and Analyses: (collected in order below)

(6)	6	x 40 mL HCl VOA ☒ 8260/8260 SIM dual acquisition ☐ 1,4 Dioxane ☐ NWTPH-Gx
(1)	1	x 500 mL unpreserved AG TPH-Dx and TPH-Dx ~~with Silica Gel Cleanup~~ AC
(2)	0	x 1000 mL unpreserved AG 8270E SVOCs and 8270E cPAHs
(2)	0	x 1000 mL unpreserved AG 8082A PCBs
(1)	1	x 500 mL HDPE w/ HNO_3 6020 Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn) and 1613E (Hg)
(12)	8	= Total Bottles

DALTON OLMSTED FUGLEVAND

Monitoring Well Sampling Field Sheet

Well No. TWA-7D

Facility: CLEAN EARTH.

Date: 8 | 23 | 2022

Sampling Personnel: A. CERRUTI / M. WRIGHT.

Initial Headspace (ppm) 6.3

Sampling Method: LF PERI

Intial-Water Level before purge (ft. BTOC) 10.43

Equipment Used:
WL - HERON 1959 PID - MINI RAE
WQ - YSI PRO + Pump - GEOTECH PERI
Turb - OH #966

Well volume = 0.17 * (total well depth - water level)

End-Water Level post purge/sample with pump on (ft. BTOC): 12.40

Well Volume = 8 gal.

Pump Intake Depth (ft.BTOC):
2' FROM BOTTOM. = 58'

Purge start time:	1147	Initial Flow Rate:	150
Purge stop time:	11	Final Flow Rate:	175

Flow cell disconnected prior to sampling : ☑ @ 12:11

Water Quality Measurements

Time	Water level	Purge Rate	pH	Conductivity	Temperature	Dissoved Oxygen	Redox Potential	Turbidity
(military)	ft	(mL/min)	pH Units	uS/cm	°C	mg/L	mV	(NTU)
	< 0.33 ft from 2nd reading	< 500 mL	< 0.1 unit	</= 3%	< 3%	</= 0.3 mg/L	< 10 mV	{3 readings} < 5 NTU or < 10% if >5 NTU
1147	PURGING BEGINS		WL = 10.43'					
1150	10.93	150	7.6	3105	17.0	0.13	192.7	2.03
1153	11.32	150	7.6	3102	17.0	0.18	200.8	~~200.8~~ 2.07
1156	11.62	150	7.6	3260	17.0	0.12	191.6	1.9
1159	11.82	150	7.7	3347	16.9	0.13	185.6	1.9
1202	11.97.	175	7.7	3354	16.8	0.10	175.4	1.8
1205	12.05	175	7.7	3389	16.8	0.09	171.3	1.8
1208	12.10	175	7.7	3390	16.7	0.10	170.2	2.0
1211	FLOW CELL DISCONNECTED FLOW RATE = 200 mL/min.							
1215	SAMPLE COLLECTED							
1224	PUMP OFF							

roject:TWAAFA
ampler: AC/MW
ample ID: TWA-7D-0822
ate: 8/23/2022
ime: 12:15

Notes:
- CLEAR WATER
- TRUCK TRAFFIC PASSING THROUGH GATE NEARBY WELL.
- TOTAL PURGE VOLUME 1.75 gal + SAMPLE VOLUME

Bottles and Analyses: (collected in order below)

(6)	6	x 40 mL HCl VOA	☑ 8260/8260 SIM dual acquisition ☐ 1,4 Dioxane ☐ NWTPH-Gx
(1)	1	x 500 mL unpreserved AG TPH-Dx and TPH-Dx ~~with Silica Gel Cleanup~~ NC	
(2)	0	x 1000 mL unpreserved AG 8270E SVOCs and 8270E cPAHs	
(2)	0	x 1000 mL unpreserved AG 8082A PCBs	
(1)	1	x ~~500~~ 150 mL HDPE w/ HNO_3 6020 Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn) and 1613E (Hg)	
(12)	8	= Total Bottles	

DOF DALTON OLMSTED FUGLEVAND

Monitoring Well Sampling Field Sheet

Well No. TWA-8D

Facility: CLEAN EARTH.

Date: 8/23/2022

Sampling Personnel: A. CERRUTI / M. WRIGHT

Sampling Method: LF PERI

Initial Headspace (ppm) 0.0

Intial-Water Level before purge (ft. BTOC) 9.73'

Equipment Used:
WL - HERON #F189 PID - MINI RAE
WQ - YSI PRO+ Pump - GEOTECH PERI
Turb - OH #966

Well volume = 0.17 * (total well depth - water level)

Well Volume = 0.17 (55.6 - 9.73) = 7.8 gal

End-Water Level post purge/sample with pump on (ft. BTOC): 12.05

Pump Intake Depth (ft.BTOC): ~53'

Purge start time: 1443

Purge stop time:

Initial Flow Rate: 250

Final Flow Rate:

Flow cell disconnected prior to sampling : ☐

Water Quality Measurements

Time	Water level	Purge Rate	pH	Conductivity	Temperature	Dissoved Oxygen	Redox Potential	Turbidity
(military)	ft	(mL/min)	pH Units	uS/cm	°C	mg/L	mV	(NTU)
	< 0.33 ft from 2nd reading	< 500 mL	< 0.1 unit	</= 3%	< 3%	</= 0.3 mg/L	< 10 mV	{3 readings} < 5 NTU or < 10% if >5 NTU
1443	9.73'	250						
1446	10.52'	250	7.8	5280	16.8	1.00	151	1.9
1449	11.41	250	7.8	5940	16.5	0.77	143	0.5
1451	11.80	250	7.8	6080	16.4	0.52	139	0.6
1454	12.00	250	7.8	6129	16.4	0.42	135	0.4
1457	12.31	200	7.8	6418	17.0	0.30	133	0.5
1500	12.29	200	7.8	6673	17.4	0.30	131.4	0.6
1503	12.24	200	7.7	6700	17.3	0.30	130.9	0.8
1506	12.15	200	7.7	6750	17.6	0.25	129	0.6
1508	FLOW CELL DISCONNECTED							
1510	SAMPLE COLLECTED.							
1533	PUMP OFF.							

Project: TWAAFA
Sampler: AC/DC/MW
Sample ID: TWA-8D-0222
Date: ~~08/23/2020~~ 8/23/2022
Time: 15:10

Notes: - CLEAR WATER.
- TOTAL PURGE = 1.75 GAL + SAMPLE VOL.

Bottles and Analyses: (collected in order below)

(6)	9	x 40 mL HCl VOA	☒ 8260/8260 SIM dual acquisition ☒ 1,4 Dioxane ☒ NWTPH-Gx
(1)	1	x 500 mL unpreserved AG TPH-Dx and TPH-Dx ~~with Silica Gel Cleanup~~ AC	
(2)	1	x 1000 mL unpreserved AG 8270E SVOCs and 8270E cPAHs	
(2)	2	x 1000 mL unpreserved AG 8082A PCBs	
(1)	1	x ~~500~~ 250 mL HDPE w/ HNO_3 6020 Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn) and 1613E (Hg)	
(12)	14	= Total Bottles	

DALTON OLMSTED FUGLEVAND

Monitoring Well Sampling Field Sheet

Well No. TWA-9D

Facility: CLEAN CARLE.

Date: 8/24/2022

Sampling Personnel: A. CERRUTI

Initial Headspace (ppm) 2.2

Sampling Method: LF PERI

Intial-Water Level before purge (ft. BTOC) 10.00

Equipment Used:
WL - HERON PID - RKI-GX-6000
WQ - YSI PRO+ Pump - GEOTECH PERI
Turb - OIT #966

Well volume = 0.17 * (total well depth - water level)

Well Volume = 0.17 (60.2 - 9.95) = 8.5 gal

End-Water Level post purge/sample with pump on (ft. BTOC): 10.52

Pump Intake Depth (ft.BTOC): ~58'

Purge start time: 1000

Purge stop time: 1113

Initial Flow Rate: 300

Final Flow Rate: 400

Flow cell disconnected prior to sampling : ☑ @ 1028

Water Quality Measurements

Time	Water level	Purge Rate	pH	Conductivity	Temperature	Dissoved Oxygen	Redox Potential	Turbidity
(military)	ft	(mL/min)	pH Units	uS/cm	°C	mg/L	mV	(NTU)
	< 0.33 ft from 2nd reading	< 500 mL	< 0.1 unit	</= 3%	< 3%	</= 0.3 mg/L	< 10 mV	(3 readings) < 5 NTU or < 10% if >5 NTU
1000	10.00	300 mL						
1005	10.24	300 mL	7.52	2800	14.4	1.80	302.	2.37
1008	10.26	300	7.74	3994	14.1	1.14	285	1.35
1011	10.30	300	7.83	4325	13.9	0.92	275	0.74
1014	10.35	~~350~~	7.94	~~4545~~	13.9	0.86	262	0.58
1017	10.36	~~400~~	7.97	4526	13.9	0.66	254	0.77
1020	10.38	400	7.99	4655	14.0	0.50	247	0.58
	~~ALL PARAMETERS~~	~~STABLE~~		~~WL > 0.3' BUT AC. DO > 0.3 BUT < 1mg/L~~				~~AC.~~
1023	10.40	400	8.00	6695	13.8	0.43	245	0.62
1026	ALL PARMS	STABLE.						
1028	FLOW CELL	DISCONNECTED						
1030	SAMPLE COLLECTED.							
1113	PUMP OFF							

Project:TWAAFA
Sampler: AC/DC/MW
Sample ID: TWA-9D-0822
Date: 08/24/2022
Time: 10:30
(UPDATED ALL LABELS ON BOTTLES)

Notes:
- CLEAR WATER.
- MATRIX SPIKE & MATRIX SPIKE DUPLICATE COLLECTED
- TOTAL PURGE VOLUME = 5 gallons. + TOTAL SAMPLE VOLUME.

Bottles and Analyses: (collected in order below)

(6)	18	x 40 mL HCl VOA ☒ 8260/8260 SIM dual acquisition ☒ 1,4 Dioxane ☒ NWTPH-Gx
(1)	3	x 500 mL unpreserved AG TPH-Dx and TPH-Dx with ~~Silica Gel Cleanup~~ AC
(2)	7 →	x 1000 mL unpreserved AG 8270E SVOCs and 8270E cPAHs
(2)		x 1000 mL unpreserved AG 8082A PCBs
(1)	2	x ~~500~~ 250 mL HDPE w/ HNO_3 6020 Metals (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn) and 1613E (Hg)
(12)	30	= Total Bottles

Water Field Sampling Data Sheet
TWAAFA Groundwater Sampling
Port of Tacoma

MAUL FOSTER ALONG

Client Name	Port of Tacoma	**Sampling Location**	TWA-1
Project Number	M0615.20.005	**Sampling Date**	08/22/2022
Project Name	TWAAFA Groundwater Monitoring	**Sampler**	A. Bixby
Sampling Event	Quarter 3 of 2022	**Sample Name**	TWA-1-0822
Sub Area	1514 Taylor Way Property		
FSDS QA	A. Bixby 09/2/2022	**Sample Depth** (ft TOC)	10.0
Hydrology Measurements (Relative to TOC)		**Purge Method**	Peristaltic pump

Date	Time	DT-Bottom (ft)	DT-Product (ft)	DT-Water (ft)	DTP-DTW (ft)	DTB-DTW (ft)	Pore Volume (gal)
08/22/2022	8:50 AM	13.53	--	7.02	--	6.51	1.06

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Time	Purge Volume (gal)	Water Level (ft bgs)	Flowrate (L/min)	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
BEGAN PURGE AT: 11:13; initially turbid, waited for turbidity to visibly decrease before collecting parameters.									
11:13 AM	0.0	7.05	--	--	--	--	--	--	--
11:20 AM	0.1	7.50	0.3	--	--	--	--	--	52.2
11:25 AM	0.2	7.50	0.2	6.55	19.6	997	1.42	-6.5	31.9
11:28 AM	0.3	7.48	0.2	6.56	19.7	998	1.05	-17.0	21.8
11:31 AM	0.4	7.40	0.2	6.57	19.7	997	0.95	-19.5	16.3
11:34 AM	0.5	7.38	0.2	6.59	19.8	994	0.82	-23.5	9.44
11:37 AM	0.6	7.38	0.2	6.61	19.7	989	0.73	-26.9	8.00
11:40 AM	0.8	7.37	0.2	6.62	19.8	990	0.68	-28.2	7.04
11:43 AM	0.9	7.37	0.2	6.63	19.8	989	0.67	-29.1	2.28
11:46 AM	1.0	7.37	0.2	6.63	19.8	988	0.63	-30.0	4.30
11:49 AM	1.1	7.37	0.2	6.63	19.8	988	0.62	-30.6	4.88
11:52 AM	1.2	7.37	0.2	6.64	19.8	987	0.60	-31.2	4.59

Water Quality Observations:

Cloudy, then clear; brown tint; no odor; blocky and ribbon sheen.

Sample Information:

Sampling Method	Sample Type	Sample Time	Container Code/Preservative	#	Filtered
Peristaltic pump	Groundwater	12:00 PM	VOA-Glass	12	N
			Amber Glass	5	N
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	N
			Red Dissolved Poly		
			Total Bottles	18	

General Sampling Comments: None

Equipment Used:

Water Level Meter: Solinst Model 101; S/N: 377130

Water Quality Meter: YSI Pro Plus; S/N: 19K102418

Turbidity Meter: HACH 2100Q; S/N: 19010C073791

Total purge volume prior to sampling: 1.2 gal

Water Field Sampling Data Sheet
TWAAFA Groundwater Sampling
Port of Tacoma

MAUL FOSTER ALONG

Client Name	Port of Tacoma	**Sampling Location**	TWA-2
Project Number	M0615.20.005	**Sampling Date**	08/22/2022
Project Name	TWAAFA Groundwater Monitoring	**Sampler**	C. Sifford
Sampling Event	Quarter 3 of 2022	**Sample Name**	TWA-2-0822
Sub Area	1514 Taylor Way Property		
FSDS QA	A. Bixby 09/2/2022	**Sample Depth** (ft TOC)	7.5
Hydrology Measurements (Relative to TOC)		**Purge Method**	Peristaltic pump

Date	Time	DT-Bottom (ft)	DT-Product (ft)	DT-Water (ft)	DTP-DTW (ft)	DTB-DTW (ft)	Pore Volume (gal)
08/22/2022	8:44 AM	9.01	--	4.87	--	4.14	0.67

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Time	Purge Volume (gal)	Water Level (ft bgs)	Flowrate (L/min)	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
BEGAN PURGE AT: 12:20									
12:20 PM	0.0	4.85	--	--	--	--	--	--	10.8
12:23 PM	0.2	5.27	0.25	6.77	16.9	1122	0.55	-68.9	47.6
12:26 PM	0.4	5.69	0.25	6.88	16.7	1109	0.68	-78.6	55.0
12:29 PM	0.6	5.76	0.13	6.97	17.0	1101	2.63	-78.3	18.4
12:32 PM	0.7	5.76	0.13	6.95	17.0	1109	2.39	-74.1	12.6
12:35 PM	0.8	5.74	0.13	6.93	17.0	1104	2.25	-69.6	10.8
12:38 PM	0.9	5.74	0.13	6.93	16.9	1098	2.14	-64.7	8.34
12:41 PM	1.0	5.74	0.13	6.91	17.0	1092	2.40	-60.6	7.51
12:44 PM	1.2	5.74	0.13	6.90	17.0	1086	2.44	-56.4	6.55
12:47 PM	1.3	5.74	0.13	6.89	17.0	1084	2.81	-53.5	7.26
12:50 PM	1.5	5.74	0.13	6.91	17.0	1085	2.72	-53.4	6.90
12:53 PM	1.6	5.74	0.13	6.91	17.0	1085	2.66	-52.3	6.64

Water Quality Observations:

Clear; slight yellow tint; slight sulfur odor; no sheen.

Sample Information:

Sampling Method	Sample Type	Sample Time	Container Code/Preservative	#	Filtered
Peristaltic pump	Groundwater	1:00 PM	VOA-Glass	9	N
			Amber Glass	4	N
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	N
			Red Dissolved Poly		
			Total Bottles	14	

General Sampling Comments: None

Equipment Used:

Water Level Meter: Solinst Model 101 P7; S/N: 531501

Water Quality Meter: YSI Professional Plus; S/N: 18J103057

Turbidity Meter: HACH 2100P Turbidimeter; S/N: 040500035330

Total purge volume prior to sampling: 1.6 gal

Water Field Sampling Data Sheet
TWAAFA Groundwater Sampling
Port of Tacoma

MAUL FOSTER ALONG

Client Name	Port of Tacoma	**Sampling Location**	TWA-3
Project Number	M0615.20.005	**Sampling Date**	08/22/2022
Project Name	TWAAFA Groundwater Monitoring	**Sampler**	A. Bixby
Sampling Event	Quarter 3 of 2022	**Sample Name**	TWA-3-0822
Sub Area	1514 Taylor Way Property		
FSDS QA	A. Bixby 09/2/2022	**Sample Depth** (ft TOC)	9.0
Hydrology Measurements (Relative to TOC)		**Purge Method**	Peristaltic pump

Date	Time	DT-Bottom (ft)	DT-Product (ft)	DT-Water (ft)	DTP-DTW (ft)	DTB-DTW (ft)	Pore Volume (gal)
08/22/2022	8:38 AM	9.70	--	7.86	--	1.84	0.30

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Time	Purge Volume (gal)	Water Level (ft bgs)	Flowrate (L/min)	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
BEGAN PURGE AT: 1:25 PM									
1:20 PM	0.0	7.86	--	--	--	--	--	--	--
1:26 PM	0.0	7.83	0.1	--	--	--	--	--	6.65
1:29 PM	0.05	7.87	0.1	7.05	19.9	2556	1.47	103.3	8.31
1:32 PM	0.1	7.85	0.1	6.98	19.5	2479	1.15	78.7	8.07
1:35 PM	0.2	7.86	0.2	7.00	18.9	2437	0.96	66.4	5.33
1:38 PM	0.3	7.86	0.2	7.00	18.9	2420	0.88	50.3	2.75
1:41 PM	0.4	7.86	0.2	7.02	19.0	2405	0.82	48.0	2.02
1:44 PM	0.5	7.86	0.2	7.03	19.0	2380	0.81	42.3	0.95

Water Quality Observations:

Clear; yellow tint; slight petroleum odor; no sheen.

Sample Information:

Sampling Method	Sample Type	Sample Time	Container Code/Preservative	#	Filtered
Peristaltic pump	Groundwater	2:00 PM	VOA-Glass	9	N
			Amber Glass	4	N
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	N
			Red Dissolved Poly		
			Total Bottles	14	

General Sampling Comments: None

Equipment Used:

Water Level Meter: Solinst Model 101; S/N: 377130

Water Quality Meter: YSI Pro Plus; S/N: 19K102418

Turbidity Meter: HACH 2100Q; S/N: 19010C073791

Total purge volume prior to sampling: 0.5 gal

Water Field Sampling Data Sheet
TWAAFA Groundwater Sampling
Port of Tacoma

MAUL FOSTER ALONG

Client Name	Port of Tacoma	**Sampling Location**	TWA-10D
Project Number	M0615.20.005	**Sampling Date**	08/22/2022
Project Name	TWAAFA Groundwater Monitoring	**Sampler**	A. Bixby
Sampling Event	Quarter 3 of 2022	**Sample Name**	TWA-10D-0822
Sub Area	1514 Taylor Way Property		
FSDS QA	A. Bixby 09/2/2022	**Sample Depth** (ft TOC)	54.5
Hydrology Measurements (Relative to TOC)		**Purge Method**	Peristaltic pump

Date	Time	DT-Bottom (ft)	DT-Product (ft)	DT-Water (ft)	DTP-DTW (ft)	DTB-DTW (ft)	Pore Volume (gal)
08/22/2022	9:06 AM	59.44	--	10.29	--	49.15	8.01

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Time	Purge Volume (gal)	Water Level (ft bgs)	Flowrate (L/min)	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
BEGAN PURGE AT: 3:20 PM; initially turbid, waited for turbidity to visibly decrease before collecting parameters.									
3:35 PM	1.6	10.80	0.3	7.96	17.5	5517	1.23	119.2	3.12
3:38 PM	1.8	10.80	0.3	7.96	17.3	5534	1.10	112.1	4.19
3:41 PM	1.9	10.80	0.3	7.94	16.8	5565	0.99	102.3	5.46
3:44 PM	2.1	10.83	0.3	7.94	16.5	5581	0.89	9.7	4.77
3:47 PM	2.3	10.83	0.4	7.95	16.1	5681	0.86	85.2	4.32
3:50 PM	2.6	10.83	0.4	7.92	16.2	7124	0.80	81.5	3.36
3:53 PM	2.9	10.83	0.4	8.10	15.9	7775	0.77	73.2	3.12
3:56 PM	3.2	10.83	0.4	8.11	15.8	7905	0.75	68.3	1.78
3:59 PM	3.5	10.83	0.4	8.14	16.2	7994	0.72	53.4	1.63
4:02 PM	3.7	10.83	0.4	8.15	16.0	8002	0.70	44.3	4.11
4:05 PM	4.0	10.83	0.4	8.17	16.0	8052	0.68	32.4	3.82
4:08 PM	4.2	10.83	0.4	8.18	16.0	8066	0.67	26.2	1.65
4:11 PM	4.5	10.83	0.5	8.18	16.0	8064	0.65	18.4	1.44
4:14 PM	4.8	10.83	0.5	8.19	15.6	8086	0.66	18.3	1.67
4:17 PM	5.1	10.83	0.5	8.19	15.5	8123	0.65	5.8	1.87
4:20 PM	5.4	10.84	0.5	8.20	15.2	8136	0.65	1.8	1.03
4:23 PM	5.8	10.85	0.5	8.20	15.1	8153	0.64	-2.5	0.89
4:26 PM	6.1	10.87	0.5	8.21	15.0	8160	0.64	-6.1	0.77
4:29 PM	6.5	10.87	0.5	8.21	15.0	8163	0.63	-9.4	0.79
4:32 PM	6.8	10.87	0.5	8.21	15.1	8166	0.63	-12.0	0.81
4:35 PM	7.2	10.87	0.5	8.22	15.0	8182	0.64	-16.2	1.23
4:38 PM	7.6	10.87	0.5	8.22	15.0	8198	0.64	-20.3	1.87
4:41 PM	8.0	10.86	0.5	8.22	15.1	8188	0.65	-21.5	1.75
4:44 PM	8.4	10.86	0.5	8.22	15.1	8184	0.64	-22.9	1.93
4:47 PM	8.8	10.86	0.5	8.22	15.0	8196	0.65	-23.9	1.23

Water Quality Observations:

Cloudy, then clear; yellowish rown tint; sulfur-like odor; no sheen.

Water Field Sampling Data Sheet
TWAAFA Groundwater Sampling
Port of Tacoma

MAUL FOSTER ALONG

Client Name	Port of Tacoma	**Sampling Location**	TWA-10D
Project Number	M0615.20.005	**Sampling Date**	08/22/2022

Sample Information:

Sampling Method	Sample Type	Sample Time	Container Code/Preservative	#	Filtered
Peristaltic pump	Groundwater	5:00 PM	VOA-Glass	9	N
			Amber Glass	4	N
			Yellow Poly		
			Green Poly		N
			Red Total Poly	1	
			Red Dissolved Poly		
			Total Bottles	14	

General Sampling Comments: None

Equipment Used:

Water Level Meter: Solinst Model 101; S/N: 377130

Water Quality Meter: YSI Pro Plus; S/N: 19K102418

Turbidity Meter: HACH 2100Q; S/N: 19010C073791

Total purge volume prior to sampling: 8.8 gal

Water Field Sampling Data Sheet
TWAAFA Groundwater Sampling
Port of Tacoma

MAUL FOSTER ALONG

Client Name	Port of Tacoma	**Sampling Location**	SB-1A
Project Number	M0615.20.005	**Sampling Date**	08/23/2022
Project Name	TWAAFA Groundwater Monitoring	**Sampler**	A. Bixby
Sampling Event	Quarter 3 of 2022	**Sample Name**	SB-1A-0822
Sub Area	Hylebos Marsh		
FSDS QA	A. Bixby 09/2/2022	**Sample Depth** (ft TOC)	9.0
Hydrology Measurements (Relative to TOC)		**Purge Method**	Peristaltic pump

Date	Time	DT-Bottom (ft)	DT-Product (ft)	DT-Water (ft)	DTP-DTW (ft)	DTB-DTW (ft)	Pore Volume (gal)
08/22/2022	9:36 AM	11.53	--	6.07	--	5.46	0.89

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Time	Purge Volume (gal)	Water Level (ft bgs)	Flowrate (L/min)	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
BEGAN PURGE AT: 8:40 AM									
8:40 AM	0.0	6.36	--	--	--	--	--	--	--
8:45 AM	0.1	6.36	0.1	--	--	--	--	--	31.1
8:51 AM	0.2	6.36	0.1	--	--	--	--	--	21.9
8:55 AM	0.3	6.36	0.1	6.88	16.8	648	1.28	183.4	10.9
8:58 AM	0.5	6.40	0.2	6.86	16.7	634	1.07	176.6	7.20
9:01 AM	0.7	6.34	0.2	6.98	16.9	632	0.97	168.7	5.40
9:04 AM	0.9	6.35	0.2	7.07	16.9	630	0.88	161.3	3.25
9:07 AM	1.1	6.32	0.2	7.09	16.9	628	0.83	157.9	0.98
9:10 AM	1.3	6.32	0.2	7.11	16.9	627	0.81	155.3	0.86

Water Quality Observations:

Orangish-brown particulates in initial purge, then clear; yellow tint; no odor; no sheen.

Sample Information:

Sampling Method	Sample Type	Sample Time	Container Code/Preservative	#	Filtered
Peristaltic pump	Groundwater	9:30 AM	VOA-Glass	18	N
			Amber Glass	7	N
			Yellow Poly		
			Green Poly		
			Red Total Poly	2	N
			Red Dissolved Poly		
			Total Bottles	27	

General Sampling Comments: None

Equipment Used:

Water Level Meter: Solinst Model 101; S/N: 377130

Water Quality Meter: YSI Pro Plus; S/N: 19K102418

Turbidity Meter: HACH 2100Q; S/N: 19010C073791

Total purge volume prior to sampling: 1.3 gal

Water Field Sampling Data Sheet
TWAAFA Groundwater Sampling
Port of Tacoma

MAUL FOSTER ALONG

Client Name	Port of Tacoma	**Sampling Location**	SB-2A
Project Number	M0615.20.005	**Sampling Date**	08/23/2022
Project Name	TWAAFA Groundwater Monitoring	**Sampler**	C. Sifford
Sampling Event	Quarter 3 of 2022	**Sample Name**	SB-2A-0822
Sub Area	Hylebos Marsh		
FSDS QA	A. Bixby 09/2/2022	**Sample Depth** (ft TOC)	8.5
Hydrology Measurements (Relative to TOC)		**Purge Method**	Peristaltic pump

Date	Time	DT-Bottom (ft)	DT-Product (ft)	DT-Water (ft)	DTP-DTW (ft)	DTB-DTW (ft)	Pore Volume (gal)
08/22/2022	9:30 AM	12.62	--	6.46	--	6.16	1.00

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Time	Purge Volume (gal)	Water Level (ft bgs)	Flowrate (L/min)	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
BEGAN PURGE AT: 10:04									
10:04 AM	0.0	6.45	--	--	--	--	--	--	7.87
10:07 AM	0.1	6.65	0.25	6.80	16.8	745	0.47	-23.7	9.01
10:10 AM	0.3	6.67	0.25	6.94	16.9	718	0.26	-59.8	10.8
10:13 AM	0.5	6.67	0.25	7.02	17.0	681	0.18	-71.9	6.55
10:16 AM	0.7	6.68	0.25	7.03	17.0	645	0.15	-74.4	4.93
10:19 AM	0.9	6.69	0.25	7.04	17.1	620	0.13	-75.6	5.53
10:22 AM	1.1	6.68	0.20	7.01	17.1	613	0.12	-75.7	5.05
10:25 AM	1.3	6.68	0.20	6.98	17.2	608	0.11	-72.4	5.35
10:28 AM	1.5	6.68	0.20	7.02	17.2	606	0.11	-75.4	4.90
10:31 AM	1.7	6.68	0.20	7.04	17.2	603	0.10	-76.4	4.88
10:34 AM	1.8	6.68	0.20	7.08	17.3	600	0.09	-76.9	5.16
10:37 AM	2.0	6.68	0.20	7.06	17.4	598	0.09	-76.7	7.58
10:40 AM	2.2	6.68	0.20	7.06	17.4	597	0.10	-76.4	4.65
10:43 AM	2.4	6.68	0.20	7.07	17.4	596	0.09	-76.2	5.33
10:46 AM	2.6	6.68	0.20	7.07	17.5	595	0.09	-75.9	5.31

Water Quality Observations:

Clear; slight green tint; no odor; no sheen.

Sample Information:

Sampling Method	Sample Type	Sample Time	Container Code/Preservative	#	Filtered
Peristaltic pump	Groundwater	10:50 AM	VOA-Glass	9	N
			Amber Glass	4	N
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	N
			Red Dissolved Poly		
			Total Bottles	14	

General Sampling Comments: Field Blank#1-0822 collected at this location at 9:10 AM.

Equipment Used:

Water Level Meter: Solinst Model 101 P7; S/N: 531501

Water Quality Meter: YSI Professional Plus; S/N: 18J103057

Turbidity Meter: HACH 2100P Turbidimeter; S/N: 040500035330

Total purge volume prior to sampling: 2.2 gal

Water Field Sampling Data Sheet
TWAAFA Groundwater Sampling
Port of Tacoma

MAUL FOSTER ALONG

Client Name	Port of Tacoma	**Sampling Location**	SB-3A
Project Number	M0615.20.005	**Sampling Date**	08/23/2022
Project Name	TWAAFA Groundwater Monitoring	**Sampler**	A. Bixby
Sampling Event	Quarter 3 of 2022	**Sample Name**	SB-3A-0822
Sub Area	Hylebos Marsh		
FSDS QA	A. Bixby 09/2/2022	**Sample Depth** (ft TOC)	9.5
Hydrology Measurements (Relative to TOC)		**Purge Method**	Peristaltic pump

Date	Time	DT-Bottom (ft)	DT-Product (ft)	DT-Water (ft)	DTP-DTW (ft)	DTB-DTW (ft)	Pore Volume (gal)
08/22/2022	10:37 AM	8.30	--	3.33	--	4.97	0.81

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Time	Purge Volume (gal)	Water Level (ft bgs)	Flowrate (L/min)	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
BEGAN PURGE AT: 12:23 PM; black particulates in initial purge, waited for turbidity to visibly decrease before collecting parameters.									
10:37 AM	0.0	6.00	--	--	--	--	--	--	--
12:35 PM	0.5	6.08	0.2	7.51	17.2	717	1.23	87.4	2.04
12:38 PM	0.7	6.06	0.2	7.49	17.3	707	1.08	85.3	1.65
12:41 PM	0.8	6.06	0.1	7.48	17.9	706	0.85	78.7	1.06
12:44 PM	0.9	6.07	0.1	7.47	17.9	704	0.82	76.4	1.11
12:47 PM	1.0	6.07	0.1	7.46	17.9	691	0.72	68.5	1.34
12:50 PM	1.1	6.07	0.1	7.46	17.9	686	0.67	61.8	1.28
12:53 PM	1.2	6.07	0.1	7.45	17.9	685	0.65	57.4	1.13

Water Quality Observations:

Clear with black particulates in initial purge; yellow tint; no odor; no sheen.

Sample Information:

Sampling Method	Sample Type	Sample Time	Container Code/Preservative	#	Filtered
Peristaltic pump	Groundwater	1:00 PM	VOA-Glass	9	N
			Amber Glass	4	N
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	N
			Red Dissolved Poly		
			Total Bottles	14	

General Sampling Comments: None

Equipment Used:

Water Level Meter: Solinst Model 101; S/N: 377130

Water Quality Meter: YSI Pro Plus; S/N: 19K102418

Turbidity Meter: HACH 2100Q; S/N: 19010C073791

Total purge volume prior to sampling: 1.2 gal

Water Field Sampling Data Sheet
TWAAFA Groundwater Sampling
Port of Tacoma

MAUL FOSTER ALONG

Client Name	Port of Tacoma	**Sampling Location**	TWA-5D
Project Number	M0615.20.005	**Sampling Date**	08/23/2022
Project Name	TWAAFA Groundwater Monitoring	**Sampler**	C. Sifford
Sampling Event	Quarter 3 of 2022	**Sample Name**	TWA-5D-0822
Sub Area	Hylebos Marsh		
FSDS QA	A. Bixby 09/2/2022	**Sample Depth** (ft TOC)	27.5
Hydrology Measurements (Relative to TOC)		**Purge Method**	Peristaltic pump

Date	Time	DT-Bottom (ft)	DT-Product (ft)	DT-Water (ft)	DTP-DTW (ft)	DTB-DTW (ft)	Pore Volume (gal)
08/22/2022	9:55 AM	33.12	--	12.26	--	20.86	3.40

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Time	Purge Volume (gal)	Water Level (ft bgs)	Flowrate (L/min)	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
BEGAN PURGE AT: 12:38 PM									
12:38 PM	0.0	12.26	--	--	--	--	--	--	12.5
12:43 PM	0.2	12.44	0.2	7.48	15.2	3589	0.42	-114.8	10.2
12:46 PM	0.4	12.44	0.2	7.49	15.1	3629	0.32	-121.3	8.34
12:49 PM	0.6	12.44	0.2	7.49	15.2	3666	0.23	-125.2	7.23
12:52 PM	0.8	12.46	0.2	7.48	15.1	3678	0.20	-126.8	7.01
12:55 PM	1.0	12.46	0.2	7.48	15.0	3695	0.17	-127.4	6.58
12:58 PM	1.1	12.46	0.2	7.49	15.0	3702	0.15	-128.2	5.44
1:01 PM	1.3	12.46	0.2	7.47	14.9	3716	0.13	-129.6	5.19
1:04 PM	1.5	12.46	0.2	7.47	14.8	3722	0.11	-131.0	5.1
1:06 PM	1.7	12.47	0.2	7.45	14.8	3723	0.11	-131.1	5.13
1:08 PM	1.9	12.47	0.2	7.42	14.9	3722	0.11	-130.0	6.94
1:12 PM	2.1	12.47	0.2	7.43	14.8	3729	0.10	-131.2	6.55
1:15 PM	2.2	12.47	0.2	7.43	14.8	3731	0.10	-131.3	5.48
1:18 PM	2.4	12.48	0.2	7.44	14.8	3730	0.10	-131.9	4.58
1:21 PM	2.6	12.48	0.2	7.43	14.9	3729	0.09	-132.0	4.86
1:24 PM	2.8	12.49	0.2	7.45	14.8	3731	0.09	-133.1	6.15
1:27 PM	3.0	12.49	0.2	7.43	14.9	3733	0.09	-133.1	4.85
1:30 PM	3.2	12.49	0.2	7.43	14.9	3734	0.09	-133.1	5.26
1:33 PM	3.4	12.49	0.2	7.44	14.9	3734	0.09	-133.3	4.36

Water Quality Observations:

Clear; brown tint; no odor; no sheen; effervesces strongly on exposure to HCl in sample bottles.

Water Field Sampling Data Sheet
TWAAFA Groundwater Sampling
Port of Tacoma

Client Name	Port of Tacoma	**Sampling Location**	TWA-5D
Project Number	M0615.20.005	**Sampling Date**	08/23/2022

Sample Information:

Sampling Method	Sample Type	Sample Time	Container Code/Preservative	#	Filtered
Peristaltic pump	Groundwater	1:40 PM	VOA-Glass	12	N
			Amber Glass	5	N
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	N
			Red Dissolved Poly		
			Total Bottles	18	

General Sampling Comments: None

Equipment Used:

Water Level Meter: Solinst Model 101 P7; S/N: 531501

Water Quality Meter: YSI Professional Plus; S/N: 18J103057

Turbidity Meter: HACH 2100P Turbidimeter; S/N: 040500035330

Total purge volume prior to sampling: 3.4 gal

Water Field Sampling Data Sheet
TWAAFA Groundwater Sampling
Port of Tacoma

MAUL FOSTER ALONG

Client Name	Port of Tacoma	**Sampling Location**	TWA-6D
Project Number	M0615.20.005	**Sampling Date**	08/23/2022
Project Name	TWAAFA Groundwater Monitoring	**Sampler**	A. Bixby
Sampling Event	Quarter 3 of 2022	**Sample Name**	TWA-6D-0822
Sub Area	Hylebos Marsh		
FSDS QA	A. Bixby 09/2/2022	**Sample Depth** (ft TOC)	27.5
Hydrology Measurements (Relative to TOC)		**Purge Method**	Peristaltic pump

Date	Time	DT-Bottom (ft)	DT-Product (ft)	DT-Water (ft)	DTP-DTW (ft)	DTB-DTW (ft)	Pore Volume (gal)
08/22/2022	9:41 AM	32.78	--	12.65	--	20.13	3.28

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Time	Purge Volume (gal)	Water Level (ft bgs)	Flowrate (L/min)	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
BEGAN PURGE AT: 10:32 AM; initially turbid, waited for turbidity to visibly decrease before collecting parameters.									
10:30 AM	0.0	12.64	--	--	--	--	--	--	--
10:45 AM	0.8	12.78	0.2	7.21	14.0	3944	1.07	171.8	1.65
10:48 AM	1.0	12.78	0.2	7.21	14.2	3917	0.97	168.1	1.04
10:51 AM	1.1	12.80	0.2	7.21	14.2	3908	0.91	163.3	0.75
10:54 AM	1.3	12.80	0.2	7.21	14.1	3903	0.87	158.5	0.82
10:57 AM	1.5	12.82	0.2	7.21	14.2	3888	0.82	153.6	0.97
11:00 AM	1.6	12.83	0.2	7.21	14.2	3875	0.77	149.1	1.02
11:03 AM	1.8	12.84	0.2	7.21	14.2	3860	0.73	141.6	0.72
11:06 AM	2.0	12.85	0.2	7.21	14.2	3851	0.72	139.3	0.66
11:09 AM	2.2	12.86	0.2	7.20	14.2	3849	0.71	135.2	0.63
11:12 AM	2.5	12.87	0.2	7.20	14.2	3847	0.69	131.3	0.58
11:15 AM	2.8	12.88	0.2	7.21	14.2	3841	0.68	126.3	0.43
11:18 AM	3.0	12.89	0.2	7.22	14.2	3839	0.66	118.9	0.82
11:21 AM	3.2	12.90	0.2	7.22	14.2	3837	0.67	116.7	0.78
11:24 AM	3.4	12.92	0.2	7.22	14.3	3842	0.65	112.9	0.82

Water Quality Observations:

Clear with brown particulates, then clear; reddish rown tint; no odor; no sheen.

Sample Information:

Sampling Method	Sample Type	Sample Time	Container Code/Preservative	#	Filtered
Peristaltic pump	Groundwater	11:30 AM	VOA-Glass	9	N
			Amber Glass	4	N
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	N
			Red Dissolved Poly		
			Total Bottles	14	

General Sampling Comments: None

Equipment Used:

Water Level Meter: Solinst Model 101; S/N: 377130

Water Quality Meter: YSI Pro Plus; S/N: 19K102418

Turbidity Meter: HACH 2100Q; S/N: 19010C073791

Total purge volume prior to sampling: 3.4 gal

Water Field Sampling Data Sheet
TWAAFA Groundwater Sampling
Port of Tacoma

MAUL FOSTER ALONG

Client Name	Port of Tacoma	**Sampling Location**	MW-1
Project Number	M0615.20.005	**Sampling Date**	08/23/2022
Project Name	TWAAFA Groundwater Monitoring	**Sampler**	A. Bixby
Sampling Event	Quarter 3 of 2022	**Sample Name**	MW-1-0822
Sub Area	Potter Property		
FSDS QA	A. Bixby 09/2/2022	**Sample Depth** (ft TOC)	5.5
Hydrology Measurements (Relative to TOC)		**Purge Method**	Peristaltic pump

Date	Time	DT-Bottom (ft)	DT-Product (ft)	DT-Water (ft)	DTP-DTW (ft)	DTB-DTW (ft)	Pore Volume (gal)
08/22/2022	10:37 AM	8.30	--	3.33	--	4.97	0.81

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Time	Purge Volume (gal)	Water Level (ft bgs)	Flowrate (L/min)	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)
BEGAN PURGE AT: 2:52 PM									
2:52 PM	0.0	3.31	--	--	--	--	--	--	--
3:02 PM	0.4	3.38	0.2	--	--	--	--	--	78.2
3:04 PM	0.5	3.41	0.2	--	--	--	--	--	101
3:06 PM	0.6	3.54	0.2	--	--	--	--	--	63.4
3:20 PM	1.0	3.61	0.2	6.62	18.4	468.0	0.28	-71.6	44.0
3:23 PM	1.1	3.62	0.2	6.63	18.1	470.0	0.24	-72.4	38.3
3:26 PM	1.2	3.64	0.2	6.67	18.5	493.1	0.18	-78.1	34.3
3:29 PM	1.3	3.67	0.2	6.69	18.7	496.3	0.17	-81.7	33.5
3:32 PM	1.4	3.69	0.2	6.69	18.5	491.0	0.17	-81.9	34.5

Water Quality Observations:

Clear with black particulates; black tint; strong petroleum odor; strong blocky , ribbon, and rainbow sheen.

Sample Information:

Sampling Method	Sample Type	Sample Time	Container Code/Preservative	#	Filtered
Peristaltic pump	Groundwater	4:00 PM	VOA-Glass	12	N
			Amber Glass	5	N
			Yellow Poly		
			Green Poly		
			Red Total Poly	1	N
			Red Dissolved Poly		
			Total Bottles	18	

General Sampling Comments: Field duplicate MW-9-1-0822 collected here

Equipment Used:

Water Level Meter: Solinst Model 101; S/N: 377130

Water Quality Meter: YSI Professional Plus; S/N: 18J103057

Turbidity Meter: HACH 2100Q; S/N: 19010C073791

Total purge volume prior to sampling: 1.4 gal

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Appendix B

Analytical Laboratory Reports and Data Validation Review Reports

QA/QC SOLUTIONS, LLC

James J. Mc Ateer, Jr., BS, MRSC
Managing Member
7532 Champion Hill Rd. SE
Salem, Oregon 97306
Telephone: 503.763.6948
Facsimile: 503.566.2114
Cellular: 503.881.1501
email: jjmcateer@msn.com

November 5, 2022

Tasya Gray, LG
DOF Dalton, Olmsted & Fuglevand
1001 SW Klickitat Way, Suite 200B
Seattle, Washington 98134

Subject: Taylor Way and Alexander Ave Fill Area (TWAAFA) Site -3rdQ 2022 Groundwater Sampling Data Validation Summary
Client Project No., Task Order No.: Not Specified, Task No. 6
QA/QC Solutions, LLC Project No.: 092822.1

Dear Tasya:

This letter documents the results of the data validation summary of selected organic compounds and elements completed on groundwater samples associated with Taylor Way and Alexander Ave Fill Area (TWAAFA) Site – Third Quarter 2022 Sampling event located in Tacoma, Washington.

The available data were validated to verify applicable laboratory quality assurance and quality control (QA/QC) measurements were reported, documented, and of sufficient quality to support its intended purpose(s). A summary of the overall assessment of data quality, the data set, a summary of the analytical methods used to complete the chemical analyses, a summary of the data validation procedures used, and a summary of the reasons why data were qualified (including other items noted during data validation) is presented below.

Overall Assessment of Data Quality

Overall, the data reported are of good quality (with the exception of data that were rejected) and the results for the applicable QA/QC measurements that were used by the laboratories during the analysis of the samples were generally acceptable. Some sample results required qualification during data validation because method-specific QA/QC criteria were not met and/or based on best professional judgement. Data users should note that selected sample results maybe qualified for more than one reason. During data validation the following actions were taken:

- A total of 4 results reported as detected required qualification as estimated and were assigned a *J* data validation qualifier.
- A total of 2 results reported as detected required qualification as estimated with an associated negative bias and were assigned a *J-* data validation qualifier.
- A total of 30 results reported as detected required qualification as tentatively identified and estimated and were assigned a *NJ* data validation qualifier and 3 results reported as detected and exhibiting a positive bias required qualification as

tentatively identified and estimated and were assigned a *NJ+* data validation qualifier.

- A total of 22 results reported as detected required restatement as undetected and were assigned a *U* data validation qualifier,
- A total of 29 results reported as undetected (*U*) required qualification as estimated and were assigned a *UJ* data validation qualifier.
- A total of 55 results reported as undetected and 1 result that was restated as detected required qualification as estimated with an associated negative bias and were assigned a *UJ-* data validation qualifier.
- A total of 18 results reported as undetected required rejection and were assigned a *R* data validation qualifier.

Analytical data that did not meet method- and/or laboratory-established control limits for applicable quality control measurements were qualified as estimated (*J, J-, NJ, NJ+, UJ, or UJ-*). Some data were reported as undetected (*U, UJ, or UJ-*) either by the laboratory or were restated as undetected during data validation. All qualified data, with the exception of data that were rejected, are usable and represent data of good quality and reasonable confidence and have an acceptable degree of uncertainty (i.e., may be less precise or less accurate than unqualified data). Sample results that were rejected (*R*) are not considered usable.

Data Set

The data set consisted of 20 groundwater samples, 2 field duplicates, 2 field blanks, and 4 trip blanks that were collected in August 2022. A summary of the samples collected and analyses completed in summarized in Table 1.

Analyses were completed by Friedman & Bruya, Inc. Environmental Chemists located in Seattle, Washington, with the exception of extractable petroleum hydrocarbons (EPH) which was analyzed by Fremont Analytical located in Seattle, Washington. Four (4) data packages and electronic data deliverable (EDDs) were submitted.

Analytical Methods

The analytical methods used to complete the chemical analyses are listed as follows and are also listed in Table 1.

- Gasoline-range petroleum hydrocarbons by purge and trap and analysis by gas chromatography/flame ionization detection (GC/FID) using the Washington Department of Ecology NWTPH-Gx method (Ecology 1997).
- Diesel- and oil-range petroleum hydrocarbons by extraction and analysis by GC/FID using the Washington Department of Ecology NWTPH-Dx (extended) method (Ecology 1997). All samples were analyzed without silica gel cleanup.
- Total metals (arsenic, cadmium, chromium, copper, lead, manganese, nickel, and zinc) by digestion and analysis by inductively coupled plasma-mass spectrometry (ICP-MS) EPA Method 6020B (U.S. EPA 2022).
- Total mercury by oxidation, purge and trap, and Cold Vapor Atomic Fluorescence Spectrometry by Method 1631, Revision E (U.S. EPA 2002a).

- Volatile organic compounds (VOCs) for 63 target analytes (including co-eluting VOCs) by purge and trap and analysis by GC/MS using U.S. EPA SW-846 Method 8260D, respectively (U.S. EPA 2022).
- 1,4- by purge and trap and analysis by GC/MS operated in the selected ion monitoring mode (SIM) using U.S. EPA SW-846 Method 8260D (U.S. EPA 2022).
- Semivolatile organic compounds (SVOCs) for 66 target analytes (including co-eluting SVOCs) and/or for 7 carcinogenic polycyclic aromatic hydrocarbons (PAHs) by extraction and analysis by gas chromatography/mass spectrometry (GC/MS) using U.S. EPA SW-846 Method 8270E (U.S. EPA 2022). Samples were filtered prior to extraction.
- Polychlorinated biphenyls (PCBs) for nine Aroclors® mixtures by extraction and analysis by gas chromatography/electron capture detection (GC/ECD) using U.S. EPA SW-846 method 8082A (U.S. EPA 2022).
- EPH for five aliphatic hydrocarbons and five aliphatic compounds by extraction and analysis by GC/FID using the Washington Department of Ecology Method for the Determination of Extractable Petroleum Hydrocarbons (EPH) (Ecology 1997).

Data Validation Procedures

Data validation procedures included evaluating a summary of the sample results and applicable quality control results reported by the laboratory; this level of validation is also referred to as an abbreviated data review (equivalent to "Stage 2A/2B" review per U.S. EPA 2009. The analytical data were validated generally following the applicable guidance and requirements:

- Method-specific and laboratory-established quality control requirements, as applicable.
- Guidance on Environmental Data Verification and Validation (U.S. EPA 2002b)
- Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use. OSWER No. 9200.1-85. EPA 540-R-08-005. (U.S. EPA 2009).
- National Functional Guidelines for Organic Superfund Methods Data Review. OLEM 9240.0-5.1, EPA 540-R-20-005, November 2020. U.S. Environmental Protection Agency (EPA), Office of Superfund Remediation and Technology Innovation (OSRTI), Washington, DC. (U.S. EPA 2020a).
- National Functional Guidelines for Inorganic Data Superfund Data Review. Final. OLEM 9240.1-66, EPA 542-R-20-006, November 2020. U.S. Environmental Protection Agency (EPA), Office of Superfund Remediation and Technology Innovation (OSRTI), Washington, DC. (U.S. EPA 2020b).

The laboratory data deliverables that were validated and available for review included the following:

- Case narratives discussing analytical problems (if any) and procedures.
- Chain-of-custody documentation to verify completeness of the data set.
- Sample preparation logs or laboratory summary result forms to verify analytical holding times were met.

- Results for applicable method blanks, field blanks, and trip blanks to determine whether an analyte that may have been reported as detected in a sample was the result of possible contamination introduced at the laboratory, during sampling, and/or during transport of samples, respectively.
- Results for applicable surrogate compound, laboratory control sample (LCS) (i.e., blank spike), duplicate LCS, matrix spike (MS), and matrix spike duplicate (MSD) recoveries to assess analytical accuracy.
- Results for applicable laboratory duplicate sample, duplicate LCS, and MSD analyses to assess analytical precision as are applicable.
- Results for the field duplicate samples to provide additional information.
- Laboratory summaries of analytical results reported for the analyses competed.

Verification and validation of 100-percent of all applicable laboratory calculations, transcriptions, review of instrument printouts, and review of bench sheets were not completed during the data validation review. There may be analytical problems that could only be identified by reviewing every instrument printout and associated analytical quality control results. Verification of all possible factors that could result in the degradation of data quality was not completed nor should be inferred at this time. The laboratory case narratives did not indicate any significant problems with data that were not reviewed during data validation. The adequacy of the sampling procedures was not completed during the data validation.

Performance based control limits established by the laboratory, applicable control limits specified in the analytical methods, and best professional judgement were used to evaluate data quality and to determine if specific data required qualification. Data qualifiers were assigned during data validation following guidance specified by U.S. EPA (2002b, 2020a, and 2020b) to the EDD when applicable QC measurement criteria were not met and qualification of the data was warranted.

Reasons for Data Qualification

The reasons for qualification of sample results are summarized in Table 2 (Summary of Qualified Data).

General Comments:

- Data users should refer to the laboratory data packages for complete information pertinent to the analyses completed.
- Results were reported as a non-detect were at the applicable reporting limit, with the exception of PCBs as Aroclors® mixtures which were reported to the method detection limits as noted by the laboratory.
- Some sample results were reported from a dilution analysis that was required. In these instances, all other sample results were reported from the undiluted analysis.
- Trip blanks were not requested for analysis of 1,4-Dioxane on the chain-of-custody records
- In some instances, continuing calibration QC limits were not met. Qualification of associated sample results was not required because the exceedances were due to an increase of instrument sensitivity and the applicable target compound was not detected.

- For the analysis of SVOCs, some MS/MSD recoveries and/or RPDs between the MS and MSD were outside applicable control limits. In these instances, sample results were not qualified because these data alone cannot be used to evaluate the precision and accuracy of individual samples, which are assessed by other quality control measurement (e.g., surrogate and LCS recoveries).
- Batch QC data (e.g., MS/MSDs) were associated with several data packages. Results from batch QC samples are not used to determine whether sample data require qualification.
- Two results reported as undetected for mercury required qualification as estimated (*UJ*) due MSD exceedances. The recovery of the MS was acceptable.
- For the analysis of Gasoline-range petroleum hydrocarbons, one result reported as detected required qualification as estimated (*J*) with an indeterminate bias because the recovery surrogate compound could not be quantified due to matrix interference noted by the laboratory.
- All results reported as detected for diesel- and motor oil-range petroleum hydrocarbons (herein after referred to as DRO/RRO) were qualified as tentatively identified and estimated (*NJ or NJ+*) because the sample chromatographic pattern does not resemble the fuel standard used for quantitation as noted by the laboratory. These results were qualified *NJ* or *NJ+* during data validation based on best professional judgement for the following reasons:
  - DRO and RRO are operational definitions that equate to a possible range of compounds that may elute within a given boiling point range. Compounds that may yield a chromatographic response may (or may not) be related to petroleum product(s); may be metabolites/degradation products of a specific petroleum product(s); may be synthetic compounds; may be naturally occurring biogenic compounds; or may be any number of non-petroleum related constituents that elute within the chromatographic range (or boiling point ranges) similar to that of diesel (e.g., fuel oil #2) and/or an oil (e.g., motor oil) petroleum product. Data users should note that a positive DRO/RRO result does not definitively mean the sample contains a diesel and/or oil product. Further, since there is not a definitive chromatographic confirmation of the DRO/RRO results reported using the referenced analytical method all results should be considered only as tentative (*N*) for use in decision making.
  - The DRO/RRO concentrations reported as detected were quantified based on the responses of chromatographic peaks representative of unweathered diesel fuel oil #2 and an unweathered 10W30 motor oil standards. The laboratory noted (and confirmed during data validation) that chromatographic patterns for samples in which DRO/RRO were reported as detected did not match the chromatographic patterns of the standards used for quantification and so flagged the affected results with an "*x*" laboratory flag. Since the concentrations reported as detected for DRO/RRO are based on mis-matched chromatographic patterns there is an inherent indeterminate bias associated with the concentration quantified and reported. Therefore, at a minimum, the DRO/RRO results reported as detected should be considered as estimated (*J*).
  - The analyses completed for DRO/RRO are obtained using a solvent extraction technique with analysis completed by gas chromatography/flame ionization

detection (GC/FID) using the Washington Department of Ecology NWTPH-Dx (extended) method (Ecology 1997). The FID is a non-selective detector that will respond to many compounds that can ionize (e.g., detection of ions formed during combustion of organic compounds in a hydrogen flame) and elute within the boiling point range equivalent to a diesel and/or oil range product (e.g., DRO/RRO) will yield a chromatographic response. All chromatographic responses detected could be associated with a petroleum product (weathered or unweathered) but may also be due to the presence of any number of non-petroleum-related compounds (e.g., naturally occurring biogenic compounds, sulfur containing compounds; plasticizers such as various phthalate esters, organic solvents, etc.). Therefore, based on the use of a method using a single non-selective detector without the use of another confirmatory analytical method, all chromatographic interpretations based on chromatographic responses that do not directly (or closely) match a specific petroleum product are subjective and the results reported should be considered as tentatively identified (*N*) at an estimated concentration (*J*).

- Sample analyses for DRO/RRO associated with this 3rd quarter sampling event were not subjected to silica gel column cleanup. However, samples analyzed for the 1st and 2nd quarter sampling events were reported based on the use of without and with silica gel column cleanup. Silica gel cleanup, in brief, is used to remove polar metabolites and/or non-hydrocarbon components (e.g., biogenic compounds). It was noted during data validation of the previous two quarters that the concentrations of DRO/RRO on samples subjected to silica gel column cleanup were reported as mostly not detected or were at concentrations significantly lower than all of the positive results reported for samples not subjected to silica gel column cleanup. The magnitude of difference between the concentrations reported as detected vs non-detected results for samples analyzed without and with silica gel cleanup further support the qualification of all detected results as tentatively identified and estimated (*NJ*) until a confirmatory analytical technique (e.g., GCxGC-MS) is approved for use in commercial analytical laboratories.

- For the analysis of VOCs, one result reported as detected methylene chloride required restatement as undetected (*U*) due to a detection in the associated trip blank.
- One result reported as detected for methylene chloride required qualification as estimated (*J*) due to exceedances with the associated LCS/LCS duplicate.
- All results reported as detected for bis(2-ethylhexyl) phthalate in groundwater samples were restated as undetected (*U*) due to detections in the associated method blank and/or field blanks.
- Several results reported as undetected for benzoic acid required rejection (*R*) due LCS recovery below 10 percent.
- For the analysis of SVOCs, there is an apparent systematic negative bias associated 4-Chloroanilne as exhibited by LCS recoveries of 21 percent which is below the lower control limit.
- For a few samples analyzed for SVOCs, selected results required qualification because the lower control limit for 1 or 2 internal standard responses were not met. The laboratory correctly reanalyzed the affected samples at a higher dilution and

obtained acceptable internal standard responses. Due to an increase of reporting limits by a factor of 10, the results reported for the undiluted samples were used in the data file. All SVOCs qualified based on low internal standard responses were qualified as estimated with negative bias (*UJ- or J-)*.

- Three results reported as undetected for Aliphatic Hydrocarbons (C10-C12) and two results reported as undetected for Aromatic Hydrocarbons (C10-C12) required qualification as estimated (*UJ-*) because the recoveries in the associated LCS/LCS duplicate were below the lower control limit. One Aromatic Hydrocarbons (C10-C12) result reported as detected required qualification as estimated (*J-*) because the recoveries in the associated LCS/LCS duplicate were below the lower control limit.

This concludes the data validation review. Should you have any questions regarding the information presented herein, please contact me by telephone at 503.763.6948 or by e-mail at jjmcateer@msn.com.

Cordially,

James J. Mc Ateer, Jr., BS, MRSC
Managing Member

cc: Trevor Louviere, DOF Dalton, Olmsted & Fuglevand, Inc.

Attachments

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DATA QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT NO. M0615.20.005 | OCTOBER 11, 2022 | PORT OF TACOMA

Maul Foster & Alongi, Inc. (MFA), conducted an independent review of the quality of analytical results for groundwater and associated quality control samples collected at the Taylor Way and Alexander Avenue Fill Area in August 2022.

Friedman & Bruya, Inc. (FBI), performed the analyses. FBI report numbers 208343 and 208351 were reviewed. Portions of some samples were subcontracted by FBI to Fremont Analytical, Inc. (Fremont), for extractable petroleum hydrocarbons analysis, and the subcontracted laboratory reports (report numbers 2208366 and 2208367) are appended to both FBI reports. The analyses performed and samples analyzed are listed below.

Analysis	Reference
Diesel- and motor oil-range hydrocarbons	NWTPH-Dx
1,4-Dioxane	EPA 8260D-SIM
Extractable petroleum hydrocarbons	NWTPH-EPH
Gasoline-range hydrocarbons	NWTPH-Gx
Polychlorinated biphenyls as Aroclors	EPA 8082A
Semivolatile organic compounds	EPA 8270E
Total metals	EPA 6020B
Total mercury	EPA 1631E
Volatile organic compounds	EPA 8260D

Notes
EPA = U.S. Environmental Protection Agency.
EPH = extractable petroleum hydrocarbons.
NWTPH = Northwest Total Petroleum Hydrocarbons.
SIM = selected ion monitoring.

Samples Analyzed		
Report 208343		**Report 208351**
TWA-1-0822[a]	Field Blank 1-0822[b]	SB-2A-0822[b]
TWA-2-0822	TWA-6D-0822[a]	Field Blank 1-0822[b][c]
TWA-3-0822	TWA-5D-0822	MW-1-0822[c]
TWA-10D-0822	Trip Blank 1-0822	MW-9-1-0822[c]
SB-1A-0822	SB-3A-0822	Trip Blank 2-0822
SB-2A-0822[b]	--	--

Notes
[a]Sample is also analyzed in subcontracted Fremont report 2208367.
[b]Sample was submitted with both FBI reports. More details in Data Package section.
[c]Sample is also analyzed in subcontracted Fremont report 2208366.

DATA QUALIFICATION

Analytical results were evaluated according to applicable sections of U.S. Environmental Protection Agency (EPA) guidelines for data review (EPA 2020a,b) and appropriate laboratory- and method-specific guidelines (EPA 1986, FBI 2019, Fremont 2020).

Data validation procedures were modified, as appropriate, to accommodate quality control requirements for methods that EPA data review procedures do not specifically address (e.g., Northwest Total Petroleum Hydrocarbons [NWTPH]-Dx).

Based on the results of the data quality review procedures described below, the data are considered acceptable for their intended use, with the appropriate final data qualifiers assigned. Final data qualifiers represent qualifiers originating from the laboratory and accepted by the reviewer, as well as data qualifiers assigned by the reviewer during validation.

Final data qualifiers include the following:

- J = result is estimated.
- J+ = result is estimated, but the result may be biased high.
- J- = result is estimated, but the result may be biased low.
- U = result is non-detect at the method detection limit (MDL) or method reporting limit (MRL).
- UJ = result is non-detect with an estimated detection limit or reporting limit.

According to reports 208343 and 208351, all detected NWTPH-Dx diesel-range and motor oil-range hydrocarbons detected results were flagged by the laboratory because the sample chromatographic pattern did not resemble the fuel standard used for quantitation. These results were reported as diesel-range and/or motor oil-range hydrocarbons instead of specific fuel products; thus, qualification was not required. The laboratory note will be retained and provided along with the detected diesel- and motor-oil-range analytical results.

SAMPLE CONDITIONS

Sample Custody

In report 208343, all copies of the subcontracted Fremont chain-of-custody (COC) form have a 55-minute gap in custody between initial relinquishment by FBI and receipt by Fremont. The reviewer confirmed with the laboratory that the gap in custody is due to shipment via a third-party shipping service; no additional action by the reviewer was required. Additionally, the second and third copies of the COC forms have secondary relinquishment by FBI on August 25, 2022, with no record of receipt by Fremont. The reviewer confirmed with the laboratory that the secondary relinquishment was due to additional volatile organic analysis (VOA) containers that were shipped separately. The reviewer confirmed that samples were

shipped via a third-party shipping service and that the additional samples were received by Fremont on August 25, 2022.

All remaining sample custody was appropriately documented on the COC forms accompanying reports 208343 and 208351.

Holding Times

Extractions and analyses were performed within the recommended holding time criteria.

Preservation and Sample Storage

The samples were preserved and stored appropriately.

REPORTING LIMITS

FBI and Fremont evaluated results to MRLs, except where noted below. Samples requiring dilutions because of high analyte concentrations, matrix interferences, and/or dilutions necessary for preparation and/or analysis were reported with raised MDLs and MRLs and required no action by the reviewer. The reviewer confirmed that when samples were diluted for analysis or when a higher sample volume was used for the extraction, FBI provided the preparation or dilution factor after the laboratory sample identification number.

FBI evaluated EPA Method 8082A and some EPA Method 8270E results to MDLs. Results between the MDL and the MRL were qualified by FBI with "J," as estimated.

FBI noted that EPA Method 8082A results were reported to MDLs, and that the reporting limits are considered estimates. All sample results were non-detect, and the reviewer qualified results with "UJ," as shown in the following table.

Report	Samples	Analysis	Original Results	Qualification
208343	All	EPA 8082A	Non-detect	UJ
208351				

Notes
EPA = U.S. Environmental Protection Agency
UJ = result is non-detect with an estimated detection limit.

BLANKS

Field quality control sample results may be qualified as a result of laboratory instrument or batch information, but original or unvalidated laboratory field quality control sample results are used to assess potential contamination of associated field sample results.

Where an analyte was detected in both a sample and its associated blank, sample results were qualified if the concentration was less than five times the blank concentration for organics and

less than ten times the blank concentration for inorganics. Non-detect sample results did not require qualification.

Method Blanks

Laboratory method blanks are used to assess whether laboratory contamination was introduced during sample preparation and analysis. Laboratory method blank analyses were performed at the required frequencies. For purposes of data qualification, the laboratory method blanks were associated with all samples prepared in the analytical batch.

According to reports 208343 and 208351, the EPA Method 8270E method blank had a bis(2-ethylhexyl) phthalate detection between the MDL and the MRL, at a concentration of 1.2 micrograms per liter (ug/L). The associated sample results that were detected between the MDL and the MRL, were qualified by the reviewer with "U" as non-detect at the MRL, as provided by the laboratory in the case narrative. The associated sample results greater than or equal to the MRL and less than five times the laboratory method blank concentration were qualified by the reviewer with "J+," as shown in the following table.

Report	Sample	Component	Method Blank Result (ug/L)	Original Result (ug/L)	Qualified Result (ug/L)
208343	TWA-1-0822	Bis(2-ethylhexyl) phthalate	1.2 J	1.6	1.6 J+
	TWA-2-0822			1.4 J	1.6 U
	TWA-3-0822			1.3 J	1.6 U
	TWA-10D-0822			1.1 J	1.6 U
	SB-1A-0822			1.2 J	1.6 U
	TWA-6D-0822			1.3 J	1.6 U
	TWA-5D-0822			1.1 J	1.6 U
	SB-3A-0822			1.1 J	1.6 U
208351	SB-2A-0822			1.6	1.6 J+
	Field Blank 1-0822			1.6	1.6 J+
	MW-1-0822			2.3	2.3 J+
	MW-9-1-0822			3.3	3.3 J+

Notes
J = result is estimated.
J+ = result is estimated, but the result may be biased high.
U = result is non-detect at the method reporting limit.
ug/L = micrograms per liter.

In reports 208343 and 208351, the FBI flagged EPA Method 8270E phenanthrene results for being associated with a method blank detection. The laboratory method blank was non-detect for phenanthrene at the MRL. The reviewer confirmed with the laboratory that phenanthrene was detected in the laboratory method blank below the MRL and within ten times the reported value of the flagged samples. The reviewer qualified the Field Blank 1-0822 result based on the laboratory flag, as shown in the following table. The remaining sample results were evaluated and qualified based on the higher phenanthrene detection in the Field Blanks section below.

Report	Sample	Component	Method Blank Result (ug/L)	Original Result (ug/L)	Qualified Result (ug/L)
208351	Field Blank 1-0822	Phenanthrene	<MRL	0.011	0.011 J+

Notes
J+ = result is estimated, but the result may be biased high.
MRL = method reporting limit.
ug/L = micrograms per liter.

According to report 208351, the EPA Method 8260D laboratory method blank had a methylene chloride detection above the MRL, at a concentration of 8.2 ug/L. Associated sample Trip Blank 2-0822 had a methylene chloride detection above the MRL but below the concentration detected in the laboratory method blank. Methylene chloride is a common laboratory contaminant. The reviewer raised the sample analyte MRL to the concentration detected in the sample and qualified the sample with "U" at the elevated MRL. The sample result is assigned an additional "J" qualifier in the Laboratory Control Sample and Laboratory Control Sample Duplicate Results section below, for a final qualification of "UJ," as shown in the table below. The remaining sample results were non-detect and thus did not require qualification.

Report	Sample	Component	Method Blank Result (ug/L)	Original Result (ug/L)	Qualified Result (ug/L)
208351	Trip Blank 2-0822	Methylene chloride	8.2	8.0	8.0 UJ[(a)]

Notes
UJ = result is non-detect with an estimated reporting limit.
ug/L = micrograms per liter.
[(a)]Final qualification of "UJ" based on laboratory method blank detection and laboratory control sample exceedance.

All remaining laboratory method blank results were non-detect.

Equipment Rinsate Blanks

Equipment rinsate blanks are used to evaluate field equipment decontamination. These blanks were not required for this sampling event, as all samples were collected using dedicated, single-use equipment.

Trip Blanks

Trip blanks are used to evaluate whether volatile organic compound contamination was introduced during sample storage and shipment between the sampling location and the laboratory.

Trip blanks (Trip Blank 1-0822 and Trip Blank 2-0822) were submitted with both sample delivery groups for EPA Method 8260D analysis. The trip blanks are associated with the EPA 8260D sample results provided in each respective report because all VOA containers were stored and shipped together with each sample delivery group.

According to report 208343, Trip Blank 1-0822 had an EPA Method 8260D methylene chloride detection above the MRL, at a concentration of 9.3 ug/L. The laboratory noted that this was likely due to laboratory contamination. All associated sample results were non-detect for methylene chloride; thus, qualification was not required.

According to report 208351, Trip Blank 2-0822 had an EPA Method 8260D methylene chloride detection above the MRL, at a concentration of 8.0 ug/L. The laboratory noted that this was likely due to laboratory contamination. This sample result was qualified in the Method Blanks results section above due to laboratory method blank results. All associated sample results were non-detect for methylene chloride; thus, qualification based on the trip blank result was not required.

The trip blanks were non-detect to MRLs for all remaining target analytes.

Field Blanks

Field blanks are used to evaluate contamination from the field. According to reports 208343 and 208351, one field blank (Field Blank 1-0822) was submitted with analyses split between the two reports (see Data Package section below). The field blank is associated with the sample results provided in reports 208343 and 208351, because all aqueous samples, including the field blank sample, were collected using consistent sampling protocols.

According to report 208343, Field Blank 1-0822 had an EPA Method 8260D chloroform detection above the MRL, at a concentration of 2.3 ug/L. All associated sample results were non-detect for chloroform; thus, qualification based on the field blank detection was not required.

According to report 208351, Field Blank 1-0822 had EPA Method 6020B total chromium and total copper detections above the MRL, at concentrations of 1.14 ug/L and 2.61 ug/L, respectively. Associated sample results less than ten times the field blank concentration were qualified by the reviewer, as shown in the following table.

Report	Sample	Component	Field Blank Result (ug/L)	Original Result (ug/L)	Qualified Result (ug/L)
208343	TWA-3-0822	Total chromium	1.14	1.06	1.06 J+
	TWA-10D-0822			3.20	3.20 J+
	TWA-5D-0822			5.98	5.98 J+
208351	MW-1-0822			1.71	1.71 J+
	MW-9-1-0822			1.78	1.78 J+
208343	TWA-2-0822	Total copper	2.61	7.73	7.73 J+
208351	MW-1-0822			5.44	5.44 J+
	MW-9-1-0822			5.70	5.70 J+

Notes
J+ = result is estimated, but the result may be biased high.
ug/L = micrograms per liter.

According to report 208351, Field Blank 1-0822 had EPA Method 8270E phenanthrene and bis(2-ethylhexyl) phthalate detections above MRLs, at concentrations of 0.011 ug/L and 1.6 ug/L, respectively. Field Blank 1-0822 was previously qualified for phenanthrene in the Method Blanks section above. The associated detected bis(2-ethylhexyl) phthalate field sample results were qualified by the reviewer in the Method Blanks section above; no further qualifications were necessary. Associated detected sample results less than five times the field blank concentration were qualified by the reviewer as shown in the following table. Associated sample results detected at the MRL and below the concentration detected in the laboratory method blank were qualified by the reviewer as non-detect, "U," at the sample result.

Report	Sample	Component	Field Blank Result (ug/L)	Original Result (ug/L)	Qualified Result (ug/L)
208343	TWA-1-0822	Phenanthrene	0.011	0.019	0.019 J+
	TWA-2-0822			0.024	0.024 J+
	TWA-3-0822			0.017	0.017 J+
	TWA-10D-0822			0.010	0.010 U
	SB-1A-0822			0.012	0.012 J+
	TWA-6D-0822			0.012	0.012 J+
	TWA-5D-0822			0.014	0.014 J+
	SB-3A-0822			0.012	0.012 J+

Notes
J+ = result is estimated, but the result may be biased high.
U = result is non-detect at the method reporting limit.
ug/L = micrograms per liter.

The field blank was non-detect for all remaining target analytes.

LABORATORY CONTROL SAMPLE AND LABORATORY CONTROL SAMPLE DUPLICATE RESULTS

A laboratory control sample (LCS) and a laboratory control sample duplicate (LCSD) are spiked with target analytes to provide information about laboratory precision and accuracy.

Where LCSD were not reported, laboratory precision was evaluated using laboratory duplicate or matrix spike (MS) and matrix spike duplicate (MSD) results. All reported LCS and LCSD were extracted and analyzed at the required frequency.

According to report 208343, the EPA Method 8260D batch 02-1950 LCS and LCSD results for methylene chloride exceeded the relative percent difference (RPD) control limit of 20 percent, at 27 percent. The LCS and LCSD results were within percent recovery acceptance limits. One associated detected sample result was qualified by the reviewer with "J," as shown in the table below. All remaining associated sample results were non-detect and thus did not require qualification.

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
208343	Trip Blank 1-0822	Methylene chloride	9.3	9.3 J

Notes
J = result is estimated.
ug/L = micrograms per liter.

According to reports 208343 and 208351, the NWTPH-EPH batch 37608 LCSs and/or LCSDs had C10-C12 aliphatic hydrocarbons, C10-C12 aromatic hydrocarbons, and C16-C21 aromatic hydrocarbons results below the lower percent recovery acceptance limit of 70 percent, ranging from 50.1 percent to 66.4 percent. The associated sample results were qualified by the reviewer, as shown in the following table.

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
208343	TWA-1-0822	C10-C12 Aliphatic hydrocarbons	39.7 U	39.7 UJ
		C10-C12 Aromatic hydrocarbons	39.7 U	39.7 UJ
		C16-C21 Aromatic hydrocarbons	39.7 U	39.7 UJ
	TWA-6D-0822	C10-C12 Aliphatic hydrocarbons	39.1 U	39.1 UJ
		C10-C12 Aromatic hydrocarbons	39.1 U	39.1 UJ
		C16-C21 Aromatic hydrocarbons	39.1 U	39.1 UJ
208351	Field Blank 1-0822	C10-C12 Aliphatic hydrocarbons	40.0 U	40.0 UJ
		C10-C12 Aromatic hydrocarbons	40.0 U	40.0 UJ
		C16-C21 Aromatic hydrocarbons	40.0 U	40.0 UJ
	MW-1-0822	C10-C12 Aliphatic hydrocarbons	39.2 U	39.2 UJ
		C10-C12 Aromatic hydrocarbons	39.2 U	39.2 UJ
		C16-C21 Aromatic hydrocarbons	110	110 J-
	MW-9-1-0822	C10-C12 Aliphatic hydrocarbons	39.1 U	39.1 UJ
		C10-C12 Aromatic hydrocarbons	39.1 U	39.1 UJ
		C16-C21 Aromatic hydrocarbons	92.9	92.9 J-

Notes
J- = result is estimated, but the result may be biased low.
U = result is non-detect at the method reporting limit.
ug/L = micrograms per liter.
UJ = result is non-detect with an estimated reporting limit.

According to report 208351, the EPA Method 8260D LCS result for methylene chloride was above the upper percent recovery acceptance limit of 134 percent, at 141 percent. The LCS and LCSD results for methylene chloride exceeded the RPD control limit of 20 percent, at 40 percent. Associated sample Trip Blank 2-0822 had a methylene chloride detection and was assigned a qualifier of "U" in the Method Blanks section above; the reviewer assigned an additional qualifier of "J" based on the LCS and LCSD exceedances for a final qualification of

"UJ," as shown in the Method Blanks section above. The remaining associated sample results were non-detect and thus did not require qualification.

All remaining LCS and LCSD results were within acceptance limits for percent recovery and RPD.

LABORATORY DUPLICATE RESULTS

Laboratory duplicate results are used to evaluate laboratory precision. Laboratory duplicate results were only reported for NWTPH-Gx in report 208351, which was extracted and analyzed at the required frequency. Laboratory precision was evaluated using LCS and LCSD and/or MS and MSD results for the remaining batches and methods.

Laboratory duplicate results greater than five times the MRL were compared to laboratory RPD control limits. Where laboratory duplicate results were less than five times the MRL, including non-detect results, the reviewer compared the absolute difference of the laboratory duplicate and parent sample result to the MRL of the parent sample.

All laboratory duplicate results met the acceptance criteria.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE RESULTS

MS and MSD results are used to evaluate laboratory precision and accuracy as well as the effect of the sample matrix on sample preparation and analysis.

Where MS and/or MSD were not reported, laboratory precision and accuracy were evaluated using LCS, LCSD, and/or laboratory duplicate results. All reported MS and MSD samples were prepared and analyzed at the required frequency.

Where MS and MSD were prepared with samples with high concentrations of target analytes, associated MS and/or MSD percent recovery and/or RPD control limit exceedances did not require qualification because spike concentrations could not be accurately quantified. High concentrations of target analytes are defined as four times the spike amount for inorganic analyses, and five times the spike amount for organic analyses.

In cases where the laboratory had prepared the MS and MSD with samples from unrelated projects, MS and/or MSD percent recovery and/or RPD control limit exceedances did not require qualification because these sample matrices were not representative of project sample matrices.

According to reports 208343 and 208351, the EPA Method 8260D-SIM MS and MSD prepared with sample SB-1A-0822 had 1,4-dioxane results that exceeded the RPD control limit of 20 percent, at 23 percent. The MS and MSD results were within percent recovery acceptance limits. The associated sample was non-detect for 1,4-dioxane; thus, qualification was not required.

According to reports 208343 and 208351, the EPA Method 8270E MS and MSD prepared with sample SB-1A-0822 had 1,3-dichlorobenzene; 1,4-dichlorobenzene; 1,2-dichlorobenzene; and hexachloroethane results below the lower percent recovery acceptance limits, ranging from 15 percent to 24 percent. The associated sample results were non-detect and were qualified by the reviewer with "UJ," as shown in the table below. The MS and MSD also had RPD exceedances for these analytes as well as for phenol and bis(2-chloroethyl) ether ranging from 21 percent to 102 percent. Qualification of associated non-detect samples results based only on RPD exceedances was not required.

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
208343	SB-1A-0822	1,3-Dichlorobenzene	0.1 U	0.1 UJ
		1,4-Dichlorobenzene	0.1 U	0.1 UJ
		1,2-Dichlorobenzene	0.1 U	0.1 UJ
		Hexachloroethane	0.1 U	0.1 UJ

Notes
U = result is non-detect at the method reporting limit.
ug/L = micrograms per liter.
UJ = result is non-detect with an estimated reporting limit.

According to reports 208343 and 208351, the EPA Method 8082A MSD prepared with sample SB-1A-0822 had an Aroclor 1016 result below the lower percent recovery acceptance limit of 50 percent, at 39 percent. The associated sample result was non-detect and was previously qualified by the reviewer with "UJ" in the Reporting Limits section above; thus, additional qualification was not required. The MS and MSD also had an RPD exceedance for this analyte, at 25 percent. Qualification of associated non-detect samples results based only on an RPD exceedance was not required.

According to reports 208343 and 208351, the NWTPH-EPH batch 37608 MSs prepared with sample TWA-6D-0822 had C10-C12 aliphatic hydrocarbons, C12-C16 aliphatic hydrocarbons, C16-C21 aliphatic hydrocarbons, C10-C12 aromatic hydrocarbons, and C16-C21 aromatic hydrocarbons results below the lower percent recovery acceptance limit of 70 percent, ranging from 48.8 percent to 65.1 percent. The associated C10-C12 aliphatic hydrocarbons, C10-C12 aromatic hydrocarbons, and C16-C21 aromatic hydrocarbons sample results were qualified by the reviewer in the Laboratory Control Sample and Laboratory Control Sample Duplicate Results section above and thus did not require additional qualification. The remaining associated results were qualified by the reviewer as shown in the following table.

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
208343	TWA-6D-0822	C12-C16 Aliphatic hydrocarbons	39.1 U	39.1 UJ
		C16-C21 Aliphatic hydrocarbons	39.1 U	39.1 UJ

Notes
U = result is non-detect at the method reporting limit.
ug/L = micrograms per liter.
UJ = result is non-detect with an estimated reporting limit.

All remaining MS and MSD results were within acceptance limits for percent recovery and RPD.

SURROGATE RECOVERY RESULTS

The samples were spiked with surrogate compounds to evaluate laboratory performance for individual samples. The laboratory appropriately documented and qualified surrogate outliers.

According to report 208343, the NWTPH-EPH 1-chlorooctadecane and o-terphenyl surrogate results for sample TWA-6D-0822 were below the lower percent recovery acceptance limit of 50 percent, at 12.8 percent and 37.9 percent, respectively. The associated C10-C12 aliphatic hydrocarbons, C10-C12 aromatic hydrocarbons, C12-C16 aliphatic hydrocarbons, C16-C21 aliphatic hydrocarbons, and C16-C21 aromatic hydrocarbons sample results were previously qualified by the reviewer in the Laboratory Control Sample and Laboratory Control Sample Duplicate Results and Matrix Spike and Matrix Spike Duplicate Results sections above and thus did not require additional qualification. The remaining associated results were qualified by the reviewer as shown in the following table.

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
208343	TWA-6D-0822	C8-C10 Aliphatic hydrocarbons	78.2 U	78.2 UJ
		C21-C34 Aliphatic hydrocarbons	39.1 U	39.1 UJ
		C8-C10 Aromatic hydrocarbons	78.2 U	78.2 UJ
		C12-C16 Aromatic hydrocarbons	39.1 U	39.1 UJ
		C21-C34 Aromatic hydrocarbons	39.1 U	39.1 UJ

Notes
U = result is non-detect at the method reporting limit.
ug/L = micrograms per liter.
UJ = result is non-detect with an estimated reporting limit.

According to report 208351, the NWTPH-Dx surrogate recoveries for samples MW-1-0822 and MW-9-1-0822 were outside control limits due to matrix effects. The reviewer confirmed with the laboratory that samples were not diluted for analysis, and that the surrogates were above the upper percent recovery acceptance limit of 152 percent, at 188 percent and 194 percent, respectively. The reviewer qualified the associated sample results with "J+," as shown in the following table.

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
208351	MW-1-0822	Diesel-range hydrocarbons	10,000	10,000 J+
		Motor oil-range hydrocarbons	2,800	2,800 J+
	MW-9-1-0822	Diesel-range hydrocarbons	11,000	11,000 J+
		Motor oil-range hydrocarbons	3,900	3,900 J+

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
Notes J+ = result is estimated, but the result may be biased high. ug/L = micrograms per liter.				

All remaining surrogate results were within percent recovery acceptance limits.

CONTINUING CALIBRATION VERIFICATION RESULTS

Continuing calibration verification (CCV) results are used to demonstrate instrument precision and accuracy through the end of the sample batch. FBI did not report CCV results or flag any results for associated CCV exceedances. Fremont reported CCV results for NWTPH-EPH; CCV results were reviewed when provided.

Surrogate or batch quality control results flagged by the laboratory based on CCV exceedances, but meeting percent recovery and/or RPD acceptance criteria, required no action from the reviewer.

According to reports 208343 and 208351, the NWTPH-EPH batch 37608 method blank (MB-37608) was flagged by the laboratory due to a CCV that had a C16-C21 aromatic hydrocarbons result below the lower percent recovery acceptance limit of 80 percent, at 79.8 percent. The exceedance was considered minor by the reviewer and qualification of the method blank result was not required. Field sample results were qualified for this compound in the Laboratory Control Sample and Laboratory Control Sample Duplicate Results above.

According to reports 208343 and 208351, the NWTPH-EPH CCV (1605164) had a C12-C16 aromatic hydrocarbons result above the upper percent recovery acceptance limit of 120 percent, at 121 percent. The associated detected sample results for MW-1-0822 and MW-9-1-0822 were qualified with "J+," as shown in the table below. The remaining associated sample results were non-detect and did not require additional qualification.

Report	Sample	Component	Original Result (ug/L)	Qualified Result (ug/L)
208351	MW-1-0822	C12-C16 Aromatic hydrocarbons	126	126 J+
	MW-9-1-0822		117	117 J+
Notes J+ = result is estimated, but the result may be biased high. ug/L = micrograms per liter.				

All remaining CCV results met percent recovery acceptance limits criteria.

FIELD DUPLICATE RESULTS

Field duplicate samples measure both field and laboratory precision. The following field duplicate and parent sample pair was submitted for analysis:

Report	Parent Sample	Field Duplicate Sample
208351	MW-1-0822	MW-9-1-0822

MFA uses acceptance criteria of 100 percent RPD for results that are less than five times the MRL, or 50 percent RPD for results that are greater than five times the MRL. RPD was not evaluated when both parent sample and associated field duplicate results were non-detect. Where one parent or field duplicate associated result was detected and the other result was non-detect, RPD was evaluated using the MRL of the non-detect result. Field duplicate results that exceeded the acceptance criteria were qualified by the reviewer with "J," as shown in the following table.

Report	Sample	Component	RPD (%)	Original Result (ug/L)	Qualified Result (ug/L)
208351	MW-1-0822	Phenanthrene	80	0.56	0.56 J
	MW-9-1-0822			1.3	1.3 J
	MW-1-0822	Carbazole	60	6.1	6.1 J
	MW-9-1-0822			3.3	3.3 J

Notes
J = result is estimated.
RPD = relative percent difference.
ug/L = micrograms per liter.

All remaining field duplicate results met the RPD acceptance criteria.

DATA PACKAGE

The data package was reviewed for transcription errors, omissions, and anomalies.

According to report 208343, sample Trip Blank 1-0822 did not have a sample collection date listed on the COC form. The reviewer confirmed with the sampler that the correct collection date is August 23, 2022.

According to reports 208343 and 208351, samples "Field Blank#1-0822," "Trip Blank#1-0822," and "Trip Blank #2-0822" were reported by FBI as Field Blank 1-0822, Trip Blank 1-0822, and Trip Blank 2-0822, respectively. The reviewer confirmed with the laboratory that this is due to system limitations that do not allow special characters in sample names. The sample names were not able to be revised in the laboratory reports, but the original samples names provided on the COC form will be used in MFA's electronic database and for reporting.

According to the COC forms and case narratives accompanying reports 208343 and 208351, some samples were marked for volatile petroleum hydrocarbon (VPH) analysis. The

subcontracted lab, Fremont, experienced catastrophic instrument failure, and VPH analysis was not possible on these samples. Due to the samples being outside of holding time immediately after this occurrence, MFA did not proceed with analysis with another subcontracted lab, and no VPH results are reported.

According to the COC forms and sample receipt checklists accompanying reports 208343 and 208351, samples SB-2A-0822 and Field Blank 1-0822 were submitted with both sample delivery groups. The VOA containers were received with report 208343, and the remaining containers were received with report 208351. The reviewer confirmed the sample is the same in both reports. It was collected at the same time and was shipped in separate coolers due to an oversight. FBI made notations on the COC form to indicate which analyses were associated with each report. Report 208343 has NWTPH-Gx, EPA Method 8260D, and EPA Method 8260D-SIM results for samples SB-2A-0822 and Field Blank 1-0822, and report 208351 has NWTPH-Dx, EPA Methods 8270E, 6020B, 1631E, and 8082A results for samples SB-2A-0822 and Field Blank 1-0822, as well as subcontracted NWTPH-EPH results for sample Field Blank 1-0822.

At MFA's request, reports 208351 and 208343 were revised by FBI on September 28, 2022, and October 11, 2022, respectively, to remove extraneous system information from batch quality control pages, remove blank pages, and include the reporting limit for bis(2-ethylhexyl) phthalate in the case narratives.

The NWTPH-Gx result for sample SB-1A-0822 was originally omitted from report 208343. FBI reported this sample result and associated batch quality control results in a separate file under report number 208343 due to system limitations.

No other issues were found.

REFERENCES

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EPA. 2020a. *National Functional Guidelines for Inorganic Superfund Methods Data Review.* EPA 542-R-20-006. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation: Washington, DC. November.

EPA. 2020b. *National Functional Guidelines for Organic Superfund Methods Data Review.* EPA 540-R-20-005. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation: Washington, DC. November.

FBI. 2019. *Quality Assurance Manual.* Rev. 17. Friedman & Bruya, Inc.: Seattle, WA. November 6.

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

September 7, 2022

Trevor Louviere, Project Manager
Dalton Olmsted Fuglevand
1001 SW Klickitat Way, Suite 200B
Seattle, WA 98134

Dear Mr Louviere:

Included are the results from the testing of material submitted on August 23, 2022 from the TWAAFA-001, F&BI 208342 project. There are 18 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Anthony Cerruti, Tasya Gray
DOF0907R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 23, 2022 by Friedman & Bruya, Inc. from the Dalton Olmsted Fuglevand TWAAFA-001, F&BI 208342 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Dalton Olmsted Fuglevand
208342 -01	TWA-7D-0822
208342 -02	TWA-4D-0822
208342 -03	TRIP BLANK 1-0822

The NWTPH-Dx surrogate exceeded the acceptance criteria for several samples. The affected results were flagged accordingly.

Methylene chloride was detected in the 8260D analysis of samples TWA-7D-0822 and TRIP BLANK 1-0822. The data were flagged as due to laboratory contamination.

Mercury in the 1631E matrix spike duplicate did not pass the acceptance criteria or the associated relative percent difference. The laboratory control sample passed the acceptance criteria, therefore the results were due to matrix effect.

All other quality control requirements were acceptable.

Date of Report: 09/07/22
Date Received: 08/23/22
Project: TWAAFA-001, F&BI 208342
Date Extracted: 08/26/22
Date Analyzed: 08/26/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
TWA-7D-0822 208342-01	66 x js	<250	159 vo
TWA-4D-0822 208342-02	<50	<250	154 vo
Method Blank 02-2040 MB	<50	<250	142

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-7D-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/23/22	Project:	TWAAFA-001, F&BI 208342
Date Extracted:	08/24/22	Lab ID:	208342-01
Date Analyzed:	08/25/22	Data File:	208342-01.237
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	1.63
Copper	<2.4
Lead	<1
Manganese	344
Nickel	<5
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-7D-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/23/22	Project:	TWAAFA-001, F&BI 208342
Date Extracted:	08/24/22	Lab ID:	208342-01 x5
Date Analyzed:	08/25/22	Data File:	208342-01 x5.235
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	8.27
Cadmium	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-4D-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/23/22	Project:	TWAAFA-001, F&BI 208342
Date Extracted:	08/24/22	Lab ID:	208342-02
Date Analyzed:	08/25/22	Data File:	208342-02.238
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	1.69
Copper	2.44
Lead	<1
Manganese	239
Nickel	<5
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-4D-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/23/22	Project:	TWAAFA-001, F&BI 208342
Date Extracted:	08/24/22	Lab ID:	208342-02 x5
Date Analyzed:	08/25/22	Data File:	208342-02 x5.236
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	10.7
Cadmium	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Dalton Olmsted Fuglevand
Date Received:	NA	Project:	TWAAFA-001, F&BI 208342
Date Extracted:	08/24/22	Lab ID:	I2-580 mb
Date Analyzed:	08/25/22	Data File:	I2-580 mb.210
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Copper	<5
Lead	<1
Manganese	<1
Nickel	<5
Zinc	<5

Date of Report: 09/07/22
Date Received: 08/23/22
Project: TWAAFA-001, F&BI 208342
Date Extracted: 08/26/22
Date Analyzed: 08/29/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Total Mercury
TWA-7D-0822 208342-01	<0.02
TWA-4D-0822 208342-02	<0.02
Method Blank i2-592 MB	<0.02

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	TWA-7D-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/23/22	Project:	TWAAFA-001, F&BI 208342
Date Extracted:	08/30/22	Lab ID:	208342-01
Date Analyzed:	08/30/22	Data File:	083020.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	78	126
Toluene-d8	101	84	115
4-Bromofluorobenzene	101	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	6.4 lc	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	TWA-4D-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/23/22	Project:	TWAAFA-001, F&BI 208342
Date Extracted:	08/30/22	Lab ID:	208342-02
Date Analyzed:	08/30/22	Data File:	083021.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	78	126
Toluene-d8	101	84	115
4-Bromofluorobenzene	102	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	TRIP BLANK 1-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/23/22	Project:	TWAAFA-001, F&BI 208342
Date Extracted:	08/30/22	Lab ID:	208342-03
Date Analyzed:	08/30/22	Data File:	083019.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	78	126
Toluene-d8	103	84	115
4-Bromofluorobenzene	103	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	15 lc	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	2.6	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Dalton Olmsted Fuglevand
Date Received:	Not Applicable	Project:	TWAAFA-001, F&BI 208342
Date Extracted:	08/30/22	Lab ID:	02-1959 mb
Date Analyzed:	08/30/22	Data File:	083007.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	78	126
Toluene-d8	100	84	115
4-Bromofluorobenzene	100	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 09/07/22
Date Received: 08/23/22
Project: TWAAFA-001, F&BI 208342

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 208373-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	<50	132	116	50-150	13

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	ug/L (ppb)	2,500	116	63-142

Date of Report: 09/07/22
Date Received: 08/23/22
Project: TWAAFA-001, F&BI 208342

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 208312-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<1	101	99	75-125	2
Cadmium	ug/L (ppb)	5	<1	97	94	75-125	3
Chromium	ug/L (ppb)	20	<1	99	97	75-125	2
Copper	ug/L (ppb)	20	<5	98	98	75-125	0
Lead	ug/L (ppb)	10	<1	99	99	75-125	0
Manganese	ug/L (ppb)	20	17.5	101	102	75-125	1
Nickel	ug/L (ppb)	20	1.87	97	97	75-125	0
Zinc	ug/L (ppb)	50	<5	96	95	75-125	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	95	80-120
Cadmium	ug/L (ppb)	5	96	80-120
Chromium	ug/L (ppb)	20	99	80-120
Copper	ug/L (ppb)	20	102	80-120
Lead	ug/L (ppb)	10	101	80-120
Manganese	ug/L (ppb)	20	100	80-120
Nickel	ug/L (ppb)	20	102	80-120
Zinc	ug/L (ppb)	50	99	80-120

Date of Report: 09/07/22
Date Received: 08/23/22
Project: TWAAFA-001, F&BI 208342

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Laboratory Code: 208373-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Mercury	ug/L (ppb)	0.01	0.004	86	63 vo	71-125	31 vo

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Mercury	ug/L (ppb)	0.01	107	68-125

Date of Report: 09/07/22
Date Received: 08/23/22
Project: TWAAFA-001, F&BI 208342

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 208342-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	10	<1	89	50-150
Chloromethane	ug/L (ppb)	10	<10	83	50-150
Vinyl chloride	ug/L (ppb)	10	<0.02	98	50-150
Bromomethane	ug/L (ppb)	10	<5	91	50-150
Chloroethane	ug/L (ppb)	10	<1	102	50-150
Trichlorofluoromethane	ug/L (ppb)	10	<1	93	50-150
Acetone	ug/L (ppb)	50	<50	96	50-150
1,1-Dichloroethene	ug/L (ppb)	10	<1	92	50-150
Hexane	ug/L (ppb)	10	<5	96	50-150
Methylene chloride	ug/L (ppb)	10	6.4	47 b	50-150
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	95	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	100	50-150
1,1-Dichloroethane	ug/L (ppb)	10	<1	95	50-150
2,2-Dichloropropane	ug/L (ppb)	10	<1	102	50-150
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	103	50-150
Chloroform	ug/L (ppb)	10	<1	93	50-150
2-Butanone (MEK)	ug/L (ppb)	50	<20	102	50-150
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	101	50-150
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	94	50-150
1,1-Dichloropropene	ug/L (ppb)	10	<1	98	50-150
Carbon tetrachloride	ug/L (ppb)	10	<0.5	95	50-150
Benzene	ug/L (ppb)	10	<0.35	104	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	106	50-150
1,2-Dichloropropane	ug/L (ppb)	10	<1	97	50-150
Bromodichloromethane	ug/L (ppb)	10	<0.5	100	50-150
Dibromomethane	ug/L (ppb)	10	<1	103	50-150
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	100	50-150
cis-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	104	50-150
Toluene	ug/L (ppb)	10	<1	109	50-150
trans-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	103	50-150
1,1,2-Trichloroethane	ug/L (ppb)	10	<0.5	102	50-150
2-Hexanone	ug/L (ppb)	50	<10	100	50-150
1,3-Dichloropropane	ug/L (ppb)	10	<1	99	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	105	50-150
Dibromochloromethane	ug/L (ppb)	10	<0.5	106	50-150
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	105	50-150
Chlorobenzene	ug/L (ppb)	10	<1	100	50-150
Ethylbenzene	ug/L (ppb)	10	<1	100	50-150
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<1	103	50-150
m,p-Xylene	ug/L (ppb)	20	<2	100	50-150
o-Xylene	ug/L (ppb)	10	<1	100	50-150
Styrene	ug/L (ppb)	10	<1	95	50-150
Isopropylbenzene	ug/L (ppb)	10	<1	100	50-150
Bromoform	ug/L (ppb)	10	<5	106	50-150
n-Propylbenzene	ug/L (ppb)	10	<1	101	50-150
Bromobenzene	ug/L (ppb)	10	<1	100	50-150
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	100	50-150
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<0.2	100	50-150
1,2,3-Trichloropropane	ug/L (ppb)	10	<1	97	50-150
2-Chlorotoluene	ug/L (ppb)	10	<1	100	50-150
4-Chlorotoluene	ug/L (ppb)	10	<1	101	50-150
tert-Butylbenzene	ug/L (ppb)	10	<1	105	50-150
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<1	99	50-150
sec-Butylbenzene	ug/L (ppb)	10	<1	103	50-150
p-Isopropyltoluene	ug/L (ppb)	10	<1	103	50-150
1,3-Dichlorobenzene	ug/L (ppb)	10	<1	103	50-150
1,4-Dichlorobenzene	ug/L (ppb)	10	<1	102	50-150
1,2-Dichlorobenzene	ug/L (ppb)	10	<1	102	50-150
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<10	107	50-150
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	104	50-150
Hexachlorobutadiene	ug/L (ppb)	10	<0.5	103	50-150
Naphthalene	ug/L (ppb)	10	<1	102	50-150
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<1	101	50-150

Date of Report: 09/07/22
Date Received: 08/23/22
Project: TWAAFA-001, F&BI 208342

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	117	122	46-206	4
Chloromethane	ug/L (ppb)	10	109	112	70-142	3
Vinyl chloride	ug/L (ppb)	10	112	118	70-130	5
Bromomethane	ug/L (ppb)	10	117	120	56-197	3
Chloroethane	ug/L (ppb)	10	117	120	70-130	3
Trichlorofluoromethane	ug/L (ppb)	10	107	109	70-130	2
Acetone	ug/L (ppb)	50	105	104	10-140	1
1,1-Dichloroethene	ug/L (ppb)	10	103	105	70-130	2
Hexane	ug/L (ppb)	10	95	98	54-136	3
Methylene chloride	ug/L (ppb)	10	114	120	43-134	5
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	106	107	70-130	1
trans-1,2-Dichloroethene	ug/L (ppb)	10	110	113	70-130	3
1,1-Dichloroethane	ug/L (ppb)	10	105	104	70-130	1
2,2-Dichloropropane	ug/L (ppb)	10	117	123	70-130	5
cis-1,2-Dichloroethene	ug/L (ppb)	10	105	107	70-130	2
Chloroform	ug/L (ppb)	10	101	102	70-130	1
2-Butanone (MEK)	ug/L (ppb)	50	112	109	17-154	3
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	106	106	70-130	0
1,1,1-Trichloroethane	ug/L (ppb)	10	104	106	70-130	2
1,1-Dichloropropene	ug/L (ppb)	10	102	102	70-130	0
Carbon tetrachloride	ug/L (ppb)	10	108	111	70-130	3
Benzene	ug/L (ppb)	10	107	108	70-130	1
Trichloroethene	ug/L (ppb)	10	110	109	70-130	1
1,2-Dichloropropane	ug/L (ppb)	10	105	105	70-130	0
Bromodichloromethane	ug/L (ppb)	10	105	107	70-130	2
Dibromomethane	ug/L (ppb)	10	109	112	70-130	3
4-Methyl-2-pentanone	ug/L (ppb)	50	113	112	68-130	1
cis-1,3-Dichloropropene	ug/L (ppb)	10	114	115	69-131	1
Toluene	ug/L (ppb)	10	111	109	70-130	2
trans-1,3-Dichloropropene	ug/L (ppb)	10	111	108	70-130	3
1,1,2-Trichloroethane	ug/L (ppb)	10	109	106	70-130	3
2-Hexanone	ug/L (ppb)	50	109	103	45-138	6
1,3-Dichloropropane	ug/L (ppb)	10	105	104	70-130	1
Tetrachloroethene	ug/L (ppb)	10	107	105	70-130	2
Dibromochloromethane	ug/L (ppb)	10	105	106	60-148	1
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	109	107	70-130	2
Chlorobenzene	ug/L (ppb)	10	103	103	70-130	0
Ethylbenzene	ug/L (ppb)	10	108	106	70-130	2
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	103	101	70-130	2
m,p-Xylene	ug/L (ppb)	20	107	105	70-130	2
o-Xylene	ug/L (ppb)	10	105	104	70-130	1
Styrene	ug/L (ppb)	10	101	101	70-130	0
Isopropylbenzene	ug/L (ppb)	10	103	102	70-130	1
Bromoform	ug/L (ppb)	10	118	115	69-138	3
n-Propylbenzene	ug/L (ppb)	10	102	104	70-130	2
Bromobenzene	ug/L (ppb)	10	103	105	70-130	2
1,3,5-Trimethylbenzene	ug/L (ppb)	10	99	101	70-130	2
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	107	108	70-130	1
1,2,3-Trichloropropane	ug/L (ppb)	10	104	101	70-130	3
2-Chlorotoluene	ug/L (ppb)	10	101	101	70-130	0
4-Chlorotoluene	ug/L (ppb)	10	100	104	70-130	4
tert-Butylbenzene	ug/L (ppb)	10	101	105	70-130	4
1,2,4-Trimethylbenzene	ug/L (ppb)	10	100	101	70-130	1
sec-Butylbenzene	ug/L (ppb)	10	101	105	70-130	4
p-Isopropyltoluene	ug/L (ppb)	10	99	103	70-130	4
1,3-Dichlorobenzene	ug/L (ppb)	10	101	104	70-130	3
1,4-Dichlorobenzene	ug/L (ppb)	10	99	103	70-130	4
1,2-Dichlorobenzene	ug/L (ppb)	10	98	102	70-130	4
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	107	108	70-130	1
1,2,4-Trichlorobenzene	ug/L (ppb)	10	94	97	70-130	3
Hexachlorobutadiene	ug/L (ppb)	10	92	99	70-130	7
Naphthalene	ug/L (ppb)	10	94	97	70-130	3
1,2,3-Trichlorobenzene	ug/L (ppb)	10	95	98	70-130	3

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

SAMPLE CHAIN OF CUSTODY

ME 8/23/22 AI 3/WW4/002

208342

Page # 1 of 1

Report To: Anthony Cerruti / Trevor Louviere
cc: Tasya Gray

Company DOF

Address 1001 SW Klickitat Way

City, State, ZIP Seattle, WA 98134

Phone 215-767-7749 Email acerruti@dofnw.com

SAMPLERS (*signature*)

PROJECT NAME: TWAAFA

PO#: TWAAFA-001

REMARKS: SVOCs lab filtered at 0.7 micron before analysis

Project Specific RLs - (Yes) / No

INVOICE TO: DOF

TURNAROUND TIME
__ Standard Turnaround
__ RUSH _____
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Archive Samples
Other

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	VOCs by EPA 8260D / SIM Dual Acquisition	NWTPH-Dx	EPH / VPH	NWTPH-Gx	Total Metals 6020B (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn)	Mecury by 1631E	SVOCs EPA 8270E SIM Dual Acquisiton	cPAHs by EPA 8270	1,4 Dioxane by EPA 8260D SIM	LL PCBs 8082A	MS/MSD Collected? (Y/N)	Notes
TWA-7D-0822	01A-H	8/23/22	1215	GW	8	X	X			X	X						* SVOC full suite includes cPAH
TWA-4D-0822	02A-H	8/23/22	1315	GW	8	X	X			X	X						
TRIP BLANK #1-0822	03A-B	8/23/22	1000	W	2	X											

Samples received at 4 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	ANTHONY CERRUTI	DOF	8/23/22	1414
Received by:	[illegible]	FBI	8-23-22	1414
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

September 8, 2022

Trevor Louviere, Project Manager
Dalton Olmsted Fuglevand
1001 SW Klickitat Way, Suite 200B
Seattle, WA 98134

Dear Mr Louviere:

Included are the results from the testing of material submitted on August 24, 2022 from the TWAAFA-001, F&BI 208373 project. There are 51 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Anthony Cerruti, Tasya Gray

DOF0908R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 24, 2022 by Friedman & Bruya, Inc. from the Dalton Olmsted Fuglevand TWAAFA-001, F&BI 208373 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Dalton Olmsted Fuglevand
208373 -01	TWA-8D-0822
208373 -02	TWA-9D-0822
208373 -03	CCW-2C-0822
208373 -04	CCW-2B-0822
208373 -05	TRIP BLANK2-0822

The NWTPH-Dx surrogate in samples TWA-8D-0822 and TWA-9D-0822 exceeded the acceptance criteria. The detections in the diesel range were qualified as estimates.

The 8260D laboratory control sample and laboratory control sample duplicate exceeded the acceptance criteria for methylene chloride. The compound was not detected, therefore the data were acceptable.

The 8260D SIM matrix spike and matrix spike duplicate failed the relative percent difference for 1,4-dioxane. The laboratory control sample passed the acceptance criteria, therefore the results were due to matrix effect.

The 8270E and 8082A matrix spike and matrix spike duplicate recoveries were outside of acceptance limits for several compounds due to the use of the method default acceptance criteria of 50-150%.

The 8270E calibration standard failed the acceptance criteria for 2,4-dinitrotoluene. The data were flagged accordingly.

Phenanthrene and bis(2-ethylhexyl)phthalate were detected in the 8270E method blank. The data were flagged accordingly.

The 8082A PCB results were reported to the method detection limit. The data were flagged accordingly.

All other quality control requirements were acceptable.

Date of Report: 09/08/22
Date Received: 08/24/22
Project: TWAAFA-001, F&BI 208373
Date Extracted: 08/30/22
Date Analyzed: 08/30/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
TWA-8D-0822 208373-01	<100	100
TWA-9D-0822 208373-02	<100	104
CCW-2C-0822 208373-03	<100	100
CCW-2B-0822 208373-04	5,200	ip
TRIP BLANK2-0822 208373-05	<100	99
Method Blank 02-1754 MB	<100	110

Date of Report: 09/08/22
Date Received: 08/24/22
Project: TWAAFA-001, F&BI 208373
Date Extracted: 08/26/22
Date Analyzed: 08/26/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
TWA-8D-0822 208373-01	110 x js	<250	161 vo
TWA-9D-0822 208373-02	120 x js	<250	156 vo
CCW-2C-0822 208373-03	530 x	280 x	149
CCW-2B-0822 208373-04	2,600 x	1,000 x	88
Method Blank 02-2040 MB	<50	<250	142

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-8D-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/31/22	Lab ID:	208373-01
Date Analyzed:	08/31/22	Data File:	208373-01.152
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Chromium	1.61
Copper	<2.4
Manganese	277
Nickel	3.57
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-8D-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/31/22	Lab ID:	208373-01 x5
Date Analyzed:	08/31/22	Data File:	208373-01 x5.139
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	11.1
Cadmium	<5
Lead	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-9D-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/31/22	Lab ID:	208373-02
Date Analyzed:	08/31/22	Data File:	208373-02.153
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Cadmium	<1
Chromium	5.47
Copper	3.02
Lead	<1
Manganese	65.1
Nickel	2.18
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-9D-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/31/22	Lab ID:	208373-02 x5
Date Analyzed:	08/31/22	Data File:	208373-02 x5.140
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	9.32

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-2C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/31/22	Lab ID:	208373-03
Date Analyzed:	08/31/22	Data File:	208373-03.156
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Cadmium	<1
Chromium	2.15
Copper	<2.4
Lead	<1
Manganese	317
Nickel	4.07
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-2C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/31/22	Lab ID:	208373-03 x5
Date Analyzed:	08/31/22	Data File:	208373-03 x5.141
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-2B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/31/22	Lab ID:	208373-04
Date Analyzed:	08/31/22	Data File:	208373-04.157
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Cadmium	<1
Chromium	<1
Copper	<2.4
Lead	<1
Manganese	268
Nickel	7.32
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-2B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/31/22	Lab ID:	208373-04 x5
Date Analyzed:	08/31/22	Data File:	208373-04 x5.142
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1,170

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Dalton Olmsted Fuglevand
Date Received:	NA	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/31/22	Lab ID:	I2-601 mb
Date Analyzed:	08/31/22	Data File:	I2-601 mb.117
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Copper	<2.4
Lead	<1
Manganese	<1
Nickel	<1
Zinc	<5

Date of Report: 09/08/22
Date Received: 08/24/22
Project: TWAAFA-001, F&BI 208373
Date Extracted: 08/26/22
Date Analyzed: 08/29/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Total Mercury
TWA-8D-0822 208373-01	<0.02
TWA-9D-0822 208373-02	<0.02
CCW-2C-0822 208373-03	<0.02
CCW-2B-0822 208373-04	<0.02
Method Blank i2-592 MB	<0.02

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	TWA-8D-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	09/02/22	Lab ID:	208373-01
Date Analyzed:	09/02/22	Data File:	090216.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	78	126
Toluene-d8	93	84	115
4-Bromofluorobenzene	98	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	TWA-9D-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	09/02/22	Lab ID:	208373-02
Date Analyzed:	09/02/22	Data File:	090217.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	78	126
Toluene-d8	99	84	115
4-Bromofluorobenzene	99	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	CCW-2C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	09/02/22	Lab ID:	208373-03
Date Analyzed:	09/02/22	Data File:	090218.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	78	126
Toluene-d8	97	84	115
4-Bromofluorobenzene	103	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	CCW-2B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	09/02/22	Lab ID:	208373-04
Date Analyzed:	09/02/22	Data File:	090219.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	78	126
Toluene-d8	90	84	115
4-Bromofluorobenzene	97	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	1.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	2.1	Chlorobenzene	840 ve
Trichlorofluoromethane	<1	Ethylbenzene	39
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	100
Hexane	<5	o-Xylene	69
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	4.9
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	2.7	n-Propylbenzene	8.2
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	1.1	1,3,5-Trimethylbenzene	19
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	15
1,1,1-Trichloroethane	<1	4-Chlorotoluene	3.0
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	130
Benzene	81	sec-Butylbenzene	1.2
Trichloroethene	<0.5	p-Isopropyltoluene	3.1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	14
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	93
Dibromomethane	<1	1,2-Dichlorobenzene	7.0
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	210 ve	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	64
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	CCW-2B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	09/02/22	Lab ID:	208373-04 1/10
Date Analyzed:	09/02/22	Data File:	090227.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	78	126
Toluene-d8	99	84	115
4-Bromofluorobenzene	100	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<10	1,3-Dichloropropane	<10
Chloromethane	<100	Tetrachloroethene	<10
Vinyl chloride	0.93	Dibromochloromethane	<5
Bromomethane	<50	1,2-Dibromoethane (EDB)	<10
Chloroethane	<10	Chlorobenzene	810
Trichlorofluoromethane	<10	Ethylbenzene	35
Acetone	<500	1,1,1,2-Tetrachloroethane	<10
1,1-Dichloroethene	<10	m,p-Xylene	91
Hexane	<50	o-Xylene	62
Methylene chloride	<50	Styrene	<10
Methyl t-butyl ether (MTBE)	<10	Isopropylbenzene	<10
trans-1,2-Dichloroethene	<10	Bromoform	<50
1,1-Dichloroethane	<10	n-Propylbenzene	<10
2,2-Dichloropropane	<10	Bromobenzene	<10
cis-1,2-Dichloroethene	<10	1,3,5-Trimethylbenzene	17
Chloroform	<10	1,1,2,2-Tetrachloroethane	<2
2-Butanone (MEK)	<200	1,2,3-Trichloropropane	<10
1,2-Dichloroethane (EDC)	<2	2-Chlorotoluene	14
1,1,1-Trichloroethane	<10	4-Chlorotoluene	<10
1,1-Dichloropropene	<10	tert-Butylbenzene	<10
Carbon tetrachloride	<5	1,2,4-Trimethylbenzene	120
Benzene	74	sec-Butylbenzene	<10
Trichloroethene	<5	p-Isopropyltoluene	<10
1,2-Dichloropropane	<10	1,3-Dichlorobenzene	13
Bromodichloromethane	<5	1,4-Dichlorobenzene	86
Dibromomethane	<10	1,2-Dichlorobenzene	<10
4-Methyl-2-pentanone	<100	1,2-Dibromo-3-chloropropane	<100
cis-1,3-Dichloropropene	<4	1,2,4-Trichlorobenzene	<10
Toluene	180	Hexachlorobutadiene	<5
trans-1,3-Dichloropropene	<4	Naphthalene	54
1,1,2-Trichloroethane	<5	1,2,3-Trichlorobenzene	<10
2-Hexanone	<100		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	TRIP BLANK2-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	09/02/22	Lab ID:	208373-05
Date Analyzed:	09/02/22	Data File:	090226.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	78	126
Toluene-d8	98	84	115
4-Bromofluorobenzene	103	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Dalton Olmsted Fuglevand
Date Received:	Not Applicable	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	09/02/22	Lab ID:	02-1966 mb
Date Analyzed:	09/02/22	Data File:	090214.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	78	126
Toluene-d8	98	84	115
4-Bromofluorobenzene	99	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	TWA-8D-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/26/22	Lab ID:	208373-01
Date Analyzed:	08/27/22	Data File:	082622.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	TWA-9D-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/26/22	Lab ID:	208373-02
Date Analyzed:	08/27/22	Data File:	082623.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	1.3

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	CCW-2C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/26/22	Lab ID:	208373-03
Date Analyzed:	08/27/22	Data File:	082624.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	3.6

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	CCW-2B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/26/22	Lab ID:	208373-04
Date Analyzed:	08/27/22	Data File:	082625.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	114	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	90	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	0.89

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	Method Blank	Client:	Dalton Olmsted Fuglevand
Date Received:	Not Applicable	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/26/22	Lab ID:	02-1952 mb
Date Analyzed:	08/26/22	Data File:	082611.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	TWA-8D-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/25/22	Lab ID:	208373-01 1/0.5
Date Analyzed:	08/29/22	Data File:	082910.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	39	11	65
Phenol-d6	31	11	65
Nitrobenzene-d5	87	11	173
2-Fluorobiphenyl	93	44	108
2,4,6-Tribromophenol	114	10	140
Terphenyl-d14	109	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5 ca
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5	Phenanthrene	0.014 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	1.9 fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	TWA-9D-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/25/22	Lab ID:	208373-02 1/0.5
Date Analyzed:	08/29/22	Data File:	082909.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	21	11	65
Phenol-d6	22	11	65
Nitrobenzene-d5	56	11	173
2-Fluorobiphenyl	64	44	108
2,4,6-Tribromophenol	95	10	140
Terphenyl-d14	97	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5 ca
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5	Phenanthrene	0.014 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	1.6 fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CCW-2C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/25/22	Lab ID:	208373-03 1/0.5
Date Analyzed:	08/29/22	Data File:	082911.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	34	11	65
Phenol-d6	27	11	65
Nitrobenzene-d5	83	11	173
2-Fluorobiphenyl	46	44	108
2,4,6-Tribromophenol	66	10	140
Terphenyl-d14	115	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5 ca
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5	Phenanthrene	0.021 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	1.8 fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CCW-2B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/25/22	Lab ID:	208373-04 1/0.5
Date Analyzed:	08/29/22	Data File:	082912.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	29	11	65
Phenol-d6	25	11	65
Nitrobenzene-d5	66	11	173
2-Fluorobiphenyl	63	44	108
2,4,6-Tribromophenol	85	10	140
Terphenyl-d14	102	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	1.1
1,3-Dichlorobenzene	2.6	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	18 ve	Dibenzofuran	0.36
1,2-Dichlorobenzene	1.6	2,4-Dinitrotoluene	<0.5 ca
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	0.60
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5	Phenanthrene	0.96
Bis(2-chloroethoxy)methane	<0.1	Anthracene	0.15
2,4-Dichlorophenol	<1	Carbazole	0.52
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	19 ve	Fluoranthene	0.17
Hexachlorobutadiene	<0.1	Pyrene	0.11
4-Chloroaniline	<10	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	1.6	Chrysene	<0.01
1-Methylnaphthalene	3.0	Bis(2-ethylhexyl) phthalate	<1.6
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CCW-2B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/25/22	Lab ID:	208373-04 1/5
Date Analyzed:	08/31/22	Data File:	083024.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	26 d	11	65
Phenol-d6	22 d	11	65
Nitrobenzene-d5	61 d	11	173
2-Fluorobiphenyl	71 d	44	108
2,4,6-Tribromophenol	95 d	10	140
Terphenyl-d14	99 d	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<10	2,6-Dinitrotoluene	<5
Bis(2-chloroethyl) ether	<1	3-Nitroaniline	<100
2-Chlorophenol	<10	Acenaphthene	1.3
1,3-Dichlorobenzene	2.5	2,4-Dinitrophenol	<30 ca
1,4-Dichlorobenzene	18	Dibenzofuran	<1
1,2-Dichlorobenzene	1.5	2,4-Dinitrotoluene	<5 ca
Benzyl alcohol	<10	4-Nitrophenol	<30
2,2'-Oxybis(1-chloropropane)	<1	Diethyl phthalate	<10
2-Methylphenol	<10	Fluorene	0.68
Hexachloroethane	<1	4-Chlorophenyl phenyl ether	<1
N-Nitroso-di-n-propylamine	<1	N-Nitrosodiphenylamine	<1
3-Methylphenol + 4-Methylphenol	<20	4-Nitroaniline	<100
Nitrobenzene	<1	4,6-Dinitro-2-methylphenol	<30
Isophorone	<1	4-Bromophenyl phenyl ether	<1
2-Nitrophenol	<10	Hexachlorobenzene	<1
2,4-Dimethylphenol	<10	Pentachlorophenol	<5
Benzoic acid	<50	Phenanthrene	1.0
Bis(2-chloroethoxy)methane	<1	Anthracene	0.13
2,4-Dichlorophenol	<10	Carbazole	<1
1,2,4-Trichlorobenzene	<1	Di-n-butyl phthalate	<10
Naphthalene	20	Fluoranthene	0.17
Hexachlorobutadiene	<1	Pyrene	0.13
4-Chloroaniline	<100	Benzyl butyl phthalate	<10
4-Chloro-3-methylphenol	<10	Benz(a)anthracene	<0.1
2-Methylnaphthalene	1.5	Chrysene	<0.1
1-Methylnaphthalene	3.1	Bis(2-ethylhexyl) phthalate	<3.2 j
Hexachlorocyclopentadiene	<3	Di-n-octyl phthalate	<10
2,4,6-Trichlorophenol	<10	Benzo(a)pyrene	<0.1
2,4,5-Trichlorophenol	<10	Benzo(b)fluoranthene	<0.1
2-Chloronaphthalene	<1	Benzo(k)fluoranthene	<0.1
2-Nitroaniline	<5	Indeno(1,2,3-cd)pyrene	<0.1
Dimethyl phthalate	<10	Dibenz(a,h)anthracene	<0.1
Acenaphthylene	<0.1	Benzo(g,h,i)perylene	<0.2

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Dalton Olmsted Fuglevand
Date Received:	Not Applicable	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/25/22	Lab ID:	02-2035 mb 1/0.5
Date Analyzed:	08/26/22	Data File:	082611.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	39	10	60
Phenol-d6	27	10	49
Nitrobenzene-d5	83	15	144
2-Fluorobiphenyl	84	25	128
2,4,6-Tribromophenol	99	10	142
Terphenyl-d14	106	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5	Phenanthrene	<0.01
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	1.2 lc j
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	TWA-8D-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/31/22	Lab ID:	208373-01 1/0.5
Date Analyzed:	09/02/22	Data File:	090206.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	31	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0052 j
Aroclor 1232	<0.0052 j
Aroclor 1016	<0.0052 j
Aroclor 1242	<0.0052 j
Aroclor 1248	<0.0073 j
Aroclor 1254	<0.0073 j
Aroclor 1260	<0.0073 j
Aroclor 1262	<0.0073 j
Aroclor 1268	<0.0073 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	TWA-9D-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/31/22	Lab ID:	208373-02 1/0.5
Date Analyzed:	09/02/22	Data File:	090207.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	28	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0055 j
Aroclor 1232	<0.0055 j
Aroclor 1016	<0.0055 j
Aroclor 1242	<0.0055 j
Aroclor 1248	<0.0078 j
Aroclor 1254	<0.0078 j
Aroclor 1260	<0.0078 j
Aroclor 1262	<0.0078 j
Aroclor 1268	<0.0078 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	CCW-2C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/31/22	Lab ID:	208373-03 1/0.5
Date Analyzed:	09/02/22	Data File:	090208.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	27	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0051 j
Aroclor 1232	<0.0051 j
Aroclor 1016	<0.0051 j
Aroclor 1242	<0.0051 j
Aroclor 1248	<0.0072 j
Aroclor 1254	<0.0072 j
Aroclor 1260	<0.0072 j
Aroclor 1262	<0.0072 j
Aroclor 1268	<0.0072 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	CCW-2B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/24/22	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/31/22	Lab ID:	208373-04 1/0.5
Date Analyzed:	08/31/22	Data File:	083132.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	50	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0054 j
Aroclor 1232	<0.0054 j
Aroclor 1016	<0.0054 j
Aroclor 1242	<0.0054 j
Aroclor 1248	<0.0076 j
Aroclor 1254	<0.0076 j
Aroclor 1260	<0.0076 j
Aroclor 1262	<0.0076 j
Aroclor 1268	<0.0076 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Dalton Olmsted Fuglevand
Date Received:	Not Applicable	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	08/31/22	Lab ID:	02-2062 mb 1/0.5
Date Analyzed:	08/31/22	Data File:	083126.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	29	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0050 j
Aroclor 1232	<0.0050 j
Aroclor 1016	<0.0050 j
Aroclor 1242	<0.0050 j
Aroclor 1248	<0.0070 j
Aroclor 1254	<0.0070 j
Aroclor 1260	<0.0070 j
Aroclor 1262	<0.0070 j
Aroclor 1268	<0.0070 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Dalton Olmsted Fuglevand
Date Received:	Not Applicable	Project:	TWAAFA-001, F&BI 208373
Date Extracted:	09/01/22	Lab ID:	02-2062 mb2 1/0.5
Date Analyzed:	09/02/22	Data File:	090204.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	26	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0050 j
Aroclor 1232	<0.0050 j
Aroclor 1016	<0.0050 j
Aroclor 1242	<0.0050 j
Aroclor 1248	<0.0070 j
Aroclor 1254	<0.0070 j
Aroclor 1260	<0.0070 j
Aroclor 1262	<0.0070 j
Aroclor 1268	<0.0070 j

Date of Report: 09/08/22
Date Received: 08/24/22
Project: TWAAFA-001, F&BI 208373

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 208373-02 Matrix Spike

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	ug/L (ppb)	1,000	<100	92	93	53-117	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	97	69-134

Date of Report: 09/08/22
Date Received: 08/24/22
Project: TWAAFA-001, F&BI 208373

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 208373-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	<50	132	116	50-150	13

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	ug/L (ppb)	2,500	116	63-142

Date of Report: 09/08/22
Date Received: 08/24/22
Project: TWAAFA-001, F&BI 208373

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 208373-02 x10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	<10	102	108	75-125	6
Cadmium	ug/L (ppb)	5	<10	96	102	75-125	6
Chromium	ug/L (ppb)	20	<10	100	106	75-125	6
Copper	ug/L (ppb)	20	<50	91	97	75-125	6
Lead	ug/L (ppb)	10	<10	89	93	75-125	4
Manganese	ug/L (ppb)	20	70.4	107	113	75-125	5
Nickel	ug/L (ppb)	20	<10	96	101	75-125	5
Zinc	ug/L (ppb)	50	<50	87	93	75-125	7

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	95	80-120
Cadmium	ug/L (ppb)	5	98	80-120
Chromium	ug/L (ppb)	20	96	80-120
Copper	ug/L (ppb)	20	100	80-120
Lead	ug/L (ppb)	10	95	80-120
Manganese	ug/L (ppb)	20	99	80-120
Nickel	ug/L (ppb)	20	100	80-120
Zinc	ug/L (ppb)	50	96	80-120

Date of Report: 09/08/22
Date Received: 08/24/22
Project: TWAAFA-001, F&BI 208373

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Laboratory Code: 208373-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Mercury	ug/L (ppb)	0.01	0.004	86	63 b	71-125	31 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Mercury	ug/L (ppb)	0.01	107	68-125

Date of Report: 09/08/22
Date Received: 08/24/22
Project: TWAAFA-001, F&BI 208373

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 208373-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	<1	103	98	50-150	5
Chloromethane	ug/L (ppb)	10	<10	95	93	50-150	2
Vinyl chloride	ug/L (ppb)	10	<0.02	107	103	50-150	4
Bromomethane	ug/L (ppb)	10	<5	99	98	50-150	1
Chloroethane	ug/L (ppb)	10	<1	110	107	50-150	3
Trichlorofluoromethane	ug/L (ppb)	10	<1	100	99	50-150	1
Acetone	ug/L (ppb)	50	<50	104	104	50-150	0
1,1-Dichloroethene	ug/L (ppb)	10	<1	102	98	50-150	4
Hexane	ug/L (ppb)	10	<5	98	96	50-150	2
Methylene chloride	ug/L (ppb)	10	<5	62	64	50-150	3
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	97	95	50-150	2
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	108	105	50-150	3
1,1-Dichloroethane	ug/L (ppb)	10	<1	102	100	50-150	2
2,2-Dichloropropane	ug/L (ppb)	10	<1	114	110	50-150	4
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	112	109	50-150	3
Chloroform	ug/L (ppb)	10	<1	98	96	50-150	2
2-Butanone (MEK)	ug/L (ppb)	50	<20	99	86	50-150	14
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	98	96	50-150	2
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	99	97	50-150	2
1,1-Dichloropropene	ug/L (ppb)	10	<1	99	96	50-150	3
Carbon tetrachloride	ug/L (ppb)	10	<0.5	106	103	50-150	3
Benzene	ug/L (ppb)	10	<0.35	102	99	50-150	3
Trichloroethene	ug/L (ppb)	10	<0.5	105	101	50-150	4
1,2-Dichloropropane	ug/L (ppb)	10	<1	99	93	50-150	6
Bromodichloromethane	ug/L (ppb)	10	<0.5	99	98	50-150	1
Dibromomethane	ug/L (ppb)	10	<1	104	99	50-150	5
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	111	110	50-150	1
cis-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	103	104	50-150	1
Toluene	ug/L (ppb)	10	<1	111	108	50-150	3
trans-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	102	103	50-150	1
1,1,2-Trichloroethane	ug/L (ppb)	10	<0.5	107	106	50-150	1
2-Hexanone	ug/L (ppb)	50	<10	109	111	50-150	2
1,3-Dichloropropane	ug/L (ppb)	10	<1	108	106	50-150	2
Tetrachloroethene	ug/L (ppb)	10	<1	111	108	50-150	3
Dibromochloromethane	ug/L (ppb)	10	<0.5	110	103	50-150	7
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	109	107	50-150	2
Chlorobenzene	ug/L (ppb)	10	<1	106	106	50-150	0
Ethylbenzene	ug/L (ppb)	10	<1	109	107	50-150	2
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<1	107	104	50-150	3
m,p-Xylene	ug/L (ppb)	20	<2	109	107	50-150	2
o-Xylene	ug/L (ppb)	10	<1	107	105	50-150	2
Styrene	ug/L (ppb)	10	<1	107	102	50-150	5
Isopropylbenzene	ug/L (ppb)	10	<1	106	104	50-150	2
Bromoform	ug/L (ppb)	10	<5	116	114	50-150	2
n-Propylbenzene	ug/L (ppb)	10	<1	106	105	50-150	1
Bromobenzene	ug/L (ppb)	10	<1	107	107	50-150	0
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	101	104	50-150	3
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<0.2	107	108	50-150	1
1,2,3-Trichloropropane	ug/L (ppb)	10	<1	104	103	50-150	1
2-Chlorotoluene	ug/L (ppb)	10	<1	102	103	50-150	1
4-Chlorotoluene	ug/L (ppb)	10	<1	105	106	50-150	1
tert-Butylbenzene	ug/L (ppb)	10	<1	105	104	50-150	1
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<1	102	103	50-150	1
sec-Butylbenzene	ug/L (ppb)	10	<1	104	104	50-150	0
p-Isopropyltoluene	ug/L (ppb)	10	<1	105	105	50-150	0
1,3-Dichlorobenzene	ug/L (ppb)	10	<1	104	104	50-150	0
1,4-Dichlorobenzene	ug/L (ppb)	10	<1	104	104	50-150	0
1,2-Dichlorobenzene	ug/L (ppb)	10	<1	101	101	50-150	0
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<10	107	107	50-150	0
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	97	100	50-150	3
Hexachlorobutadiene	ug/L (ppb)	10	<0.5	101	103	50-150	2
Naphthalene	ug/L (ppb)	10	<1	99	100	50-150	1
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<1	98	100	50-150	2

Date of Report: 09/08/22
Date Received: 08/24/22
Project: TWAAFA-001, F&BI 208373

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	84	86	46-206	2
Chloromethane	ug/L (ppb)	10	92	93	70-142	1
Vinyl chloride	ug/L (ppb)	10	96	99	70-130	3
Bromomethane	ug/L (ppb)	10	98	104	56-197	6
Chloroethane	ug/L (ppb)	10	102	104	70-130	2
Trichlorofluoromethane	ug/L (ppb)	10	94	94	70-130	0
Acetone	ug/L (ppb)	50	98	103	10-140	5
1,1-Dichloroethene	ug/L (ppb)	10	94	96	70-130	2
Hexane	ug/L (ppb)	10	90	89	54-136	1
Methylene chloride	ug/L (ppb)	10	143 vo	204 vo	43-134	35 vo
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	96	97	70-130	1
trans-1,2-Dichloroethene	ug/L (ppb)	10	102	104	70-130	2
1,1-Dichloroethane	ug/L (ppb)	10	94	95	70-130	1
2,2-Dichloropropane	ug/L (ppb)	10	110	110	70-130	0
cis-1,2-Dichloroethene	ug/L (ppb)	10	104	104	70-130	0
Chloroform	ug/L (ppb)	10	93	94	70-130	1
2-Butanone (MEK)	ug/L (ppb)	50	100	96	17-154	4
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	96	99	70-130	3
1,1,1-Trichloroethane	ug/L (ppb)	10	96	97	70-130	1
1,1-Dichloropropene	ug/L (ppb)	10	96	98	70-130	2
Carbon tetrachloride	ug/L (ppb)	10	99	101	70-130	2
Benzene	ug/L (ppb)	10	99	101	70-130	2
Trichloroethene	ug/L (ppb)	10	100	103	70-130	3
1,2-Dichloropropane	ug/L (ppb)	10	96	98	70-130	2
Bromodichloromethane	ug/L (ppb)	10	95	97	70-130	2
Dibromomethane	ug/L (ppb)	10	104	103	70-130	1
4-Methyl-2-pentanone	ug/L (ppb)	50	102	109	68-130	7
cis-1,3-Dichloropropene	ug/L (ppb)	10	101	104	69-131	3
Toluene	ug/L (ppb)	10	97	102	70-130	5
trans-1,3-Dichloropropene	ug/L (ppb)	10	92	96	70-130	4
1,1,2-Trichloroethane	ug/L (ppb)	10	94	99	70-130	5
2-Hexanone	ug/L (ppb)	50	96	99	45-138	3
1,3-Dichloropropane	ug/L (ppb)	10	92	96	70-130	4
Tetrachloroethene	ug/L (ppb)	10	94	98	70-130	4
Dibromochloromethane	ug/L (ppb)	10	93	97	60-148	4
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	94	99	70-130	5
Chlorobenzene	ug/L (ppb)	10	93	96	70-130	3
Ethylbenzene	ug/L (ppb)	10	95	99	70-130	4
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	88	94	70-130	7
m,p-Xylene	ug/L (ppb)	20	94	98	70-130	4
o-Xylene	ug/L (ppb)	10	93	97	70-130	4
Styrene	ug/L (ppb)	10	87	95	70-130	9
Isopropylbenzene	ug/L (ppb)	10	92	95	70-130	3
Bromoform	ug/L (ppb)	10	96	102	69-138	6
n-Propylbenzene	ug/L (ppb)	10	93	94	70-130	1
Bromobenzene	ug/L (ppb)	10	95	94	70-130	1
1,3,5-Trimethylbenzene	ug/L (ppb)	10	90	93	70-130	3
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	97	97	70-130	0
1,2,3-Trichloropropane	ug/L (ppb)	10	92	96	70-130	4
2-Chlorotoluene	ug/L (ppb)	10	94	94	70-130	0
4-Chlorotoluene	ug/L (ppb)	10	94	95	70-130	1
tert-Butylbenzene	ug/L (ppb)	10	93	95	70-130	2
1,2,4-Trimethylbenzene	ug/L (ppb)	10	91	91	70-130	0
sec-Butylbenzene	ug/L (ppb)	10	93	94	70-130	1
p-Isopropyltoluene	ug/L (ppb)	10	92	94	70-130	2
1,3-Dichlorobenzene	ug/L (ppb)	10	89	93	70-130	4
1,4-Dichlorobenzene	ug/L (ppb)	10	92	94	70-130	2
1,2-Dichlorobenzene	ug/L (ppb)	10	92	92	70-130	0
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	92	100	70-130	8
1,2,4-Trichlorobenzene	ug/L (ppb)	10	87	88	70-130	1
Hexachlorobutadiene	ug/L (ppb)	10	89	89	70-130	0
Naphthalene	ug/L (ppb)	10	87	88	70-130	1
1,2,3-Trichlorobenzene	ug/L (ppb)	10	85	89	70-130	5

Date of Report: 09/08/22
Date Received: 08/24/22
Project: TWAAFA-001, F&BI 208373

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D SIM

Laboratory Code: 208373-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
1,4-Dioxane	ug/L (ppb)	2	1.3	93 b	108 b	50-150	15 b

Date of Report: 09/08/22
Date Received: 08/24/22
Project: TWAAFA-001, F&BI 208373

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D SIM

Laboratory Code: 208343-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
1,4-Dioxane	ug/L (ppb)	2	<0.4	128	102	50-150	23 vo

Date of Report: 09/08/22
Date Received: 08/24/22
Project: TWAAFA-001, F&BI 208373

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
1,4-Dioxane	ug/L (ppb)	2	77	94	70-130	20

Date of Report: 09/08/22
Date Received: 08/24/22
Project: TWAAFA-001, F&BI 208373

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: 208343-05 1/0.5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Phenol	ug/L (ppb)	2.5	<1	18	25	10-76	33 vo
Bis(2-chloroethyl) ether	ug/L (ppb)	2.5	<0.1	37	50	35-104	30 vo
2-Chlorophenol	ug/L (ppb)	2.5	<1	47	51	18-97	8
1,3-Dichlorobenzene	ug/L (ppb)	2.5	<0.1	15 vo	46	34-90	102 vo
1,4-Dichlorobenzene	ug/L (ppb)	2.5	<0.1	17 vo	46	36-90	92 vo
1,2-Dichlorobenzene	ug/L (ppb)	2.5	<0.1	24 vo	44	38-90	59 vo
Benzyl alcohol	ug/L (ppb)	2.5	<1	56	53	27-89	6
2,2'-Oxybis(1-chloropropane)	ug/L (ppb)	13	<0.1	45	54	30-109	18
2-Methylphenol	ug/L (ppb)	2.5	<1	55	52	25-95	6
Hexachloroethane	ug/L (ppb)	2.5	<0.1	18 vo	48	38-88	91 vo
N-Nitroso-di-n-propylamine	ug/L (ppb)	2.5	<0.1	64	65	50-150	2
3-Methylphenol + 4-Methylphenol	ug/L (ppb)	2.5	<2	52	52	15-95	0
Nitrobenzene	ug/L (ppb)	2.5	<0.1	56	58	41-114	4
Isophorone	ug/L (ppb)	2.5	<0.1	72	74	50-150	3
2-Nitrophenol	ug/L (ppb)	2.5	<1	58	63	21-113	8
2,4-Dimethylphenol	ug/L (ppb)	2.5	<1	69	72	50-150	4
Benzoic acid	ug/L (ppb)	2.5	<5	24	23	10-73	4
Bis(2-chloroethoxy)methane	ug/L (ppb)	20	<0.1	69	67	50-150	3
2,4-Dichlorophenol	ug/L (ppb)	2.5	<1	68	73	26-110	7
1,2,4-Trichlorobenzene	ug/L (ppb)	2.5	<0.1	47	52	42-95	10
Naphthalene	ug/L (ppb)	2.5	<0.1	54	55	46-95	2
Hexachlorobutadiene	ug/L (ppb)	2.5	<0.1	47	50	39-94	6
4-Chloroaniline	ug/L (ppb)	2.5	<10	52	61	16-114	16
4-Chloro-3-methylphenol	ug/L (ppb)	13	<1	79	82	46-123	4
2-Methylnaphthalene	ug/L (ppb)	2.5	<0.1	63	62	50-150	2
1-Methylnaphthalene	ug/L (ppb)	2.5	<0.1	65	64	50-150	2
Hexachlorocyclopentadiene	ug/L (ppb)	2.5	<0.3	53	55	28-122	4
2,4,6-Trichlorophenol	ug/L (ppb)	2.5	<1	77	80	10-149	4
2,4,5-Trichlorophenol	ug/L (ppb)	2.5	<1	85	80	10-143	6
2-Chloronaphthalene	ug/L (ppb)	2.5	<0.1	68	66	50-150	3
2-Nitroaniline	ug/L (ppb)	2.5	<0.5	88	89	41-139	1
Dimethyl phthalate	ug/L (ppb)	13	<1	87	88	50-150	1
Acenaphthylene	ug/L (ppb)	2.5	<0.01	74	75	50-150	1
2,6-Dinitrotoluene	ug/L (ppb)	2.5	<0.5	95	89	50-150	7
3-Nitroaniline	ug/L (ppb)	2.5	<10	72	79	21-124	9
Acenaphthene	ug/L (ppb)	13	<0.01	74	75	50-150	1
2,4-Dinitrophenol	ug/L (ppb)	2.5	<3	85	88	10-182	3
Dibenzofuran	ug/L (ppb)	5	<0.1	77	78	46-116	1
2,4-Dinitrotoluene	ug/L (ppb)	2.5	<0.5	84	92	50-150	9
4-Nitrophenol	ug/L (ppb)	2.5	<3	33	34	10-86	3
Diethyl phthalate	ug/L (ppb)	5	<1	90	93	50-150	3
Fluorene	ug/L (ppb)	2.5	<0.01	81	82	50-150	1
4-Chlorophenyl phenyl ether	ug/L (ppb)	2.5	<0.1	81	80	50-150	1
N-Nitrosodiphenylamine	ug/L (ppb)	2.5	<0.1	85	84	50-150	1
4-Nitroaniline	ug/L (ppb)	2.5	<10	82	88	46-105	7
4,6-Dinitro-2-methylphenol	ug/L (ppb)	2.5	<3	94	104	10-223	10
4-Bromophenyl phenyl ether	ug/L (ppb)	13	<0.1	85	86	50-150	1
Hexachlorobenzene	ug/L (ppb)	2.5	<0.1	84	86	50-150	2
Pentachlorophenol	ug/L (ppb)	2.5	<0.5	92	98	10-207	6
Phenanthrene	ug/L (ppb)	2.5	0.012 fb	86	91	50-150	6
Anthracene	ug/L (ppb)	2.5	<0.01	86	91	50-150	6
Carbazole	ug/L (ppb)	2.5	<0.1	98	106	50-150	8
Di-n-butyl phthalate	ug/L (ppb)	2.5	<1	95	94	50-150	1
Fluoranthene	ug/L (ppb)	2.5	<0.01	91	99	50-150	8
Pyrene	ug/L (ppb)	2.5	<0.01	96	102	50-150	6
Benzyl butyl phthalate	ug/L (ppb)	2.5	<1	101	107	50-150	6
Benz(a)anthracene	ug/L (ppb)	3.8	<0.01	98	99	50-150	1
Chrysene	ug/L (ppb)	2.5	<0.01	95	96	50-150	1
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	2.5	<1.6	97	103	46-157	6
Di-n-octyl phthalate	ug/L (ppb)	3.8	<1	114	115	50-150	1
Benzo(a)pyrene	ug/L (ppb)	2.5	<0.01	99	97	50-150	2
Benzo(b)fluoranthene	ug/L (ppb)	2.5	<0.01	101	95	50-150	6
Benzo(k)fluoranthene	ug/L (ppb)	2.5	<0.01	100	99	50-150	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	2.5	<0.01	97	106	50-150	9
Dibenz(a,h)anthracene	ug/L (ppb)	2.5	<0.01	98	106	50-150	8
Benzo(g,h,i)perylene	ug/L (ppb)	2.5	<0.02	92	101	50-150	9

Date of Report: 09/08/22
Date Received: 08/24/22
Project: TWAAFA-001, F&BI 208373

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: 208373-02 1/0.5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Phenol	ug/L (ppb)	2.5	<1	22 vo	18 vo	50-150	20
Bis(2-chloroethyl) ether	ug/L (ppb)	2.5	<0.1	52	42 vo	50-150	21 vo
2-Chlorophenol	ug/L (ppb)	2.5	<1	45 vo	40 vo	50-150	12
1,3-Dichlorobenzene	ug/L (ppb)	2.5	<0.1	40 vo	36 vo	50-150	11
1,4-Dichlorobenzene	ug/L (ppb)	2.5	<0.1	41 vo	36 vo	50-150	13
1,2-Dichlorobenzene	ug/L (ppb)	2.5	<0.1	43 vo	38 vo	50-150	12
Benzyl alcohol	ug/L (ppb)	2.5	<1	50	42 vo	50-150	17
2,2'-Oxybis(1-chloropropane)	ug/L (ppb)	13	<0.1	50	42 vo	50-150	17
2-Methylphenol	ug/L (ppb)	2.5	<1	50	43 vo	50-150	15
Hexachloroethane	ug/L (ppb)	2.5	<0.1	41 vo	37 vo	50-150	10
N-Nitroso-di-n-propylamine	ug/L (ppb)	2.5	<0.1	62	54	50-150	14
3-Methylphenol + 4-Methylphenol	ug/L (ppb)	2.5	<2	44 vo	40 vo	50-150	10
Nitrobenzene	ug/L (ppb)	2.5	<0.1	52	45 vo	50-150	14
Isophorone	ug/L (ppb)	2.5	<0.1	61	55	50-150	10
2-Nitrophenol	ug/L (ppb)	2.5	<1	52	44 vo	50-150	17
2,4-Dimethylphenol	ug/L (ppb)	2.5	<1	58	55	50-150	5
Benzoic acid	ug/L (ppb)	2.5	<5	30 vo	28 vo	50-150	7
Bis(2-chloroethoxy)methane	ug/L (ppb)	20	<0.1	61	54	50-150	12
2,4-Dichlorophenol	ug/L (ppb)	2.5	<1	59	56	50-150	5
1,2,4-Trichlorobenzene	ug/L (ppb)	2.5	<0.1	47 vo	44 vo	50-150	7
Naphthalene	ug/L (ppb)	2.5	<0.1	49 vo	45 vo	50-150	9
Hexachlorobutadiene	ug/L (ppb)	2.5	<0.1	45 vo	42 vo	50-150	7
4-Chloroaniline	ug/L (ppb)	2.5	<10	52	54	50-150	4
4-Chloro-3-methylphenol	ug/L (ppb)	13	<1	69	69	50-150	0
2-Methylnaphthalene	ug/L (ppb)	2.5	<0.1	54	50	50-150	8
1-Methylnaphthalene	ug/L (ppb)	2.5	<0.1	55	51	50-150	8
Hexachlorocyclopentadiene	ug/L (ppb)	2.5	<0.3	46 vo	48 vo	50-150	4
2,4,6-Trichlorophenol	ug/L (ppb)	2.5	<1	70	65	50-150	7
2,4,5-Trichlorophenol	ug/L (ppb)	2.5	<1	73	72	50-150	1
2-Chloronaphthalene	ug/L (ppb)	2.5	<0.1	59	54	50-150	9
2-Nitroaniline	ug/L (ppb)	2.5	<0.5	76	75	50-150	1
Dimethyl phthalate	ug/L (ppb)	13	<1	75	73	50-150	3
Acenaphthylene	ug/L (ppb)	2.5	<0.01	65	61	50-150	6
2,6-Dinitrotoluene	ug/L (ppb)	2.5	<0.5	76	73	50-150	4
3-Nitroaniline	ug/L (ppb)	2.5	<10	65	67	50-150	3
Acenaphthene	ug/L (ppb)	13	<0.01	61	58	50-150	5
2,4-Dinitrophenol	ug/L (ppb)	2.5	<3	86	82	50-150	5
Dibenzofuran	ug/L (ppb)	5	<0.1	63	61	50-150	3
2,4-Dinitrotoluene	ug/L (ppb)	2.5	<0.5	61	61	50-150	0
4-Nitrophenol	ug/L (ppb)	2.5	<3	34 vo	32 vo	50-150	6
Diethyl phthalate	ug/L (ppb)	5	<1	77	77	50-150	0
Fluorene	ug/L (ppb)	2.5	<0.01	70	68	50-150	3
4-Chlorophenyl phenyl ether	ug/L (ppb)	2.5	<0.1	71	71	50-150	0
N-Nitrosodiphenylamine	ug/L (ppb)	2.5	<0.1	77	74	50-150	4
4-Nitroaniline	ug/L (ppb)	2.5	<10	63	62	50-150	2
4,6-Dinitro-2-methylphenol	ug/L (ppb)	2.5	<3	93	89	50-150	4
4-Bromophenyl phenyl ether	ug/L (ppb)	13	<0.1	73	69	50-150	6
Hexachlorobenzene	ug/L (ppb)	2.5	<0.1	69	68	50-150	1
Pentachlorophenol	ug/L (ppb)	2.5	<0.5	99	98	50-150	1
Phenanthrene	ug/L (ppb)	2.5	0.014 fb	75	72	50-150	4
Anthracene	ug/L (ppb)	2.5	<0.01	72	72	50-150	0
Carbazole	ug/L (ppb)	2.5	<0.1	79	78	50-150	1
Di-n-butyl phthalate	ug/L (ppb)	2.5	<1	90	92	50-150	2
Fluoranthene	ug/L (ppb)	2.5	<0.01	76	75	50-150	1
Pyrene	ug/L (ppb)	2.5	<0.01	79	76	50-150	4
Benzyl butyl phthalate	ug/L (ppb)	2.5	<1	83	89	50-150	7
Benz(a)anthracene	ug/L (ppb)	3.8	<0.01	78	78	50-150	0
Chrysene	ug/L (ppb)	2.5	<0.01	76	78	50-150	3
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	2.5	1.6	80 b	111 b	50-150	32 b
Di-n-octyl phthalate	ug/L (ppb)	3.8	<1	69	75	50-150	8
Benzo(a)pyrene	ug/L (ppb)	2.5	<0.01	76	78	50-150	3
Benzo(b)fluoranthene	ug/L (ppb)	2.5	<0.01	79	83	50-150	5
Benzo(k)fluoranthene	ug/L (ppb)	2.5	<0.01	77	79	50-150	3
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	2.5	<0.01	75	75	50-150	0
Dibenz(a,h)anthracene	ug/L (ppb)	2.5	<0.01	75	75	50-150	0
Benzo(g,h,i)perylene	ug/L (ppb)	2.5	<0.02	69	71	50-150	3

Date of Report: 09/08/22
Date Received: 08/24/22
Project: TWAAFA-001, F&BI 208373

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Phenol	ug/L (ppb)	2.5	26	10-30
Bis(2-chloroethyl) ether	ug/L (ppb)	2.5	76	43-117
2-Chlorophenol	ug/L (ppb)	2.5	69	21-97
1,3-Dichlorobenzene	ug/L (ppb)	2.5	69	39-102
1,4-Dichlorobenzene	ug/L (ppb)	2.5	73	41-103
1,2-Dichlorobenzene	ug/L (ppb)	2.5	71	43-105
Benzyl alcohol	ug/L (ppb)	2.5	66	14-82
2,2'-Oxybis(1-chloropropane)	ug/L (ppb)	13	74	51-110
2-Methylphenol	ug/L (ppb)	2.5	62	19-77
Hexachloroethane	ug/L (ppb)	2.5	70	39-104
N-Nitroso-di-n-propylamine	ug/L (ppb)	2.5	81	60-114
3-Methylphenol + 4-Methylphenol	ug/L (ppb)	2.5	58	14-63
Nitrobenzene	ug/L (ppb)	2.5	78	53-114
Isophorone	ug/L (ppb)	2.5	82	62-113
2-Nitrophenol	ug/L (ppb)	2.5	74	41-117
2,4-Dimethylphenol	ug/L (ppb)	2.5	58	23-105
Benzoic acid	ug/L (ppb)	2.5	13	10-25
Bis(2-chloroethoxy)methane	ug/L (ppb)	20	79	56-111
2,4-Dichlorophenol	ug/L (ppb)	2.5	76	34-113
1,2,4-Trichlorobenzene	ug/L (ppb)	2.5	70	48-104
Naphthalene	ug/L (ppb)	2.5	71	50-104
Hexachlorobutadiene	ug/L (ppb)	2.5	72	40-107
4-Chloroaniline	ug/L (ppb)	2.5	81	34-120
4-Chloro-3-methylphenol	ug/L (ppb)	13	79	34-111
2-Methylnaphthalene	ug/L (ppb)	2.5	73	54-109
1-Methylnaphthalene	ug/L (ppb)	2.5	74	55-108
Hexachlorocyclopentadiene	ug/L (ppb)	2.5	60	34-126
2,4,6-Trichlorophenol	ug/L (ppb)	2.5	81	28-125
2,4,5-Trichlorophenol	ug/L (ppb)	2.5	85	39-120
2-Chloronaphthalene	ug/L (ppb)	2.5	77	57-130
2-Nitroaniline	ug/L (ppb)	2.5	91	51-146
Dimethyl phthalate	ug/L (ppb)	13	87	64-118
Acenaphthylene	ug/L (ppb)	2.5	83	60-114
2,6-Dinitrotoluene	ug/L (ppb)	2.5	103	66-121
3-Nitroaniline	ug/L (ppb)	2.5	89	42-134
Acenaphthene	ug/L (ppb)	13	83	57-110
2,4-Dinitrophenol	ug/L (ppb)	2.5	79	10-171
Dibenzofuran	ug/L (ppb)	5	85	52-116
2,4-Dinitrotoluene	ug/L (ppb)	2.5	90	55-127
4-Nitrophenol	ug/L (ppb)	2.5	34	10-46
Diethyl phthalate	ug/L (ppb)	5	79	63-118
Fluorene	ug/L (ppb)	2.5	86	61-115
4-Chlorophenyl phenyl ether	ug/L (ppb)	2.5	89	61-112
N-Nitrosodiphenylamine	ug/L (ppb)	2.5	83	63-116
4-Nitroaniline	ug/L (ppb)	2.5	111	42-150
4,6-Dinitro-2-methylphenol	ug/L (ppb)	2.5	84	13-152
4-Bromophenyl phenyl ether	ug/L (ppb)	13	81	62-115
Hexachlorobenzene	ug/L (ppb)	2.5	89	60-113
Pentachlorophenol	ug/L (ppb)	2.5	79	14-137
Phenanthrene	ug/L (ppb)	2.5	87	63-113
Anthracene	ug/L (ppb)	2.5	88	65-117
Carbazole	ug/L (ppb)	2.5	97	67-131
Di-n-butyl phthalate	ug/L (ppb)	2.5	61	37-135
Fluoranthene	ug/L (ppb)	2.5	93	68-121
Pyrene	ug/L (ppb)	2.5	91	66-125
Benzyl butyl phthalate	ug/L (ppb)	2.5	87	56-128
Benz(a)anthracene	ug/L (ppb)	3.8	95	70-130
Chrysene	ug/L (ppb)	2.5	93	67-119
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	2.5	72	57-124
Di-n-octyl phthalate	ug/L (ppb)	3.8	92	43-132
Benzo(a)pyrene	ug/L (ppb)	2.5	92	68-126
Benzo(b)fluoranthene	ug/L (ppb)	2.5	94	62-130
Benzo(k)fluoranthene	ug/L (ppb)	2.5	92	67-125
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	2.5	100	63-131
Dibenz(a,h)anthracene	ug/L (ppb)	2.5	101	62-133
Benzo(g,h,i)perylene	ug/L (ppb)	2.5	99	57-133

Date of Report: 09/08/22
Date Received: 08/24/22
Project: TWAAFA-001, F&BI 208373

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR POLYCHLORINATED BIPHENYLS AS AROCLOR 1016/1260 BY EPA METHOD 8082A

Laboratory Code: 208373-02 1/0.5 (Matrix Spike) 1/0.5

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	ug/L (ppb)	0.25	<0.0055 j	42 vo	40 vo	50-150	5
Aroclor 1260	ug/L (ppb)	0.25	<0.0078 j	51	46 vo	50-150	10

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Aroclor 1016	ug/L (ppb)	0.25	48	25-165
Aroclor 1260	ug/L (ppb)	0.25	60	25-163

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

208373

SAMPLE CHAIN OF CUSTODY 08-24-22

3 COOLERS

EDB/AIB/VWG

Page # 1 of 1

Report To: ~~Anthony Cerruti~~ / Trevor Louviere
CC: Tasya Gray

Company DOF

Address 1001 SW Klickitat Way

City, State, ZIP Seattle, WA 98134

Phone 215-767-7749 Email acerruti@dofnw.com

SAMPLERS (signature)

PROJECT NAME: TWAAFA

PO # TWAAFA-001

REMARKS
SVOCs lab filtered at 0.7 micron before analysis

Project Specific RLs - (Yes) / No

INVOICE TO: DOF

TURNAROUND TIME
✓ Standard Turnaround
__ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Archive Samples
Other

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	VOCs by EPA 8260D / SIM Dual Acquisition	NWTPH-Dx	EPH / VPH	NWTPH-Gx	Total Metals 6020B (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn)	Mecury by 1631E	SVOCs EPA 8270E SIM Dual Acquisition	cPAHs by EPA 8270	1,4 Dioxane by EPA 8260D SIM	LL PCBs 8082A	MS/MSD Collected? (Y/N)	Notes
TWA-8D-0822	01	8/23/22	1510		14	X	X		X	X	X	X	X	X	X		labeled as -0222 TWB 8/25 CORRECT LABELS TC 8/23/22.
TWA-9D-0822	02	8/24/22	1030		30	X	X		X	X	X	X	X	X	X	Y	EXTRA VOL MS/MSD
CCW-2C-0822	03	8/24/22	1200		14	X	X		X	X	X	X	X	X	X		
CCW-2B-0822	04	8/24/22	1400		18	X	X	X	X	X	X	X	X	X	X		* hold per AC
TRIP BLANK#2-0822	05A-D	8/24/22	0800		4	X			X								8/26/22 MC

Samples received at 4°C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	ANTHONY CERRUTI	DOF	8/24/22	1455
Received by:	VINH	FBI	8-24-22	1455
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

September 9, 2022

Trevor Louviere, Project Manager
Dalton Olmsted Fuglevand
1001 SW Klickitat Way, Suite 200B
Seattle, WA 98134

Dear Mr Louviere:

Included are the results from the testing of material submitted on August 25, 2022 from the TWAAFA-001, F&BI 208396 project. There are 57 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Anthony Cerruti, Tasya Gray
DOF0909R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 25, 2022 by Friedman & Bruya, Inc. from the Dalton Olmsted Fuglevand TWAAFA-001, F&BI 208396 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Dalton Olmsted Fuglevand
208396 -01	CCW-6B-0822
208396 -02	CCW-9-6B-0822
208396 -03	CCW-6C-0822
208396 -04	CCW-7C-0822
208396 -05	CCW-7B-0822
208396 -06	TRIP BLANK3-0822
208396 -07	CCW-3B-0822

Methylene chloride was detected in the 8260D analysis of sample TRIP BLANK3-0822 and the method blank. The data were flagged as due to laboratory contamination.

The 8260D laboratory control sample and the associated relative percent difference exceeded the acceptance criteria for methylene chloride. The data were flagged accordingly.

The 8260D SIM matrix spike and matrix spike duplicate failed the relative percent difference for 1,4-dioxane. The laboratory control sample passed the acceptance criteria, therefore the results were due to matrix effect.

The 8270E and 8082A matrix spike and matrix spike duplicate recoveries were outside of acceptance limits for several compounds due to the use of the method default acceptance criteria of 50-150%.

Phenanthrene and bis(2-ethylhexyl)phthalate were detected in the 8270E method blank. The data were flagged accordingly.

Several compounds in the 8270E laboratory control sample failed the acceptance criteria. The data were flagged accordingly.

The 8082A PCB results were reported to the method detection limit. The data were flagged accordingly.

All other quality control requirements were acceptable.

Date of Report: 09/09/22
Date Received: 08/25/22
Project: TWAAFA-001, F&BI 208396
Date Extracted: 08/31/22
Date Analyzed: 08/31/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
CCW-6B-0822 208396-01	300	116
CCW-9-6B-0822 208396-02	320	118
CCW-6C-0822 208396-03	<100	101
CCW-7C-0822 208396-04	<100	98
CCW-7B-0822 208396-05	1,100	100
TRIP BLANK3-0822 208396-06	<100	99
CCW-3B-0822 208396-07	690	110
Method Blank 02-1757 MB	<100	100

Date of Report: 09/09/22
Date Received: 08/25/22
Project: TWAAFA-001, F&BI 208396
Date Extracted: 08/29/22
Date Analyzed: 08/30/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
CCW-6B-0822 208396-01	830 x	<250	104
CCW-9-6B-0822 208396-02	660 x	<250	88
CCW-6C-0822 208396-03	930 x	<250	108
CCW-7C-0822 208396-04	660 x	<250	78
CCW-7B-0822 208396-05	1,500 x	400 x	107
CCW-3B-0822 208396-07	2,300 x	1,100 x	116
Method Blank 02-2050 MB	<50	<250	89

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-6B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	208396-01
Date Analyzed:	08/31/22	Data File:	208396-01.250
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.18
Cadmium	<1
Chromium	1.26
Copper	<2.4
Lead	9.37
Manganese	727
Nickel	2.29
Zinc	10.9

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-9-6B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	208396-02
Date Analyzed:	08/31/22	Data File:	208396-02.251
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.13
Cadmium	<1
Chromium	1.25
Copper	<2.4
Lead	9.15
Manganese	718
Nickel	2.30
Zinc	11.0

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-6C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	208396-03
Date Analyzed:	08/31/22	Data File:	208396-03.252
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	6.38
Cadmium	<1
Chromium	22.3
Copper	2.53
Lead	<1
Manganese	267
Nickel	1.40
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-7C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	208396-04
Date Analyzed:	08/31/22	Data File:	208396-04.253
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.16
Cadmium	<1
Chromium	7.55
Copper	<2.4
Lead	<1
Manganese	204
Nickel	1.42
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-7B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	208396-05
Date Analyzed:	08/31/22	Data File:	208396-05.258
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.51
Cadmium	<1
Chromium	1.06
Copper	<2.4
Lead	1.89
Manganese	724
Nickel	1.67
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-3B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	208396-07
Date Analyzed:	08/31/22	Data File:	208396-07.262
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.62
Cadmium	<1
Chromium	<1
Copper	<2.4
Nickel	4.28
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-3B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	208396-07 x5
Date Analyzed:	08/30/22	Data File:	208396-07 x5.182
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Lead	<5
Manganese	1,450

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Dalton Olmsted Fuglevand
Date Received:	NA	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	I2-597 mb
Date Analyzed:	08/30/22	Data File:	I2-597 mb.106
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Copper	<2.4
Lead	<1
Manganese	<1
Nickel	<1
Zinc	<5

Date of Report: 09/09/22
Date Received: 08/25/22
Project: TWAAFA-001, F&BI 208396
Date Extracted: 08/26/22
Date Analyzed: 08/30/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Total Mercury
CCW-6B-0822 208396-01	<0.02
CCW-9-6B-0822 208396-02	<0.02
CCW-6C-0822 208396-03	<0.02
CCW-7C-0822 208396-04	<0.02
CCW-7B-0822 208396-05	<0.02
CCW-3B-0822 208396-07	<0.02
Method Blank i2-591 MB	<0.02

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	CCW-6B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/26/22	Lab ID:	208396-01
Date Analyzed:	08/27/22	Data File:	082641.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	78	126
Toluene-d8	97	84	115
4-Bromofluorobenzene	99	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.15	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	20
Trichlorofluoromethane	<1	Ethylbenzene	21
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	2.1
Hexane	<5	o-Xylene	4.8
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	2.6
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	2.9
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	17	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	1.1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	2.6
Dibromomethane	<1	1,2-Dichlorobenzene	3.0
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	8.0	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	8.8
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	CCW-9-6B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/26/22	Lab ID:	208396-02
Date Analyzed:	08/27/22	Data File:	082647.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	91	78	126
Toluene-d8	99	84	115
4-Bromofluorobenzene	101	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.16	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	20
Trichlorofluoromethane	<1	Ethylbenzene	22
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	2.1
Hexane	<5	o-Xylene	4.8
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	2.5
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	2.9
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	16	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	1.1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	2.6
Dibromomethane	<1	1,2-Dichlorobenzene	3.1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	7.9	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	9.6
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	CCW-6C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/26/22	Lab ID:	208396-03
Date Analyzed:	08/27/22	Data File:	082642.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	92	78	126
Toluene-d8	97	84	115
4-Bromofluorobenzene	102	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	CCW-7C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/26/22	Lab ID:	208396-04
Date Analyzed:	08/27/22	Data File:	082643.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	78	126
Toluene-d8	97	84	115
4-Bromofluorobenzene	102	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	3.3	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	CCW-7B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/26/22	Lab ID:	208396-05
Date Analyzed:	08/27/22	Data File:	082644.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	78	126
Toluene-d8	99	84	115
4-Bromofluorobenzene	102	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.21	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	63
Trichlorofluoromethane	<1	Ethylbenzene	91
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	10
Hexane	<5	o-Xylene	19
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	9.9
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	17
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	1.2
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	4.6
Benzene	24	sec-Butylbenzene	2.5
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	5.8
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	16
Dibromomethane	<1	1,2-Dichlorobenzene	15
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	33	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	130
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	TRIP BLANK3-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/26/22	Lab ID:	208396-06
Date Analyzed:	08/26/22	Data File:	082638.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	78	126
Toluene-d8	97	84	115
4-Bromofluorobenzene	97	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	6.2 lc jl	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	CCW-3B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/26/22	Lab ID:	208396-07
Date Analyzed:	08/27/22	Data File:	082645.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	78	126
Toluene-d8	99	84	115
4-Bromofluorobenzene	100	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.75	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	2.5	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	5.3	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	5.1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Dalton Olmsted Fuglevand
Date Received:	Not Applicable	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/26/22	Lab ID:	02-1953 mb
Date Analyzed:	08/26/22	Data File:	082636.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	78	126
Toluene-d8	100	84	115
4-Bromofluorobenzene	103	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	8.2 lc jl	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	CCW-6B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/29/22	Lab ID:	208396-01
Date Analyzed:	08/29/22	Data File:	082922.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	92	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	CCW-9-6B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/29/22	Lab ID:	208396-02
Date Analyzed:	08/29/22	Data File:	082923.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	96	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	CCW-6C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/29/22	Lab ID:	208396-03
Date Analyzed:	08/29/22	Data File:	082924.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	95	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	8.9

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	CCW-7C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/29/22	Lab ID:	208396-04
Date Analyzed:	08/30/22	Data File:	082925.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	94	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	14

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	CCW-7B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/29/22	Lab ID:	208396-05
Date Analyzed:	08/30/22	Data File:	082926.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	92	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	CCW-3B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/29/22	Lab ID:	208396-07
Date Analyzed:	08/30/22	Data File:	082927.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	112	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	80	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	1.6

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	Method Blank	Client:	Dalton Olmsted Fuglevand
Date Received:	Not Applicable	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/29/22	Lab ID:	02-1957 mb
Date Analyzed:	08/29/22	Data File:	082909.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	81	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CCW-6B-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	208396-01 1/0.5
Date Analyzed:	08/31/22	Data File:	083126.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	39	10	60
Phenol-d6	27	10	49
Nitrobenzene-d5	77	15	144
2-Fluorobiphenyl	70	25	128
2,4,6-Tribromophenol	98	10	142
Terphenyl-d14	93	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	1.2	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	2.1
1,3-Dichlorobenzene	0.34	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	0.91	Dibenzofuran	0.63
1,2-Dichlorobenzene	1.2	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	0.94
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5 jl	Phenanthrene	0.038 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	0.036
2,4-Dichlorophenol	<1	Carbazole	0.85
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	2.0
Naphthalene	4.6	Fluoranthene	0.032
Hexachlorobutadiene	<0.1	Pyrene	0.020
4-Chloroaniline	<10 jl	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	2.0	Bis(2-ethylhexyl) phthalate	2.6 fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	0.018	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CCW-9-6B-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	208396-02 1/0.5
Date Analyzed:	08/31/22	Data File:	083127.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	39	10	60
Phenol-d6	27	10	49
Nitrobenzene-d5	78	15	144
2-Fluorobiphenyl	71	25	128
2,4,6-Tribromophenol	93	10	142
Terphenyl-d14	97	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	2.2
1,3-Dichlorobenzene	0.33	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	0.91	Dibenzofuran	0.66
1,2-Dichlorobenzene	1.1	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	0.99
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5 jl	Phenanthrene	0.042 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	0.038
2,4-Dichlorophenol	<1	Carbazole	0.96
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	2.0
Naphthalene	4.9	Fluoranthene	0.036
Hexachlorobutadiene	<0.1	Pyrene	0.021
4-Chloroaniline	<10 jl	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	2.0	Bis(2-ethylhexyl) phthalate	2.7 fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	0.018	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CCW-6C-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	208396-03 1/0.5
Date Analyzed:	08/30/22	Data File:	083014.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	38	11	65
Phenol-d6	26	11	65
Nitrobenzene-d5	78	11	173
2-Fluorobiphenyl	69	44	108
2,4,6-Tribromophenol	86	10	140
Terphenyl-d14	82	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3 ca
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5 ca
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5 jl	Phenanthrene	0.017 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10 jl	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	0.81 j fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CCW-7C-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	208396-04 1/0.5
Date Analyzed:	08/30/22	Data File:	083015.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	40	11	65
Phenol-d6	27	11	65
Nitrobenzene-d5	83	11	173
2-Fluorobiphenyl	61	44	108
2,4,6-Tribromophenol	78	10	140
Terphenyl-d14	97	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3 ca
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5 ca
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5 jl	Phenanthrene	0.018 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10 jl	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	1.1 j fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CCW-7B-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	208396-05 1/0.5
Date Analyzed:	08/30/22	Data File:	083011.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	35	11	65
Phenol-d6	24	11	65
Nitrobenzene-d5	75	11	173
2-Fluorobiphenyl	70	44	108
2,4,6-Tribromophenol	83	10	140
Terphenyl-d14	90	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	17 ve
1,3-Dichlorobenzene	1.8	2,4-Dinitrophenol	<3 ca
1,4-Dichlorobenzene	5.0	Dibenzofuran	10
1,2-Dichlorobenzene	5.4	2,4-Dinitrotoluene	<0.5 ca
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	12
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5 jl	Phenanthrene	1.8
Bis(2-chloroethoxy)methane	<0.1	Anthracene	0.98
2,4-Dichlorophenol	<1	Carbazole	8.6
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	48 ve	Fluoranthene	1.8
Hexachlorobutadiene	<0.1	Pyrene	0.98
4-Chloroaniline	<10 jl	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	0.047
2-Methylnaphthalene	4.3	Chrysene	0.046
1-Methylnaphthalene	24 ve	Bis(2-ethylhexyl) phthalate	0.84 j fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	0.19	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CCW-7B-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	208396-05 1/5
Date Analyzed:	09/01/22	Data File:	083131.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	29 d	10	60
Phenol-d6	23 d	10	49
Nitrobenzene-d5	70 d	15	144
2-Fluorobiphenyl	72 d	25	128
2,4,6-Tribromophenol	89 d	10	142
Terphenyl-d14	90 d	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<10	2,6-Dinitrotoluene	<5
Bis(2-chloroethyl) ether	<1	3-Nitroaniline	<100
2-Chlorophenol	<10	Acenaphthene	20
1,3-Dichlorobenzene	1.9	2,4-Dinitrophenol	<30
1,4-Dichlorobenzene	5.5	Dibenzofuran	11
1,2-Dichlorobenzene	5.7	2,4-Dinitrotoluene	<5
Benzyl alcohol	<10	4-Nitrophenol	<30
2,2'-Oxybis(1-chloropropane)	<1	Diethyl phthalate	<10
2-Methylphenol	<10	Fluorene	14
Hexachloroethane	<1	4-Chlorophenyl phenyl ether	<1
N-Nitroso-di-n-propylamine	<1	N-Nitrosodiphenylamine	<1
3-Methylphenol + 4-Methylphenol	<20	4-Nitroaniline	<100
Nitrobenzene	<1	4,6-Dinitro-2-methylphenol	<30
Isophorone	<1	4-Bromophenyl phenyl ether	<1
2-Nitrophenol	<10	Hexachlorobenzene	<1
2,4-Dimethylphenol	<10	Pentachlorophenol	<5
Benzoic acid	<50 jl	Phenanthrene	1.9
Bis(2-chloroethoxy)methane	<1	Anthracene	1.0
2,4-Dichlorophenol	<10	Carbazole	9.9
1,2,4-Trichlorobenzene	<1	Di-n-butyl phthalate	<10
Naphthalene	55	Fluoranthene	2.0
Hexachlorobutadiene	<1	Pyrene	1.0
4-Chloroaniline	<100 jl	Benzyl butyl phthalate	<10
4-Chloro-3-methylphenol	<10	Benz(a)anthracene	<0.1
2-Methylnaphthalene	4.4	Chrysene	<0.1
1-Methylnaphthalene	26	Bis(2-ethylhexyl) phthalate	<3.2 j
Hexachlorocyclopentadiene	<3	Di-n-octyl phthalate	<10
2,4,6-Trichlorophenol	<10	Benzo(a)pyrene	<0.1
2,4,5-Trichlorophenol	<10	Benzo(b)fluoranthene	<0.1
2-Chloronaphthalene	<1	Benzo(k)fluoranthene	<0.1
2-Nitroaniline	<5	Indeno(1,2,3-cd)pyrene	<0.1
Dimethyl phthalate	<10	Dibenz(a,h)anthracene	<0.1
Acenaphthylene	0.23	Benzo(g,h,i)perylene	<0.2

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CCW-3B-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	208396-07 1/0.5
Date Analyzed:	08/30/22	Data File:	083016.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	35	11	65
Phenol-d6	24	11	65
Nitrobenzene-d5	76	11	173
2-Fluorobiphenyl	62	44	108
2,4,6-Tribromophenol	77	10	140
Terphenyl-d14	100	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	0.42
1,3-Dichlorobenzene	0.18	2,4-Dinitrophenol	<3 ca
1,4-Dichlorobenzene	<0.1	Dibenzofuran	0.11
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5 ca
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	0.44
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5 jl	Phenanthrene	0.28
Bis(2-chloroethoxy)methane	<0.1	Anthracene	0.018
2,4-Dichlorophenol	<1	Carbazole	0.20
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	2.3	Fluoranthene	0.014
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10 jl	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	1.4	Chrysene	<0.01
1-Methylnaphthalene	2.2	Bis(2-ethylhexyl) phthalate	0.77 j fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1 J
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01 J
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01 J
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01 J
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01 J
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01 J
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02 J

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CCW-3B-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	208396-07 1/5
Date Analyzed:	09/01/22	Data File:	083130.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	30 d	10	60
Phenol-d6	19 d	10	49
Nitrobenzene-d5	73 d	15	144
2-Fluorobiphenyl	61 d	25	128
2,4,6-Tribromophenol	89 d	10	142
Terphenyl-d14	91 d	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<10	2,6-Dinitrotoluene	<5
Bis(2-chloroethyl) ether	<1	3-Nitroaniline	<100
2-Chlorophenol	<10	Acenaphthene	0.48
1,3-Dichlorobenzene	<1	2,4-Dinitrophenol	<30
1,4-Dichlorobenzene	<1	Dibenzofuran	<1
1,2-Dichlorobenzene	<1	2,4-Dinitrotoluene	<5
Benzyl alcohol	<10	4-Nitrophenol	<30
2,2'-Oxybis(1-chloropropane)	<1	Diethyl phthalate	<10
2-Methylphenol	<10	Fluorene	0.48
Hexachloroethane	<1	4-Chlorophenyl phenyl ether	<1
N-Nitroso-di-n-propylamine	<1	N-Nitrosodiphenylamine	<1
3-Methylphenol + 4-Methylphenol	<20	4-Nitroaniline	<100
Nitrobenzene	<1	4,6-Dinitro-2-methylphenol	<30
Isophorone	<1	4-Bromophenyl phenyl ether	<1
2-Nitrophenol	<10	Hexachlorobenzene	<1
2,4-Dimethylphenol	<10	Pentachlorophenol	<5
Benzoic acid	<50 jl	Phenanthrene	0.31
Bis(2-chloroethoxy)methane	<1	Anthracene	<0.1
2,4-Dichlorophenol	<10	Carbazole	<1
1,2,4-Trichlorobenzene	<1	Di-n-butyl phthalate	<10
Naphthalene	2.3	Fluoranthene	<0.1
Hexachlorobutadiene	<1	Pyrene	<0.1
4-Chloroaniline	<100 jl	Benzyl butyl phthalate	<10
4-Chloro-3-methylphenol	<10	Benz(a)anthracene	<0.1
2-Methylnaphthalene	1.4	Chrysene	<0.1
1-Methylnaphthalene	2.2	Bis(2-ethylhexyl) phthalate	<3.2 j
Hexachlorocyclopentadiene	<3	Di-n-octyl phthalate	<10
2,4,6-Trichlorophenol	<10	Benzo(a)pyrene	<0.1
2,4,5-Trichlorophenol	<10	Benzo(b)fluoranthene	<0.1
2-Chloronaphthalene	<1	Benzo(k)fluoranthene	<0.1
2-Nitroaniline	<5	Indeno(1,2,3-cd)pyrene	<0.1
Dimethyl phthalate	<10	Dibenz(a,h)anthracene	<0.1
Acenaphthylene	<0.1	Benzo(g,h,i)perylene	<0.2

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank f	Client:	Dalton Olmsted Fuglevand
Date Received:	Not Applicable	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	02-2055 mb 1/0.5
Date Analyzed:	08/30/22	Data File:	083010.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	36	11	65
Phenol-d6	24	11	65
Nitrobenzene-d5	77	11	173
2-Fluorobiphenyl	75	44	108
2,4,6-Tribromophenol	76	10	140
Terphenyl-d14	95	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3 ca
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5 ca
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5 jl	Phenanthrene	<0.01
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10 jl	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	0.83 j lc
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	CCW-6B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	208396-01 1/0.5
Date Analyzed:	08/31/22	Data File:	083117.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	25	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0053 j
Aroclor 1232	<0.0053 j
Aroclor 1016	<0.0053 j
Aroclor 1242	<0.0053 j
Aroclor 1248	<0.0075 j
Aroclor 1254	<0.0075 j
Aroclor 1260	<0.0075 j
Aroclor 1262	<0.0075 j
Aroclor 1268	<0.0075 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	CCW-9-6B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	208396-02 1/0.5
Date Analyzed:	08/31/22	Data File:	083118.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	26	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0056 j
Aroclor 1232	<0.0056 j
Aroclor 1016	<0.0056 j
Aroclor 1242	<0.0056 j
Aroclor 1248	<0.0079 j
Aroclor 1254	<0.0079 j
Aroclor 1260	<0.0079 j
Aroclor 1262	<0.0079 j
Aroclor 1268	<0.0079 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	CCW-6C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	208396-03 1/0.5
Date Analyzed:	09/02/22	Data File:	090209.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	45	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0054 j
Aroclor 1232	<0.0054 j
Aroclor 1016	<0.0054 j
Aroclor 1242	<0.0054 j
Aroclor 1248	<0.0077 j
Aroclor 1254	<0.0077 j
Aroclor 1260	<0.0077 j
Aroclor 1262	<0.0077 j
Aroclor 1268	<0.0077 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	CCW-7C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	208396-04 1/0.5
Date Analyzed:	08/31/22	Data File:	083120.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	27	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0052 j
Aroclor 1232	<0.0052 j
Aroclor 1016	<0.0052 j
Aroclor 1242	<0.0052 j
Aroclor 1248	<0.0073 j
Aroclor 1254	<0.0073 j
Aroclor 1260	<0.0073 j
Aroclor 1262	<0.0073 j
Aroclor 1268	<0.0073 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	CCW-7B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	208396-05 1/0.5
Date Analyzed:	08/31/22	Data File:	083113.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	30	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0053 j
Aroclor 1232	<0.0053 j
Aroclor 1016	<0.0053 j
Aroclor 1242	<0.0053 j
Aroclor 1248	<0.0075 j
Aroclor 1254	<0.0075 j
Aroclor 1260	<0.0075 j
Aroclor 1262	<0.0075 j
Aroclor 1268	<0.0075 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	CCW-3B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/25/22	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	208396-07 1/0.5
Date Analyzed:	08/31/22	Data File:	083121.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	27	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0054 j
Aroclor 1232	<0.0054 j
Aroclor 1016	<0.0054 j
Aroclor 1242	<0.0054 j
Aroclor 1248	<0.0076 j
Aroclor 1254	<0.0076 j
Aroclor 1260	<0.0076 j
Aroclor 1262	<0.0076 j
Aroclor 1268	<0.0076 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Dalton Olmsted Fuglevand
Date Received:	Not Applicable	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	08/30/22	Lab ID:	02-2060 mb 1/0.5
Date Analyzed:	09/01/22	Data File:	090106.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	30	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0050 j
Aroclor 1232	<0.0050 j
Aroclor 1016	<0.0050 j
Aroclor 1242	<0.0050 j
Aroclor 1248	<0.0070 j
Aroclor 1254	<0.0070 j
Aroclor 1260	<0.0070 j
Aroclor 1262	<0.0070 j
Aroclor 1268	<0.0070 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Dalton Olmsted Fuglevand
Date Received:	Not Applicable	Project:	TWAAFA-001, F&BI 208396
Date Extracted:	09/01/22	Lab ID:	02-2062 mb2 1/0.5
Date Analyzed:	09/02/22	Data File:	090204.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	26	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0050 j
Aroclor 1232	<0.0050 j
Aroclor 1016	<0.0050 j
Aroclor 1242	<0.0050 j
Aroclor 1248	<0.0070 j
Aroclor 1254	<0.0070 j
Aroclor 1260	<0.0070 j
Aroclor 1262	<0.0070 j
Aroclor 1268	<0.0070 j

Date of Report: 09/09/22
Date Received: 08/25/22
Project: TWAAFA-001, F&BI 208396

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 208396-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	ug/L (ppb)	1,000	1,092	93	94	53-117	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	99	69-134

Date of Report: 09/09/22
Date Received: 08/25/22
Project: TWAAFA-001, F&BI 208396

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 208396-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	1600	76	68	50-150	11

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	ug/L (ppb)	2,500	104	63-142

Date of Report: 09/09/22
Date Received: 08/25/22
Project: TWAAFA-001, F&BI 208396

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 208396-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	2.51	105	100	75-125	5
Cadmium	ug/L (ppb)	5	<1	97	98	75-125	1
Chromium	ug/L (ppb)	20	1.06	84	83	75-125	1
Copper	ug/L (ppb)	20	<5	79	79	75-125	0
Lead	ug/L (ppb)	10	1.89	91	90	75-125	1
Manganese	ug/L (ppb)	20	724	385 b	315 b	75-125	20
Nickel	ug/L (ppb)	20	1.67	83	82	75-125	1
Zinc	ug/L (ppb)	50	<5	76	78	75-125	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	93	80-120
Cadmium	ug/L (ppb)	5	96	80-120
Chromium	ug/L (ppb)	20	93	80-120
Copper	ug/L (ppb)	20	98	80-120
Lead	ug/L (ppb)	10	98	80-120
Manganese	ug/L (ppb)	20	93	80-120
Nickel	ug/L (ppb)	20	96	80-120
Zinc	ug/L (ppb)	50	95	80-120

Date of Report: 09/09/22
Date Received: 08/25/22
Project: TWAAFA-001, F&BI 208396

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Laboratory Code: 2508396-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Mercury	ug/L (ppb)	0.01	0.004	103	103	71-125	0

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Mercury	ug/L (ppb)	0.01	111	68-125

Date of Report: 09/09/22
Date Received: 08/25/22
Project: TWAAFA-001, F&BI 208396

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 208396-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	<1	104	94	50-150	10
Chloromethane	ug/L (ppb)	10	<10	78	76	50-150	3
Vinyl chloride	ug/L (ppb)	10	0.21	101	93	50-150	8
Bromomethane	ug/L (ppb)	10	<5	107	95	50-150	12
Chloroethane	ug/L (ppb)	10	<1	101	94	50-150	7
Trichlorofluoromethane	ug/L (ppb)	10	<1	95	85	50-150	11
Acetone	ug/L (ppb)	50	<50	87	80	50-150	8
1,1-Dichloroethene	ug/L (ppb)	10	<1	89	84	50-150	6
Hexane	ug/L (ppb)	10	<5	94	85	50-150	10
Methylene chloride	ug/L (ppb)	10	<5	77	66	50-150	15
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	89	80	50-150	11
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	96	90	50-150	6
1,1-Dichloroethane	ug/L (ppb)	10	<1	89	83	50-150	7
2,2-Dichloropropane	ug/L (ppb)	10	<1	106	97	50-150	9
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	97	86	50-150	12
Chloroform	ug/L (ppb)	10	<1	89	84	50-150	6
2-Butanone (MEK)	ug/L (ppb)	50	<20	87	91	50-150	4
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	98	93	50-150	5
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	90	82	50-150	9
1,1-Dichloropropene	ug/L (ppb)	10	<1	93	88	50-150	6
Carbon tetrachloride	ug/L (ppb)	10	<0.5	93	86	50-150	8
Benzene	ug/L (ppb)	10	24	90 b	87 b	50-150	3 b
Trichloroethene	ug/L (ppb)	10	<0.5	95	92	50-150	3
1,2-Dichloropropane	ug/L (ppb)	10	<1	89	83	50-150	7
Bromodichloromethane	ug/L (ppb)	10	<0.5	90	85	50-150	6
Dibromomethane	ug/L (ppb)	10	<1	95	89	50-150	7
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	88	81	50-150	8
cis-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	95	85	50-150	11
Toluene	ug/L (ppb)	10	33	94 b	113 b	50-150	18 b
trans-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	94	87	50-150	8
1,1,2-Trichloroethane	ug/L (ppb)	10	<0.5	90	87	50-150	3
2-Hexanone	ug/L (ppb)	50	<10	92	85	50-150	8
1,3-Dichloropropane	ug/L (ppb)	10	<1	89	84	50-150	6
Tetrachloroethene	ug/L (ppb)	10	<1	95	95	50-150	0
Dibromochloromethane	ug/L (ppb)	10	<0.5	93	89	50-150	4
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	93	88	50-150	6
Chlorobenzene	ug/L (ppb)	10	63	94 b	106 b	50-150	12 b
Ethylbenzene	ug/L (ppb)	10	91	96 b	99 b	50-150	3 b
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<1	91	88	50-150	3
m,p-Xylene	ug/L (ppb)	20	10	94 b	88 b	50-150	7 b
o-Xylene	ug/L (ppb)	10	19	92 b	94 b	50-150	2 b
Styrene	ug/L (ppb)	10	<1	97	91	50-150	6
Isopropylbenzene	ug/L (ppb)	10	9.9	94 b	94 b	50-150	0 b
Bromoform	ug/L (ppb)	10	<5	95	90	50-150	5
n-Propylbenzene	ug/L (ppb)	10	17	91 b	95 b	50-150	4 b
Bromobenzene	ug/L (ppb)	10	<1	90	85	50-150	6
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	89	90	50-150	1
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<0.2	89	89	50-150	0
1,2,3-Trichloropropane	ug/L (ppb)	10	<1	80	79	50-150	1
2-Chlorotoluene	ug/L (ppb)	10	<1	89	89	50-150	0
4-Chlorotoluene	ug/L (ppb)	10	<1	91	87	50-150	4
tert-Butylbenzene	ug/L (ppb)	10	1.2	91	96	50-150	5
1,2,4-Trimethylbenzene	ug/L (ppb)	10	4.6	91 b	93 b	50-150	2 b
sec-Butylbenzene	ug/L (ppb)	10	2.5	93 b	95 b	50-150	2 b
p-Isopropyltoluene	ug/L (ppb)	10	<1	94	93	50-150	1
1,3-Dichlorobenzene	ug/L (ppb)	10	5.8	89 b	89 b	50-150	0 b
1,4-Dichlorobenzene	ug/L (ppb)	10	16	91 b	92 b	50-150	1 b
1,2-Dichlorobenzene	ug/L (ppb)	10	15	84 b	94 b	50-150	11 b
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<10	97	96	50-150	1
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	91	93	50-150	2
Hexachlorobutadiene	ug/L (ppb)	10	<0.5	93	94	50-150	1
Naphthalene	ug/L (ppb)	10	130	78 b	175 b	50-150	77 b
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<1	93	93	50-150	0

Date of Report: 09/09/22
Date Received: 08/25/22
Project: TWAAFA-001, F&BI 208396

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	117	108	46-206	8
Chloromethane	ug/L (ppb)	10	102	92	70-142	10
Vinyl chloride	ug/L (ppb)	10	113	105	70-130	7
Bromomethane	ug/L (ppb)	10	125	102	56-197	20
Chloroethane	ug/L (ppb)	10	112	104	70-130	7
Trichlorofluoromethane	ug/L (ppb)	10	101	100	70-130	1
Acetone	ug/L (ppb)	50	102	95	10-140	7
1,1-Dichloroethene	ug/L (ppb)	10	100	95	70-130	5
Hexane	ug/L (ppb)	10	102	99	54-136	3
Methylene chloride	ug/L (ppb)	10	141 vo	94	43-134	40 vo
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	101	95	70-130	6
trans-1,2-Dichloroethene	ug/L (ppb)	10	107	101	70-130	6
1,1-Dichloroethane	ug/L (ppb)	10	99	93	70-130	6
2,2-Dichloropropane	ug/L (ppb)	10	116	108	70-130	7
cis-1,2-Dichloroethene	ug/L (ppb)	10	108	97	70-130	11
Chloroform	ug/L (ppb)	10	99	94	70-130	5
2-Butanone (MEK)	ug/L (ppb)	50	96	92	17-154	4
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	102	100	70-130	2
1,1,1-Trichloroethane	ug/L (ppb)	10	100	95	70-130	5
1,1-Dichloropropene	ug/L (ppb)	10	99	99	70-130	0
Carbon tetrachloride	ug/L (ppb)	10	105	100	70-130	5
Benzene	ug/L (ppb)	10	103	100	70-130	3
Trichloroethene	ug/L (ppb)	10	104	102	70-130	2
1,2-Dichloropropane	ug/L (ppb)	10	100	96	70-130	4
Bromodichloromethane	ug/L (ppb)	10	102	97	70-130	5
Dibromomethane	ug/L (ppb)	10	105	103	70-130	2
4-Methyl-2-pentanone	ug/L (ppb)	50	107	99	68-130	8
cis-1,3-Dichloropropene	ug/L (ppb)	10	110	100	69-131	10
Toluene	ug/L (ppb)	10	105	101	70-130	4
trans-1,3-Dichloropropene	ug/L (ppb)	10	101	97	70-130	4
1,1,2-Trichloroethane	ug/L (ppb)	10	102	98	70-130	4
2-Hexanone	ug/L (ppb)	50	100	97	45-138	3
1,3-Dichloropropane	ug/L (ppb)	10	100	97	70-130	3
Tetrachloroethene	ug/L (ppb)	10	104	100	70-130	4
Dibromochloromethane	ug/L (ppb)	10	103	98	60-148	5
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	103	99	70-130	4
Chlorobenzene	ug/L (ppb)	10	101	97	70-130	4
Ethylbenzene	ug/L (ppb)	10	102	98	70-130	4
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	98	96	70-130	2
m,p-Xylene	ug/L (ppb)	20	103	98	70-130	5
o-Xylene	ug/L (ppb)	10	100	97	70-130	3
Styrene	ug/L (ppb)	10	99	95	70-130	4
Isopropylbenzene	ug/L (ppb)	10	100	97	70-130	3
Bromoform	ug/L (ppb)	10	104	100	69-138	4
n-Propylbenzene	ug/L (ppb)	10	99	97	70-130	2
Bromobenzene	ug/L (ppb)	10	102	98	70-130	4
1,3,5-Trimethylbenzene	ug/L (ppb)	10	96	94	70-130	2
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	101	98	70-130	3
1,2,3-Trichloropropane	ug/L (ppb)	10	95	94	70-130	1
2-Chlorotoluene	ug/L (ppb)	10	97	94	70-130	3
4-Chlorotoluene	ug/L (ppb)	10	99	98	70-130	1
tert-Butylbenzene	ug/L (ppb)	10	98	98	70-130	0
1,2,4-Trimethylbenzene	ug/L (ppb)	10	96	94	70-130	2
sec-Butylbenzene	ug/L (ppb)	10	98	98	70-130	0
p-Isopropyltoluene	ug/L (ppb)	10	99	98	70-130	1
1,3-Dichlorobenzene	ug/L (ppb)	10	98	96	70-130	2
1,4-Dichlorobenzene	ug/L (ppb)	10	97	97	70-130	0
1,2-Dichlorobenzene	ug/L (ppb)	10	95	96	70-130	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	98	101	70-130	3
1,2,4-Trichlorobenzene	ug/L (ppb)	10	94	95	70-130	1
Hexachlorobutadiene	ug/L (ppb)	10	98	98	70-130	0
Naphthalene	ug/L (ppb)	10	93	93	70-130	0
1,2,3-Trichlorobenzene	ug/L (ppb)	10	94	97	70-130	3

Date of Report: 09/09/22
Date Received: 08/25/22
Project: TWAAFA-001, F&BI 208396

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D SIM

Laboratory Code: 208396-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
1,4-Dioxane	ug/L (ppb)	2	<0.4	73	45 vo	50-150	47 vo

Date of Report: 09/09/22
Date Received: 08/25/22
Project: TWAAFA-001, F&BI 208396

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
1,4-Dioxane	ug/L (ppb)	2	114	123	70-130	8

Date of Report: 09/09/22
Date Received: 08/25/22
Project: TWAAFA-001, F&BI 208396

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: 208396-05 1/0.5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Phenol	ug/L (ppb)	2.5	<1	35 vo	29 vo	50-150	19
Bis(2-chloroethyl) ether	ug/L (ppb)	2.5	<0.1	76	79	50-150	4
2-Chlorophenol	ug/L (ppb)	2.5	<1	77	78	50-150	1
1,3-Dichlorobenzene	ug/L (ppb)	2.5	1.8	89 b	93 b	50-150	4 b
1,4-Dichlorobenzene	ug/L (ppb)	2.5	5.0	109 b	117 b	50-150	7 b
1,2-Dichlorobenzene	ug/L (ppb)	2.5	5.4	112 b	120 b	50-150	7 b
Benzyl alcohol	ug/L (ppb)	13	<1	65	64	50-150	2
2,2'-Oxybis(1-chloropropane)	ug/L (ppb)	2.5	<0.1	78	81	50-150	4
2-Methylphenol	ug/L (ppb)	2.5	<1	72	70	50-150	3
Hexachloroethane	ug/L (ppb)	2.5	<0.1	331 ip	341 ip	50-150	3
N-Nitroso-di-n-propylamine	ug/L (ppb)	2.5	<0.1	101	105	50-150	4
3-Methylphenol + 4-Methylphenol	ug/L (ppb)	2.5	<2	64	61	50-150	5
Nitrobenzene	ug/L (ppb)	2.5	<0.1	100	102	50-150	2
Isophorone	ug/L (ppb)	2.5	<0.1	90	88	50-150	2
2-Nitrophenol	ug/L (ppb)	2.5	<1	85	89	50-150	5
2,4-Dimethylphenol	ug/L (ppb)	2.5	<1	90	89	50-150	1
Benzoic acid	ug/L (ppb)	20	<5	120	114	50-150	5
Bis(2-chloroethoxy)methane	ug/L (ppb)	2.5	<0.1	98	95	50-150	3
2,4-Dichlorophenol	ug/L (ppb)	2.5	<1	90	88	50-150	2
1,2,4-Trichlorobenzene	ug/L (ppb)	2.5	<0.1	83	86	50-150	4
Naphthalene	ug/L (ppb)	2.5	48 ve	316 b	419 b	50-150	28 b
Hexachlorobutadiene	ug/L (ppb)	2.5	<0.1	80	84	50-150	5
4-Chloroaniline	ug/L (ppb)	13	<10	28 vo	29 vo	50-150	4
4-Chloro-3-methylphenol	ug/L (ppb)	2.5	<1	102	97	50-150	5
2-Methylnaphthalene	ug/L (ppb)	2.5	4.3	98 b	108 b	50-150	10 b
1-Methylnaphthalene	ug/L (ppb)	2.5	24 ve	160 b	184 b	50-150	14 b
Hexachlorocyclopentadiene	ug/L (ppb)	2.5	<0.3	57	81	50-150	35 vo
2,4,6-Trichlorophenol	ug/L (ppb)	2.5	<1	81	88	50-150	8
2,4,5-Trichlorophenol	ug/L (ppb)	2.5	<1	77	82	50-150	6
2-Chloronaphthalene	ug/L (ppb)	2.5	<0.1	75	84	50-150	11
2-Nitroaniline	ug/L (ppb)	13	<0.5	79	83	50-150	5
Dimethyl phthalate	ug/L (ppb)	2.5	<1	75	79	50-150	5
Acenaphthylene	ug/L (ppb)	2.5	0.19	74	80	50-150	8
2,6-Dinitrotoluene	ug/L (ppb)	2.5	<0.5	88	93	50-150	6
3-Nitroaniline	ug/L (ppb)	13	<10	32 vo	36 vo	50-150	12
Acenaphthene	ug/L (ppb)	2.5	17 ve	58 b	130 b	50-150	77 b
2,4-Dinitrophenol	ug/L (ppb)	5	<3	87	90	50-150	3
Dibenzofuran	ug/L (ppb)	2.5	10	79 b	111 b	50-150	34 b
2,4-Dinitrotoluene	ug/L (ppb)	2.5	<0.5	65	67	50-150	3
4-Nitrophenol	ug/L (ppb)	5	<3	34 vo	33 vo	50-150	3
Diethyl phthalate	ug/L (ppb)	2.5	<1	78	76	50-150	3
Fluorene	ug/L (ppb)	2.5	12	70 b	102 b	50-150	37 b
4-Chlorophenyl phenyl ether	ug/L (ppb)	2.5	<0.1	78	83	50-150	6
N-Nitrosodiphenylamine	ug/L (ppb)	2.5	<0.1	112	125	50-150	11
4-Nitroaniline	ug/L (ppb)	13	<10	38 vo	47 vo	50-150	21 vo
4,6-Dinitro-2-methylphenol	ug/L (ppb)	2.5	<3	108	112	50-150	4
4-Bromophenyl phenyl ether	ug/L (ppb)	2.5	<0.1	87	100	50-150	14
Hexachlorobenzene	ug/L (ppb)	2.5	<0.1	87	97	50-150	11
Pentachlorophenol	ug/L (ppb)	2.5	<0.5	102	104	50-150	2
Phenanthrene	ug/L (ppb)	2.5	1.8	85 b	101 b	50-150	17 b
Anthracene	ug/L (ppb)	2.5	0.98	82	90	50-150	9
Carbazole	ug/L (ppb)	2.5	8.6	60 b	90 b	50-150	40 b
Di-n-butyl phthalate	ug/L (ppb)	2.5	<1	72	80	50-150	11
Fluoranthene	ug/L (ppb)	2.5	1.8	74 b	87 b	50-150	16 b
Pyrene	ug/L (ppb)	2.5	0.98	107	90	50-150	17
Benzyl butyl phthalate	ug/L (ppb)	2.5	<1	111	113	50-150	2
Benz(a)anthracene	ug/L (ppb)	2.5	0.047	92	95	50-150	3
Chrysene	ug/L (ppb)	2.5	0.046	90	92	50-150	2
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	2.5	<1.6	102	100	50-150	2
Di-n-octyl phthalate	ug/L (ppb)	2.5	<1	126	139	50-150	10
Benzo(a)pyrene	ug/L (ppb)	2.5	<0.01	97	101	50-150	4
Benzo(b)fluoranthene	ug/L (ppb)	2.5	<0.01	103	107	50-150	4
Benzo(k)fluoranthene	ug/L (ppb)	2.5	<0.01	103	109	50-150	6
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	2.5	<0.01	72	65	50-150	10
Dibenz(a,h)anthracene	ug/L (ppb)	2.5	<0.01	72	65	50-150	10
Benzo(g,h,i)perylene	ug/L (ppb)	2.5	<0.02	62	55	50-150	12

Date of Report: 09/09/22
Date Received: 08/25/22
Project: TWAAFA-001, F&BI 208396

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Phenol	ug/L (ppb)	2.5	26	10-86
Bis(2-chloroethyl) ether	ug/L (ppb)	2.5	84	60-108
2-Chlorophenol	ug/L (ppb)	2.5	75	10-97
1,3-Dichlorobenzene	ug/L (ppb)	2.5	74	48-96
1,4-Dichlorobenzene	ug/L (ppb)	2.5	75	48-96
1,2-Dichlorobenzene	ug/L (ppb)	2.5	76	52-96
Benzyl alcohol	ug/L (ppb)	13	62	10-76
2,2'-Oxybis(1-chloropropane)	ug/L (ppb)	2.5	79	59-101
2-Methylphenol	ug/L (ppb)	2.5	66	10-80
Hexachloroethane	ug/L (ppb)	2.5	76	47-97
N-Nitroso-di-n-propylamine	ug/L (ppb)	2.5	86	71-106
3-Methylphenol + 4-Methylphenol	ug/L (ppb)	2.5	56	10-66
Nitrobenzene	ug/L (ppb)	2.5	85	60-90
Isophorone	ug/L (ppb)	2.5	88	71-110
2-Nitrophenol	ug/L (ppb)	2.5	82	27-120
2,4-Dimethylphenol	ug/L (ppb)	2.5	63	10-106
Benzoic acid	ug/L (ppb)	20	9 vo	10-102
Bis(2-chloroethoxy)methane	ug/L (ppb)	2.5	89	55-117
2,4-Dichlorophenol	ug/L (ppb)	2.5	82	23-116
1,2,4-Trichlorobenzene	ug/L (ppb)	2.5	79	56-98
Naphthalene	ug/L (ppb)	2.5	77	62-97
Hexachlorobutadiene	ug/L (ppb)	2.5	76	48-100
4-Chloroaniline	ug/L (ppb)	13	21 vo	28-121
4-Chloro-3-methylphenol	ug/L (ppb)	2.5	82	18-113
2-Methylnaphthalene	ug/L (ppb)	2.5	76	64-101
1-Methylnaphthalene	ug/L (ppb)	2.5	76	64-93
Hexachlorocyclopentadiene	ug/L (ppb)	2.5	85	49-113
2,4,6-Trichlorophenol	ug/L (ppb)	2.5	89	16-131
2,4,5-Trichlorophenol	ug/L (ppb)	2.5	85	26-129
2-Chloronaphthalene	ug/L (ppb)	2.5	85	67-102
2-Nitroaniline	ug/L (ppb)	13	91	31-168
Dimethyl phthalate	ug/L (ppb)	2.5	90	70-130
Acenaphthylene	ug/L (ppb)	2.5	86	70-130
2,6-Dinitrotoluene	ug/L (ppb)	2.5	87	70-130
3-Nitroaniline	ug/L (ppb)	13	49	33-128
Acenaphthene	ug/L (ppb)	2.5	81	70-130
2,4-Dinitrophenol	ug/L (ppb)	5	84	10-137
Dibenzofuran	ug/L (ppb)	2.5	92	67-114
2,4-Dinitrotoluene	ug/L (ppb)	2.5	68	53-132
4-Nitrophenol	ug/L (ppb)	5	31	10-89
Diethyl phthalate	ug/L (ppb)	2.5	83	60-128
Fluorene	ug/L (ppb)	2.5	86	70-130
4-Chlorophenyl phenyl ether	ug/L (ppb)	2.5	88	70-130
N-Nitrosodiphenylamine	ug/L (ppb)	2.5	92	70-130
4-Nitroaniline	ug/L (ppb)	13	77	32-124
4,6-Dinitro-2-methylphenol	ug/L (ppb)	2.5	100	10-146
4-Bromophenyl phenyl ether	ug/L (ppb)	2.5	93	70-130
Hexachlorobenzene	ug/L (ppb)	2.5	94	61-112
Pentachlorophenol	ug/L (ppb)	2.5	93	10-144
Phenanthrene	ug/L (ppb)	2.5	94	70-130
Anthracene	ug/L (ppb)	2.5	93	70-130
Carbazole	ug/L (ppb)	2.5	97	70-130
Di-n-butyl phthalate	ug/L (ppb)	2.5	88	28-147
Fluoranthene	ug/L (ppb)	2.5	98	70-130
Pyrene	ug/L (ppb)	2.5	103	70-130
Benzyl butyl phthalate	ug/L (ppb)	2.5	101	34-142
Benz(a)anthracene	ug/L (ppb)	2.5	99	70-130
Chrysene	ug/L (ppb)	2.5	98	70-130
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	2.5	98	44-140
Di-n-octyl phthalate	ug/L (ppb)	2.5	90	33-147
Benzo(a)pyrene	ug/L (ppb)	2.5	97	70-130
Benzo(b)fluoranthene	ug/L (ppb)	2.5	98	70-130
Benzo(k)fluoranthene	ug/L (ppb)	2.5	98	70-130
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	2.5	109	70-130
Dibenz(a,h)anthracene	ug/L (ppb)	2.5	109	70-130
Benzo(g,h,i)perylene	ug/L (ppb)	2.5	108	70-130

Date of Report: 09/09/22
Date Received: 08/25/22
Project: TWAAFA-001, F&BI 208396

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR POLYCHLORINATED BIPHENYLS AS AROCLOR 1016/1260 BY EPA METHOD 8082A

Laboratory Code: 208396-05 1/0.5 (Matrix Spike) 1/0.5

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	ug/L (ppb)	0.25	<0.0053 j	43 vo	32 vo	50-150	29 vo
Aroclor 1260	ug/L (ppb)	0.25	<0.0075 j	44 vo	37 vo	50-150	17

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Aroclor 1016	ug/L (ppb)	0.25	33	25-165
Aroclor 1260	ug/L (ppb)	0.25	36	25-163

Date of Report: 09/09/22
Date Received: 08/25/22
Project: TWAAFA-001, F&BI 208396

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR POLYCHLORINATED BIPHENYLS AS AROCLOR 1016/1260 BY EPA METHOD 8082A

Laboratory Code: 208373-02 1/0.5 (Matrix Spike) 1/0.5

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	ug/L (ppb)	0.25	<0.0035	42 vo	40 vo	50-150	5
Aroclor 1260	ug/L (ppb)	0.25	<0.0035	51	46 vo	50-150	10

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Aroclor 1016	ug/L (ppb)	0.25	48	25-165
Aroclor 1260	ug/L (ppb)	0.25	60	25-163

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

208396

SAMPLE CHAIN OF CUSTODY

08-25-22

EDM/AI3/VW6

Page # 1 of 1

Report To: Anthony Cerruti / Trevor Louviere
CC: Tasya Gray

Company DOF

Address 1001 SW Klickitat Way

City, State, ZIP Seattle, WA 98134

Phone 215-767-7749 Email acerruti@dofnw.com

SAMPLERS (*signature*)

PROJECT NAME: TWAAFA

PO # TWAAFA-001

REMARKS
SVOCs lab filtered at 0.7 micron before analysis

Project Specific RLs - (Yes) / No

INVOICE TO: DOF

TURNAROUND TIME
✓ Standard Turnaround
__ RUSH _____
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Archive Samples
Other

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	VOCs by EPA 8260D / SIM Dual Acquisition	NWTPH-Dx	EPH / VPH	NWTPH-Gx	Total Metals 6020B (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn)	Mecury by 1631E	SVOCs EPA 8270E SIM Dual Acquisiton	cPAHs by EPA 8270	1,4 Dioxane by EPA 8260D SIM	LL PCBs 8082A	MS/MSD Collected? (Y/N)	Notes
																	* SVOC full suite includes cPAH
CCW-6B-0822	01A-M	8/25/22	1000	W	14	X	X		X	X	X	X		X	X		
CCW-9-6B-0822	02	8/25/22	1005	W	14	X	X		X		X	X		X	X		
CCW-6C-0822	03	8/25/22	1100	W	14	X	X		X		X	X		X	X		
CCW-7C-0822	04	8/25/22	1205	W	14	X	X		X		X	X		X	X		
CCW-7B-0822	05A-AD	8/25/22	1250	W	30	X	X		X		X	X		X	X	Y	EXTRA VOL MS/MSD
TRIP BLANK #3-0822	06A-D	8/25/22	0830	W	4	X			X								
CCW-3B-0822	07A-M	8/25/22	1445	W	14	X	X		X	X	X	X		X	X		rec'd at lab AWB 8/26
																	Logged in per AC 8/26/22 ME
																	Samples received at 4 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	ANTHONY CERRUTI	DOF	8/25/22	1527
Received by:	JNH	FBI	8-25-22	1527
Relinquished by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 208396 CLIENT DOF INITIALS: RV DATE: 8-25-22

If custody seals are present on cooler, are they intact? ☐ NA ☐ YES ☐ NO

Cooler/Sample temperature 4 °C

Were samples received on ice/cold packs? ☑ YES ☐ NO

How did samples arrive?
- ☐ Over the Counter
- ☑ Picked up by F&BI
- ☐ FedEx/UPS/GSO

Number of days samples have been sitting prior to receipt at laboratory 0 days

Is there a Chain-of-Custody* (COC)? ☑ YES ☐ NO
*or other representative documents, letters, and/or shipping memos

Are the samples clearly identified? (explain "no" answer below) ☐ YES ☒ NO

Is the following information provided on the COC* ? (explain "no" answer below)

Sample ID's	☐ Yes	☑ No	# of Containers	☑ Yes	☐ No
Date Sampled	☑ Yes	☐ No	Relinquished	☑ Yes	☐ No
Time Sampled	☑ Yes	☐ No	Requested analysis	☑ Yes	☐ No

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below) ☑ YES ☐ NO

Were appropriate sample containers used? ☑ YES ☐ NO ☐ Unknown

If custody seals are present on samples, are they intact? ☑ NA ☐ YES ☐ NO

Are samples requiring no headspace, headspace free? ☐ NA ☑ YES ☐ NO

Air Samples: Were any additional canisters received? ☑ NA ☐ YES ☐ NO

If Yes, number of unused 1L canisters _____

number of unused 6L canisters _____

Explain "no" items from above (use the back if needed)

rec'd extra sample set. MUB see COC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

September 14, 2022

Trevor Louviere, Project Manager
Dalton Olmsted Fuglevand
1001 SW Klickitat Way, Suite 200B
Seattle, WA 98134

Dear Mr Louviere:

Included are the results from the testing of material submitted on August 26, 2022 from the TWAAFA-001, F&BI 208431 project. There are 91 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Anthony Cerruti, Tasya Gray
DOF0914R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 26, 2022 by Friedman & Bruya, Inc. from the Dalton Olmsted Fuglevand TWAAFA-001 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Dalton Olmsted Fuglevand
208431 -01	CCW-3A-0822
208431 -02	Field Blank 1-0822
208431 -03	CCW-3C-0822
208431 -04	CCW-1C-0822
208431 -05	Trip Blank 4-0822
208431 -06	CCW-1B-0822
208431 -07	Field Blank 2-0822
208431 -08	CCW-8B-0822
208431 -09	MW-4-0822
208431 -10	CCW-4C-0822
208431 -11	CCW-5B-0822
208431 -12	CCW-9-5B-0822
208431 -13	CCW-5C-0822

Samples CCW-3A-0822, CCW-8B-0822, and CCW-5B-0822 were sent to Fremont Analytical for EPH and VPH analyses. Fremont Analytical notified Friedman and Bruya that their VPH instrument suffered catastrophic failure, and the samples were not analyzed. Due to the samples being out of the holding time, DOF elected not to proceed with analysis. The EPH report is enclosed.

Methylene chloride was detected in the 8260D analysis of sample Field Blank 2-0822. The data were flagged as due to laboratory contamination.

The 8260D SIM matrix spike and matrix spike duplicate failed the relative percent difference for 1,4-dioxane. The laboratory control sample passed the acceptance criteria, therefore the results were due to matrix effect.

The 8270E and 8082A matrix spike and matrix spike duplicate recoveries were outside of acceptance limits for several compounds due to the use of the method default acceptance criteria of 50-150%.

Phenanthrene and bis(2-ethylhexyl)phthalate were detected in the 8270E method blank. The data were flagged accordingly.

An 8270E internal standard failed the acceptance criteria for samples CCW-3A-0822, CCW-8B-0822, and MW-4-0822. The samples were diluted and reanalyzed with acceptable results. Both data sets were reported.

CASE NARRATIVE (continued)

Benzoic acid and 4-chloroaniline in the 8270E laboratory control sample and laboratory control sample duplicate failed the acceptance criteria. The data were flagged accordingly.

The 8270E calibration standard failed the acceptance criteria for several analytes. The data were flagged accordingly.

The 8082A PCB results were reported to the method detection limit. The data were flagged accordingly.

All other quality control requirements were acceptable.

Date of Report: 09/14/22
Date Received: 08/26/22
Project: TWAAFA-001, F&BI 208431
Date Extracted: 09/01/22
Date Analyzed: 09/01/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
CCW-3A-0822 208431-01	380	117
Field Blank 1-0822 208431-02	<100	107
CCW-3C-0822 208431-03	<100	105
CCW-1C-0822 208431-04	<100	108
Trip Blank 4-0822 208431-05	<100	104
CCW-1B-0822 208431-06	<100	107
Field Blank 2-0822 208431-07	<100	106
CCW-8B-0822 208431-08	<100	114
MW-4-0822 208431-09	130	116
CCW-4C-0822 208431-10	<100	103
CCW-5B-0822 208431-11	760	141

Date of Report: 09/14/22
Date Received: 08/26/22
Project: TWAAFA-001, F&BI 208431
Date Extracted: 09/01/22
Date Analyzed: 09/01/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
CCW-9-5B-0822 208431-12	760	144
CCW-5C-0822 208431-13	<100	110
Method Blank 02-2069 mb	<100	101

Date of Report: 09/14/22
Date Received: 08/26/22
Project: TWAAFA-001, F&BI 208431
Date Extracted: 09/01/21
Date Analyzed: 09/01/21

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
CCW-3A-0822 208431-01	10,000 x	4,200 x	ip
Field Blank 1-0822 208431-02	<50	<250	105
CCW-3C-0822 208431-03	750 x	<250	131
CCW-1C-0822 208431-04	730 x	<250	128
CCW-1B-0822 208431-06	640 x	<250	130
Field Blank 2-0822 208431-07	55 x	<250	115
CCW-8B-0822 208431-08	2,900 x	860 x	142
MW-4-0822 208431-09	7,100 x	2,900 x	151
CCW-4C-0822 208431-10	1,200 x	420 x	141
CCW-5B-0822 208431-11	2,300 x	660 x	118
CCW-9-5B-0822 208431-12	2,400 x	800 x	128

Date of Report: 09/14/22
Date Received: 08/26/22
Project: TWAAFA-001, F&BI 208431
Date Extracted: 09/01/21
Date Analyzed: 09/01/21

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
CCW-5C-0822 208431-13	1,700 x	410 x	66
Method Blank 02-2110 MB	<50	<250	110

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-3A-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-01
Date Analyzed:	08/31/22	Data File:	208431-01.263
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	70.1
Cadmium	<1
Chromium	2.50
Copper	2.40
Lead	17.9
Manganese	76.1
Nickel	155
Zinc	385

Analysis For Total Metals By EPA Method 6020B

Client ID:	Field Blank 1-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-02
Date Analyzed:	08/31/22	Data File:	208431-02.264
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Copper	<2.4
Lead	<1
Manganese	<1
Nickel	<1
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-3C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-03
Date Analyzed:	08/31/22	Data File:	208431-03.265
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.54
Cadmium	<1
Chromium	2.44
Copper	<2.4
Lead	<1
Nickel	2.23
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-3C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-03 x10
Date Analyzed:	08/30/22	Data File:	208431-03 x10.144
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Manganese	1,450

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-1C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-04
Date Analyzed:	08/31/22	Data File:	208431-04.266
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.93
Cadmium	<1
Chromium	4.35
Copper	<2.4
Lead	<1
Manganese	306
Nickel	3.83
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-1B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-06
Date Analyzed:	08/31/22	Data File:	208431-06.267
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Copper	<2.4
Lead	<1
Manganese	497
Nickel	2.29
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	Field Blank 2-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-07
Date Analyzed:	08/31/22	Data File:	208431-07.268
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Copper	<2.4
Lead	<1
Manganese	<1
Nickel	<1
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-8B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-08
Date Analyzed:	08/31/22	Data File:	208431-08.273
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1.09
Cadmium	<1
Chromium	<1
Copper	<2.4
Lead	<1
Manganese	419
Nickel	2.56
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-4-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-09
Date Analyzed:	08/31/22	Data File:	208431-09.274
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.01
Cadmium	<1
Chromium	<1
Copper	<2.4
Lead	3.70
Manganese	164
Nickel	6.07
Zinc	24.1

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-4C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-10
Date Analyzed:	08/31/22	Data File:	208431-10.275
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.27
Cadmium	<1
Chromium	3.48
Copper	<2.4
Lead	<1
Manganese	538
Nickel	3.22
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-5B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-11
Date Analyzed:	08/31/22	Data File:	208431-11.276
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Cadmium	<1
Chromium	<1
Copper	<2.4
Lead	4.12
Manganese	718
Nickel	3.19
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-5B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-11 x10
Date Analyzed:	08/30/22	Data File:	208431-11 x10.159
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1,050

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-9-5B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-12
Date Analyzed:	08/31/22	Data File:	208431-12.277
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Cadmium	<1
Chromium	<1
Copper	<2.4
Lead	4.24
Manganese	740
Nickel	3.28
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-9-5B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-12 x10
Date Analyzed:	08/30/22	Data File:	208431-12 x10.160
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	1,180

Analysis For Total Metals By EPA Method 6020B

Client ID:	CCW-5C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-13
Date Analyzed:	08/31/22	Data File:	208431-13.278
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	2.10
Cadmium	<1
Chromium	3.04
Copper	<2.4
Lead	<1
Manganese	949
Nickel	2.19
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Dalton Olmsted Fuglevand
Date Received:	NA	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	I2-597 mb
Date Analyzed:	08/30/22	Data File:	I2-597 mb.106
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Arsenic	<1
Cadmium	<1
Chromium	<1
Copper	<2.4
Lead	<1
Manganese	<1
Nickel	<1
Zinc	<5

Date of Report: 09/14/22
Date Received: 08/26/22
Project: TWAAFA-001, F&BI 208431
Date Extracted: 08/31/22
Date Analyzed: 09/02/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Total Mercury
CCW-3A-0822 208431-01	<0.02
Field Blank 1-0822 208431-02	<0.02
CCW-3C-0822 208431-03	<0.02
CCW-1C-0822 208431-04	<0.02
CCW-1B-0822 208431-06	<0.02
Field Blank 2-0822 208431-07	<0.02
CCW-8B-0822 208431-08	<0.02
MW-4-0822 208431-09	<0.02
CCW-4C-0822 208431-10	<0.02
CCW-5B-0822 208431-11	<0.02
CCW-9-5B-0822 208431-12	<0.02

Date of Report: 09/14/22
Date Received: 08/26/22
Project: TWAAFA-001, F&BI 208431
Date Extracted: 08/31/22
Date Analyzed: 09/02/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Total Mercury
CCW-5C-0822 208431-13	<0.02
Method Blank i2-600 mb	<0.02

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	CCW-3A-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	09/01/22	Lab ID:	208431-01
Date Analyzed:	09/01/22	Data File:	090123.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	78	126
Toluene-d8	93	84	115
4-Bromofluorobenzene	97	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.12	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	25
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	9.9
Hexane	<5	o-Xylene	8.0
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	1.1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	1.1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	0.41	2-Chlorotoluene	1.0
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	3.6
Benzene	13	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	26	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	4.0
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Field Blank 1-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	09/01/22	Lab ID:	208431-02
Date Analyzed:	09/01/22	Data File:	090114.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	78	126
Toluene-d8	96	84	115
4-Bromofluorobenzene	99	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	2.7	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	CCW-3C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	09/01/22	Lab ID:	208431-03
Date Analyzed:	09/01/22	Data File:	090115.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	78	126
Toluene-d8	98	84	115
4-Bromofluorobenzene	104	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	CCW-1C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	09/01/22	Lab ID:	208431-04
Date Analyzed:	09/01/22	Data File:	090116.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	78	126
Toluene-d8	102	84	115
4-Bromofluorobenzene	101	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Trip Blank 4-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	09/01/22	Lab ID:	208431-05
Date Analyzed:	09/01/22	Data File:	090112.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	78	126
Toluene-d8	100	84	115
4-Bromofluorobenzene	100	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	CCW-1B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	09/01/22	Lab ID:	208431-06
Date Analyzed:	09/01/22	Data File:	090117.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	78	126
Toluene-d8	100	84	115
4-Bromofluorobenzene	100	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.031	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Field Blank 2-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	09/01/22	Lab ID:	208431-07
Date Analyzed:	09/01/22	Data File:	090113.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	78	126
Toluene-d8	99	84	115
4-Bromofluorobenzene	100	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	6.0 lc	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	3.0	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	CCW-8B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	09/01/22	Lab ID:	208431-08
Date Analyzed:	09/01/22	Data File:	090118.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	78	126
Toluene-d8	101	84	115
4-Bromofluorobenzene	102	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.047	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	4.2
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	1.3
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	1.4
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	0.51	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW-4-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	09/01/22	Lab ID:	208431-09
Date Analyzed:	09/01/22	Data File:	090119A.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	107	78	126
Toluene-d8	85	84	115
4-Bromofluorobenzene	93	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	1.2	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	1.2
Trichlorofluoromethane	<1	Ethylbenzene	2.4
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	2.7
Hexane	<5	o-Xylene	5.0
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	1.0
Benzene	4.7	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	4.5	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	1.3
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	CCW-4C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	09/01/22	Lab ID:	208431-10
Date Analyzed:	09/01/22	Data File:	090120.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	78	126
Toluene-d8	92	84	115
4-Bromofluorobenzene	95	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	3.6	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	CCW-5B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	09/01/22	Lab ID:	208431-11
Date Analyzed:	09/01/22	Data File:	090121.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	78	126
Toluene-d8	93	84	115
4-Bromofluorobenzene	99	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.16	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	2.2	Chlorobenzene	67
Trichlorofluoromethane	<1	Ethylbenzene	42
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	9.1
Hexane	<5	o-Xylene	17
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	5.8
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	11
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	7.3
Benzene	35	sec-Butylbenzene	1.4
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	1.3
Dibromomethane	<1	1,2-Dichlorobenzene	1.7
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	15	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	11
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	CCW-9-5B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	09/01/22	Lab ID:	208431-12
Date Analyzed:	09/02/22	Data File:	090148.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	78	126
Toluene-d8	102	84	115
4-Bromofluorobenzene	101	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.17	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	1.9	Chlorobenzene	54
Trichlorofluoromethane	<1	Ethylbenzene	44
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	9.3
Hexane	<5	o-Xylene	16
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	6.3
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	12
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	7.2
Benzene	34	sec-Butylbenzene	1.6
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	1.1
Dibromomethane	<1	1,2-Dichlorobenzene	1.5
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	14	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	8.9
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	CCW-5C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	09/01/22	Lab ID:	208431-13
Date Analyzed:	09/01/22	Data File:	090122.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	78	126
Toluene-d8	94	84	115
4-Bromofluorobenzene	97	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	1.2	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Dalton Olmsted Fuglevand
Date Received:	Not Applicable	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	09/01/22	Lab ID:	02-1964 mb
Date Analyzed:	09/01/22	Data File:	090107.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	78	126
Toluene-d8	98	84	115
4-Bromofluorobenzene	99	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	CCW-3A-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/29/22	Lab ID:	208431-01
Date Analyzed:	08/29/22	Data File:	082910.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	96	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	1.5

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	Field Blank 1-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/29/22	Lab ID:	208431-02
Date Analyzed:	08/29/22	Data File:	082911.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	CCW-3C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/29/22	Lab ID:	208431-03
Date Analyzed:	08/29/22	Data File:	082912.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	2.1

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	CCW-1C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/29/22	Lab ID:	208431-04
Date Analyzed:	08/29/22	Data File:	082913.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	16

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	CCW-1B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/29/22	Lab ID:	208431-06
Date Analyzed:	08/29/22	Data File:	082914.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	4.3

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	Field Blank 2-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/29/22	Lab ID:	208431-07
Date Analyzed:	08/29/22	Data File:	082915.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	96	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	CCW-8B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/29/22	Lab ID:	208431-08
Date Analyzed:	08/29/22	Data File:	082916.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	96	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	1.5

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	MW-4-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/29/22	Lab ID:	208431-09 1/10
Date Analyzed:	09/02/22	Data File:	090206.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	103	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	120

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	CCW-4C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/29/22	Lab ID:	208431-10
Date Analyzed:	08/29/22	Data File:	082918.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	94	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	20

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	CCW-5B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/29/22	Lab ID:	208431-11
Date Analyzed:	08/29/22	Data File:	082919.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	96	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	1.4

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	CCW-9-5B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/29/22	Lab ID:	208431-12
Date Analyzed:	08/29/22	Data File:	082920.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	50	150
Toluene-d8	104	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	1.1

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	CCW-5C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/29/22	Lab ID:	208431-13
Date Analyzed:	08/29/22	Data File:	082921.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	90	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	7.7

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	Method Blank	Client:	Dalton Olmsted Fuglevand
Date Received:	Not Applicable	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/29/22	Lab ID:	02-1957 mb
Date Analyzed:	08/29/22	Data File:	082909.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	81	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CCW-3A-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-01 1/0.5
Date Analyzed:	08/30/22	Data File:	083017.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	27	11	65
Phenol-d6	21	11	65
Nitrobenzene-d5	68	11	173
2-Fluorobiphenyl	71	44	108
2,4,6-Tribromophenol	85	10	140
Terphenyl-d14	205 ip J	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	0.29
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3 ca
1,4-Dichlorobenzene	<0.1	Dibenzofuran	0.10
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5 ca
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	1.2
2-Methylphenol	<1	Fluorene	0.13
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	1.3
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5 jl	Phenanthrene	0.060 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	0.47
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	1.5
Naphthalene	1.0	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	0.038 J
4-Chloroaniline	<10 jl	Benzyl butyl phthalate	<1 J
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01 J
2-Methylnaphthalene	0.25	Chrysene	<0.01 J
1-Methylnaphthalene	0.28	Bis(2-ethylhexyl) phthalate	2.0 J fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1 J
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01 J
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01 J
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01 J
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01 J
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01 J
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02 J

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CCW-3A-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-01 1/5
Date Analyzed:	08/31/22	Data File:	083128.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	25 d	10	60
Phenol-d6	23 d	10	49
Nitrobenzene-d5	63 d	15	144
2-Fluorobiphenyl	57 d	25	128
2,4,6-Tribromophenol	68 d	10	142
Terphenyl-d14	84 d	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<10	2,6-Dinitrotoluene	<5
Bis(2-chloroethyl) ether	<1	3-Nitroaniline	<100
2-Chlorophenol	<10	Acenaphthene	0.21
1,3-Dichlorobenzene	<1	2,4-Dinitrophenol	<30
1,4-Dichlorobenzene	<1	Dibenzofuran	<1
1,2-Dichlorobenzene	<1	2,4-Dinitrotoluene	<5
Benzyl alcohol	<10	4-Nitrophenol	<30
2,2'-Oxybis(1-chloropropane)	<1	Diethyl phthalate	<10
2-Methylphenol	<10	Fluorene	0.14
Hexachloroethane	<1	4-Chlorophenyl phenyl ether	<1
N-Nitroso-di-n-propylamine	<1	N-Nitrosodiphenylamine	1.3
3-Methylphenol + 4-Methylphenol	<20	4-Nitroaniline	<100
Nitrobenzene	<1	4,6-Dinitro-2-methylphenol	<30
Isophorone	<1	4-Bromophenyl phenyl ether	<1
2-Nitrophenol	<10	Hexachlorobenzene	<1
2,4-Dimethylphenol	<10	Pentachlorophenol	<5
Benzoic acid	<50 jl	Phenanthrene	<0.1
Bis(2-chloroethoxy)methane	<1	Anthracene	<0.1
2,4-Dichlorophenol	<10	Carbazole	<1
1,2,4-Trichlorobenzene	<1	Di-n-butyl phthalate	<10
Naphthalene	1.0	Fluoranthene	<0.1
Hexachlorobutadiene	<1	Pyrene	<0.1
4-Chloroaniline	<100 jl	Benzyl butyl phthalate	<10
4-Chloro-3-methylphenol	<10	Benz(a)anthracene	<0.1
2-Methylnaphthalene	<1	Chrysene	<0.1
1-Methylnaphthalene	<1	Bis(2-ethylhexyl) phthalate	<3.2 j
Hexachlorocyclopentadiene	<3	Di-n-octyl phthalate	<10
2,4,6-Trichlorophenol	<10	Benzo(a)pyrene	<0.1
2,4,5-Trichlorophenol	<10	Benzo(b)fluoranthene	<0.1
2-Chloronaphthalene	<1	Benzo(k)fluoranthene	<0.1
2-Nitroaniline	<5	Indeno(1,2,3-cd)pyrene	<0.1
Dimethyl phthalate	<10	Dibenz(a,h)anthracene	<0.1
Acenaphthylene	<0.1	Benzo(g,h,i)perylene	<0.2

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Field Blank 1-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-02 1/0.5
Date Analyzed:	08/30/22	Data File:	083018.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	36	11	65
Phenol-d6	25	11	65
Nitrobenzene-d5	76	11	173
2-Fluorobiphenyl	73	44	108
2,4,6-Tribromophenol	82	10	140
Terphenyl-d14	86	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3 ca
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5 ca
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5 jl	Phenanthrene	0.015 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10 jl	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	0.96 j fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CCW-3C-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-03 1/0.5
Date Analyzed:	08/30/22	Data File:	083019.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	36	11	65
Phenol-d6	24	11	65
Nitrobenzene-d5	74	11	173
2-Fluorobiphenyl	61	44	108
2,4,6-Tribromophenol	77	10	140
Terphenyl-d14	99	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3 ca
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5 ca
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5 jl	Phenanthrene	0.010 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	1.1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10 jl	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	1.1 j fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CCW-1C-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-04 1/0.5
Date Analyzed:	08/30/22	Data File:	083020.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	28	11	65
Phenol-d6	21	11	65
Nitrobenzene-d5	57	11	173
2-Fluorobiphenyl	61	44	108
2,4,6-Tribromophenol	85	10	140
Terphenyl-d14	89	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3 ca
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5 ca
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5 jl	Phenanthrene	0.011 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10 jl	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	1.3 j fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CCW-1B-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-06 1/0.5
Date Analyzed:	08/31/22	Data File:	083021.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	36	11	65
Phenol-d6	26	11	65
Nitrobenzene-d5	78	11	173
2-Fluorobiphenyl	70	44	108
2,4,6-Tribromophenol	83	10	140
Terphenyl-d14	94	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	0.49
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3 ca
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5 ca
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	0.083
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5 jl	Phenanthrene	0.12
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	0.020
Hexachlorobutadiene	<0.1	Pyrene	0.013
4-Chloroaniline	<10 jl	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	1.2 j fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Field Blank 2-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-07 1/0.5
Date Analyzed:	08/31/22	Data File:	083022.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	38	11	65
Phenol-d6	28	11	65
Nitrobenzene-d5	83	11	173
2-Fluorobiphenyl	79	44	108
2,4,6-Tribromophenol	85	10	140
Terphenyl-d14	106	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3 ca
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5 ca
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5 jl	Phenanthrene	0.013 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10 jl	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	1.4 j fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	1.0
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CCW-8B-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-08 1/0.5
Date Analyzed:	08/31/22	Data File:	083023.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	35	11	65
Phenol-d6	24	11	65
Nitrobenzene-d5	80	11	173
2-Fluorobiphenyl	69	44	108
2,4,6-Tribromophenol	85	10	140
Terphenyl-d14	112	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	0.70
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3 ca
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	0.27	2,4-Dinitrotoluene	<0.5 ca
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	0.26
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5 jl	Phenanthrene	0.036 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	0.099
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10 jl	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	2.6	Chrysene	<0.01
1-Methylnaphthalene	4.8	Bis(2-ethylhexyl) phthalate	1.2 j fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1 J
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01 J
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01 J
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01 J
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01 J
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01 J
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02 J

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CCW-8B-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-08 1/5
Date Analyzed:	08/31/22	Data File:	083129.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	31 d	10	60
Phenol-d6	24 d	10	49
Nitrobenzene-d5	75 d	15	144
2-Fluorobiphenyl	68 d	25	128
2,4,6-Tribromophenol	83 d	10	142
Terphenyl-d14	96 d	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<10	2,6-Dinitrotoluene	<5
Bis(2-chloroethyl) ether	<1	3-Nitroaniline	<100
2-Chlorophenol	<10	Acenaphthene	0.63
1,3-Dichlorobenzene	<1	2,4-Dinitrophenol	<30
1,4-Dichlorobenzene	<1	Dibenzofuran	<1
1,2-Dichlorobenzene	<1	2,4-Dinitrotoluene	<5
Benzyl alcohol	<10	4-Nitrophenol	<30
2,2'-Oxybis(1-chloropropane)	<1	Diethyl phthalate	<10
2-Methylphenol	<10	Fluorene	0.28
Hexachloroethane	<1	4-Chlorophenyl phenyl ether	<1
N-Nitroso-di-n-propylamine	<1	N-Nitrosodiphenylamine	<1
3-Methylphenol + 4-Methylphenol	<20	4-Nitroaniline	<100
Nitrobenzene	<1	4,6-Dinitro-2-methylphenol	<30
Isophorone	<1	4-Bromophenyl phenyl ether	<1
2-Nitrophenol	<10	Hexachlorobenzene	<1
2,4-Dimethylphenol	<10	Pentachlorophenol	<5
Benzoic acid	<50 jl	Phenanthrene	<0.1
Bis(2-chloroethoxy)methane	<1	Anthracene	<0.1
2,4-Dichlorophenol	<10	Carbazole	<1
1,2,4-Trichlorobenzene	<1	Di-n-butyl phthalate	<10
Naphthalene	<1	Fluoranthene	<0.1
Hexachlorobutadiene	<1	Pyrene	<0.1
4-Chloroaniline	<100 jl	Benzyl butyl phthalate	<10
4-Chloro-3-methylphenol	<10	Benz(a)anthracene	<0.1
2-Methylnaphthalene	2.5	Chrysene	<0.1
1-Methylnaphthalene	4.9	Bis(2-ethylhexyl) phthalate	<3.2 j
Hexachlorocyclopentadiene	<3	Di-n-octyl phthalate	<10
2,4,6-Trichlorophenol	<10	Benzo(a)pyrene	<0.1
2,4,5-Trichlorophenol	<10	Benzo(b)fluoranthene	<0.1
2-Chloronaphthalene	<1	Benzo(k)fluoranthene	<0.1
2-Nitroaniline	<5	Indeno(1,2,3-cd)pyrene	<0.1
Dimethyl phthalate	<10	Dibenz(a,h)anthracene	<0.1
Acenaphthylene	<0.1	Benzo(g,h,i)perylene	<0.2

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW-4-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-09 1/0.5
Date Analyzed:	08/31/22	Data File:	083121.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	33	10	60
Phenol-d6	26	10	49
Nitrobenzene-d5	65	15	144
2-Fluorobiphenyl	48	25	128
2,4,6-Tribromophenol	55	10	142
Terphenyl-d14	113	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	0.22
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	0.17
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	0.99
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5 jl	Phenanthrene	0.057 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	0.45
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	0.18	Fluoranthene	0.021
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10 jl	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	0.14	Bis(2-ethylhexyl) phthalate	1.1 j fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1 J
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01 J
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01 J
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01 J
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01 J
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01 J
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02 J

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW-4-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-09 1/5
Date Analyzed:	09/01/22	Data File:	090106.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	32 d	11	65
Phenol-d6	24 d	11	65
Nitrobenzene-d5	72 d	11	173
2-Fluorobiphenyl	73 d	44	108
2,4,6-Tribromophenol	81 d	10	140
Terphenyl-d14	83 d	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<10	2,6-Dinitrotoluene	<5
Bis(2-chloroethyl) ether	<1	3-Nitroaniline	<100
2-Chlorophenol	<10	Acenaphthene	0.31
1,3-Dichlorobenzene	<1	2,4-Dinitrophenol	<30 ca
1,4-Dichlorobenzene	<1	Dibenzofuran	<1
1,2-Dichlorobenzene	<1	2,4-Dinitrotoluene	<5 ca
Benzyl alcohol	<10	4-Nitrophenol	<30
2,2'-Oxybis(1-chloropropane)	<1	Diethyl phthalate	<10
2-Methylphenol	<10	Fluorene	0.29
Hexachloroethane	<1	4-Chlorophenyl phenyl ether	<1
N-Nitroso-di-n-propylamine	<1	N-Nitrosodiphenylamine	1.2
3-Methylphenol + 4-Methylphenol	<20	4-Nitroaniline	<100
Nitrobenzene	<1	4,6-Dinitro-2-methylphenol	<30
Isophorone	<1	4-Bromophenyl phenyl ether	<1
2-Nitrophenol	<10	Hexachlorobenzene	<1
2,4-Dimethylphenol	<10	Pentachlorophenol	<5
Benzoic acid	<50 jl	Phenanthrene	<0.1
Bis(2-chloroethoxy)methane	<1	Anthracene	<0.1
2,4-Dichlorophenol	<10	Carbazole	<1
1,2,4-Trichlorobenzene	<1	Di-n-butyl phthalate	<10
Naphthalene	<1	Fluoranthene	<0.1
Hexachlorobutadiene	<1	Pyrene	<0.1
4-Chloroaniline	<100 jl	Benzyl butyl phthalate	<10
4-Chloro-3-methylphenol	<10	Benz(a)anthracene	<0.1
2-Methylnaphthalene	<1	Chrysene	<0.1
1-Methylnaphthalene	<1	Bis(2-ethylhexyl) phthalate	<3.2 j
Hexachlorocyclopentadiene	<3	Di-n-octyl phthalate	<10
2,4,6-Trichlorophenol	<10	Benzo(a)pyrene	<0.1
2,4,5-Trichlorophenol	<10	Benzo(b)fluoranthene	<0.1
2-Chloronaphthalene	<1	Benzo(k)fluoranthene	<0.1
2-Nitroaniline	<5	Indeno(1,2,3-cd)pyrene	<0.1
Dimethyl phthalate	<10	Dibenz(a,h)anthracene	<0.1
Acenaphthylene	<0.1	Benzo(g,h,i)perylene	<0.2

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CCW-4C-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-10 1/0.5
Date Analyzed:	08/31/22	Data File:	083122.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	33	10	60
Phenol-d6	24	10	49
Nitrobenzene-d5	70	15	144
2-Fluorobiphenyl	59	25	128
2,4,6-Tribromophenol	79	10	142
Terphenyl-d14	101	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	0.029
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	0.011
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5 jl	Phenanthrene	<0.01
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10 jl	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	1.1 j fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CCW-5B-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-11 1/0.5
Date Analyzed:	08/31/22	Data File:	083123.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	28	10	60
Phenol-d6	23	10	49
Nitrobenzene-d5	69	15	144
2-Fluorobiphenyl	64	25	128
2,4,6-Tribromophenol	93	10	142
Terphenyl-d14	98	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	1.6
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	0.30	Dibenzofuran	0.50
1,2-Dichlorobenzene	0.46	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	0.91
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5 jl	Phenanthrene	0.22
Bis(2-chloroethoxy)methane	<0.1	Anthracene	0.065
2,4-Dichlorophenol	<1	Carbazole	0.79
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	2.5	Fluoranthene	0.020
Hexachlorobutadiene	<0.1	Pyrene	0.016
4-Chloroaniline	<10 jl	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	1.7	Chrysene	<0.01
1-Methylnaphthalene	8.3	Bis(2-ethylhexyl) phthalate	1.2 j fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	0.049	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CCW-9-5B-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-12 1/0.5
Date Analyzed:	08/31/22	Data File:	083124.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	31	10	60
Phenol-d6	25	10	49
Nitrobenzene-d5	68	15	144
2-Fluorobiphenyl	57	25	128
2,4,6-Tribromophenol	76	10	142
Terphenyl-d14	113	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	1.5
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	0.30	Dibenzofuran	0.46
1,2-Dichlorobenzene	0.42	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	0.94
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5 jl	Phenanthrene	0.32
Bis(2-chloroethoxy)methane	<0.1	Anthracene	0.049
2,4-Dichlorophenol	<1	Carbazole	0.83
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	3.2	Fluoranthene	0.028
Hexachlorobutadiene	<0.1	Pyrene	0.023
4-Chloroaniline	<10 jl	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	2.2	Chrysene	<0.01
1-Methylnaphthalene	9.9	Bis(2-ethylhexyl) phthalate	2.1 fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	0.045	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CCW-5C-0822 f	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-13 1/0.5
Date Analyzed:	08/31/22	Data File:	083125.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	39	10	60
Phenol-d6	29	10	49
Nitrobenzene-d5	67	15	144
2-Fluorobiphenyl	59	25	128
2,4,6-Tribromophenol	78	10	142
Terphenyl-d14	88	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	0.071
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5 jl	Phenanthrene	<0.01
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	0.010
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10 jl	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	1.4 j fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank f	Client:	Dalton Olmsted Fuglevand
Date Received:	Not Applicable	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	02-2055 mb 1/0.5
Date Analyzed:	08/30/22	Data File:	083010.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	36	11	65
Phenol-d6	24	11	65
Nitrobenzene-d5	77	11	173
2-Fluorobiphenyl	75	44	108
2,4,6-Tribromophenol	76	10	140
Terphenyl-d14	95	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3 ca
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5 ca
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5 jl	Phenanthrene	<0.01
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10 jl	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	0.83 j lc
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	CCW-3A-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-01 1/0.5
Date Analyzed:	08/31/22	Data File:	083136.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	40	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0052 j
Aroclor 1232	<0.0052 j
Aroclor 1016	<0.0052 j
Aroclor 1242	0.14
Aroclor 1248	<0.0074 j
Aroclor 1254	0.080
Aroclor 1260	0.063
Aroclor 1262	<0.0074 j
Aroclor 1268	<0.0074 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Field Blank 1-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-02 1/0.5
Date Analyzed:	08/31/22	Data File:	083137.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	36	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0052 j
Aroclor 1232	<0.0052 j
Aroclor 1016	<0.0052 j
Aroclor 1242	<0.0052 j
Aroclor 1248	<0.0073 j
Aroclor 1254	<0.0073 j
Aroclor 1260	<0.0073 j
Aroclor 1262	<0.0073 j
Aroclor 1268	<0.0073 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	CCW-3C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-03 1/0.5
Date Analyzed:	08/31/22	Data File:	083138.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	32	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0057 j
Aroclor 1232	<0.0057 j
Aroclor 1016	<0.0057 j
Aroclor 1242	<0.0057 j
Aroclor 1248	<0.0080 j
Aroclor 1254	<0.0080 j
Aroclor 1260	<0.0080 j
Aroclor 1262	<0.0080 j
Aroclor 1268	<0.0080 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	CCW-1C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-04 1/0.5
Date Analyzed:	08/31/22	Data File:	083139.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	30	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0054 j
Aroclor 1232	<0.0054 j
Aroclor 1016	<0.0054 j
Aroclor 1242	<0.0054 j
Aroclor 1248	<0.0077 j
Aroclor 1254	<0.0077 j
Aroclor 1260	<0.0077 j
Aroclor 1262	<0.0077 j
Aroclor 1268	<0.0077 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	CCW-1B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-06 1/0.5
Date Analyzed:	09/01/22	Data File:	083140.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	35	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0055 j
Aroclor 1232	<0.0055 j
Aroclor 1016	<0.0055 j
Aroclor 1242	<0.0055 j
Aroclor 1248	<0.0077 j
Aroclor 1254	<0.0077 j
Aroclor 1260	<0.0077 j
Aroclor 1262	<0.0077 j
Aroclor 1268	<0.0077 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Field Blank 2-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-07 1/0.5
Date Analyzed:	09/01/22	Data File:	083141.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	31	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0057 j
Aroclor 1232	<0.0057 j
Aroclor 1016	<0.0057 j
Aroclor 1242	<0.0057 j
Aroclor 1248	<0.0080 j
Aroclor 1254	<0.0080 j
Aroclor 1260	<0.0080 j
Aroclor 1262	<0.0080 j
Aroclor 1268	<0.0080 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	CCW-8B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-08 1/0.5
Date Analyzed:	09/01/22	Data File:	083142.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	37	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0054 j
Aroclor 1232	<0.0054 j
Aroclor 1016	<0.0054 j
Aroclor 1242	<0.0054 j
Aroclor 1248	<0.0076 j
Aroclor 1254	<0.0076 j
Aroclor 1260	<0.0076 j
Aroclor 1262	<0.0076 j
Aroclor 1268	<0.0076 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MW-4-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-09 1/0.5
Date Analyzed:	09/01/22	Data File:	083143.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	35	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0057 j
Aroclor 1232	<0.0057 j
Aroclor 1016	<0.0057 j
Aroclor 1242	0.025
Aroclor 1248	<0.0080 j
Aroclor 1254	0.041
Aroclor 1260	0.027
Aroclor 1262	<0.0080 j
Aroclor 1268	<0.0080 j

Note: Dual column precision exceeded 40% for Aroclor 1254.

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	CCW-4C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-10 1/0.5
Date Analyzed:	09/01/22	Data File:	083144.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	35	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0054 j
Aroclor 1232	<0.0054 j
Aroclor 1016	<0.0054 j
Aroclor 1242	<0.0054 j
Aroclor 1248	<0.0077 j
Aroclor 1254	<0.0077 j
Aroclor 1260	<0.0077 j
Aroclor 1262	<0.0077 j
Aroclor 1268	<0.0077 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	CCW-5B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-11 1/0.5
Date Analyzed:	09/01/22	Data File:	083145.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	37	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0054 j
Aroclor 1232	<0.0054 j
Aroclor 1016	<0.0054 j
Aroclor 1242	<0.0054 j
Aroclor 1248	<0.0077 j
Aroclor 1254	<0.0077 j
Aroclor 1260	<0.0077 j
Aroclor 1262	<0.0077 j
Aroclor 1268	<0.0077 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	CCW-9-5B-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-12 1/0.5
Date Analyzed:	09/01/22	Data File:	083146.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	38	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0055 j
Aroclor 1232	<0.0055 j
Aroclor 1016	<0.0055 j
Aroclor 1242	<0.0055 j
Aroclor 1248	<0.0077 j
Aroclor 1254	<0.0077 j
Aroclor 1260	<0.0077 j
Aroclor 1262	<0.0077 j
Aroclor 1268	<0.0077 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	CCW-5C-0822	Client:	Dalton Olmsted Fuglevand
Date Received:	08/26/22	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	208431-13 1/0.5
Date Analyzed:	09/01/22	Data File:	083147.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	41	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0053 j
Aroclor 1232	<0.0053 j
Aroclor 1016	<0.0053 j
Aroclor 1242	<0.0053 j
Aroclor 1248	<0.0075 j
Aroclor 1254	<0.0075 j
Aroclor 1260	<0.0075 j
Aroclor 1262	<0.0075 j
Aroclor 1268	<0.0075 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Dalton Olmsted Fuglevand
Date Received:	Not Applicable	Project:	TWAAFA-001, F&BI 208431
Date Extracted:	08/30/22	Lab ID:	02-2060 mb 1/0.5
Date Analyzed:	09/01/22	Data File:	090106.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	30	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0050 j
Aroclor 1232	<0.0050 j
Aroclor 1016	<0.0050 j
Aroclor 1242	<0.0050 j
Aroclor 1248	<0.0070 j
Aroclor 1254	<0.0070 j
Aroclor 1260	<0.0070 j
Aroclor 1262	<0.0070 j
Aroclor 1268	<0.0070 j

Date of Report: 09/14/22
Date Received: 08/26/22
Project: TWAAFA-001, F&BI 208431

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 208444-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	100	69-134

Date of Report: 09/14/22
Date Received: 08/26/22
Project: TWAAFA-001, F&BI 208431

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	96	84	63-142	13

Date of Report: 09/14/22
Date Received: 08/26/22
Project: TWAAFA-001, F&BI 208431

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 208396-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	ug/L (ppb)	10	2.51	105	100	75-125	5
Cadmium	ug/L (ppb)	5	<1	97	98	75-125	1
Chromium	ug/L (ppb)	20	1.06	84	83	75-125	1
Copper	ug/L (ppb)	20	<5	79	79	75-125	0
Lead	ug/L (ppb)	10	1.89	91	90	75-125	1
Manganese	ug/L (ppb)	20	724	385 b	315 b	75-125	20
Nickel	ug/L (ppb)	20	1.67	83	82	75-125	1
Zinc	ug/L (ppb)	50	<5	76	78	75-125	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	ug/L (ppb)	10	93	80-120
Cadmium	ug/L (ppb)	5	96	80-120
Chromium	ug/L (ppb)	20	93	80-120
Copper	ug/L (ppb)	20	98	80-120
Lead	ug/L (ppb)	10	98	80-120
Manganese	ug/L (ppb)	20	93	80-120
Nickel	ug/L (ppb)	20	96	80-120
Zinc	ug/L (ppb)	50	95	80-120

Date of Report: 09/14/22
Date Received: 08/26/22
Project: TWAAFA-001, F&BI 208431

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Laboratory Code: 208431-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Mercury	ug/L (ppb)	0.01	0.01	74 b	63 b	71-125	16

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Mercury	ug/L (ppb)	0.01	125	68-125

Date of Report: 09/14/22
Date Received: 08/26/22
Project: TWAAFA-001, F&BI 208431

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 208431-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	10	<1	107	50-150
Chloromethane	ug/L (ppb)	10	<10	88	50-150
Vinyl chloride	ug/L (ppb)	10	0.12	112	50-150
Bromomethane	ug/L (ppb)	10	<5	114	50-150
Chloroethane	ug/L (ppb)	10	<1	115	50-150
Trichlorofluoromethane	ug/L (ppb)	10	<1	106	50-150
Acetone	ug/L (ppb)	50	<50	100	50-150
1,1-Dichloroethene	ug/L (ppb)	10	<1	106	50-150
Hexane	ug/L (ppb)	10	<5	107	50-150
Methylene chloride	ug/L (ppb)	10	<5	107	50-150
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	105	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	114	50-150
1,1-Dichloroethane	ug/L (ppb)	10	<1	105	50-150
2,2-Dichloropropane	ug/L (ppb)	10	<1	133	50-150
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	115	50-150
Chloroform	ug/L (ppb)	10	<1	104	50-150
2-Butanone (MEK)	ug/L (ppb)	50	<20	95	50-150
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	0.41	102	50-150
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	105	50-150
1,1-Dichloropropene	ug/L (ppb)	10	<1	105	50-150
Carbon tetrachloride	ug/L (ppb)	10	<0.5	109	50-150
Benzene	ug/L (ppb)	10	13	110 b	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	108	50-150
1,2-Dichloropropane	ug/L (ppb)	10	<1	103	50-150
Bromodichloromethane	ug/L (ppb)	10	<0.5	100	50-150
Dibromomethane	ug/L (ppb)	10	<1	104	50-150
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	112	50-150
cis-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	113	50-150
Toluene	ug/L (ppb)	10	26	94 b	50-150
trans-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	103	50-150
1,1,2-Trichloroethane	ug/L (ppb)	10	<0.5	100	50-150
2-Hexanone	ug/L (ppb)	50	<10	99	50-150
1,3-Dichloropropane	ug/L (ppb)	10	<1	100	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	103	50-150
Dibromochloromethane	ug/L (ppb)	10	<0.5	100	50-150
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	101	50-150
Chlorobenzene	ug/L (ppb)	10	<1	101	50-150
Ethylbenzene	ug/L (ppb)	10	25	109 b	50-150
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<1	96	50-150
m,p-Xylene	ug/L (ppb)	20	9.9	107 b	50-150
o-Xylene	ug/L (ppb)	10	8.0	102 b	50-150
Styrene	ug/L (ppb)	10	<1	101	50-150
Isopropylbenzene	ug/L (ppb)	10	1.1	99	50-150
Bromoform	ug/L (ppb)	10	<5	106	50-150
n-Propylbenzene	ug/L (ppb)	10	<1	108	50-150
Bromobenzene	ug/L (ppb)	10	<1	107	50-150
1,3,5-Trimethylbenzene	ug/L (ppb)	10	1.1	106	50-150
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<0.2	105	50-150
1,2,3-Trichloropropane	ug/L (ppb)	10	<1	100	50-150
2-Chlorotoluene	ug/L (ppb)	10	1.0	104	50-150
4-Chlorotoluene	ug/L (ppb)	10	<1	105	50-150
tert-Butylbenzene	ug/L (ppb)	10	<1	101	50-150
1,2,4-Trimethylbenzene	ug/L (ppb)	10	3.6	110 b	50-150
sec-Butylbenzene	ug/L (ppb)	10	<1	106	50-150
p-Isopropyltoluene	ug/L (ppb)	10	<1	106	50-150
1,3-Dichlorobenzene	ug/L (ppb)	10	<1	105	50-150
1,4-Dichlorobenzene	ug/L (ppb)	10	<1	105	50-150
1,2-Dichlorobenzene	ug/L (ppb)	10	<1	101	50-150
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<10	111	50-150
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	101	50-150
Hexachlorobutadiene	ug/L (ppb)	10	<0.5	99	50-150
Naphthalene	ug/L (ppb)	10	4.0	114 b	50-150
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<1	104	50-150

Date of Report: 09/14/22
Date Received: 08/26/22
Project: TWAAFA-001, F&BI 208431

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	94	99	46-206	5
Chloromethane	ug/L (ppb)	10	95	101	70-142	6
Vinyl chloride	ug/L (ppb)	10	101	109	70-130	8
Bromomethane	ug/L (ppb)	10	100	112	56-197	11
Chloroethane	ug/L (ppb)	10	105	113	70-130	7
Trichlorofluoromethane	ug/L (ppb)	10	95	102	70-130	7
Acetone	ug/L (ppb)	50	96	104	10-140	8
1,1-Dichloroethene	ug/L (ppb)	10	95	102	70-130	7
Hexane	ug/L (ppb)	10	94	98	54-136	4
Methylene chloride	ug/L (ppb)	10	95	109	43-134	14
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	96	104	70-130	8
trans-1,2-Dichloroethene	ug/L (ppb)	10	103	111	70-130	7
1,1-Dichloroethane	ug/L (ppb)	10	96	107	70-130	11
2,2-Dichloropropane	ug/L (ppb)	10	113	118	70-130	4
cis-1,2-Dichloroethene	ug/L (ppb)	10	105	113	70-130	7
Chloroform	ug/L (ppb)	10	95	102	70-130	7
2-Butanone (MEK)	ug/L (ppb)	50	102	110	17-154	8
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	101	105	70-130	4
1,1,1-Trichloroethane	ug/L (ppb)	10	97	104	70-130	7
1,1-Dichloropropene	ug/L (ppb)	10	101	105	70-130	4
Carbon tetrachloride	ug/L (ppb)	10	100	109	70-130	9
Benzene	ug/L (ppb)	10	102	107	70-130	5
Trichloroethene	ug/L (ppb)	10	103	108	70-130	5
1,2-Dichloropropane	ug/L (ppb)	10	97	102	70-130	5
Bromodichloromethane	ug/L (ppb)	10	100	103	70-130	3
Dibromomethane	ug/L (ppb)	10	104	111	70-130	7
4-Methyl-2-pentanone	ug/L (ppb)	50	101	116	68-130	14
cis-1,3-Dichloropropene	ug/L (ppb)	10	99	111	69-131	11
Toluene	ug/L (ppb)	10	104	104	70-130	0
trans-1,3-Dichloropropene	ug/L (ppb)	10	100	98	70-130	2
1,1,2-Trichloroethane	ug/L (ppb)	10	101	102	70-130	1
2-Hexanone	ug/L (ppb)	50	101	103	45-138	2
1,3-Dichloropropane	ug/L (ppb)	10	100	100	70-130	0
Tetrachloroethene	ug/L (ppb)	10	102	101	70-130	1
Dibromochloromethane	ug/L (ppb)	10	101	103	60-148	2
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	101	103	70-130	2
Chlorobenzene	ug/L (ppb)	10	98	101	70-130	3
Ethylbenzene	ug/L (ppb)	10	102	103	70-130	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	98	99	70-130	1
m,p-Xylene	ug/L (ppb)	20	101	102	70-130	1
o-Xylene	ug/L (ppb)	10	100	101	70-130	1
Styrene	ug/L (ppb)	10	96	99	70-130	3
Isopropylbenzene	ug/L (ppb)	10	100	98	70-130	2
Bromoform	ug/L (ppb)	10	109	110	69-138	1
n-Propylbenzene	ug/L (ppb)	10	101	102	70-130	1
Bromobenzene	ug/L (ppb)	10	98	104	70-130	6
1,3,5-Trimethylbenzene	ug/L (ppb)	10	97	98	70-130	1
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	100	103	70-130	3
1,2,3-Trichloropropane	ug/L (ppb)	10	98	100	70-130	2
2-Chlorotoluene	ug/L (ppb)	10	98	99	70-130	1
4-Chlorotoluene	ug/L (ppb)	10	99	101	70-130	2
tert-Butylbenzene	ug/L (ppb)	10	100	102	70-130	2
1,2,4-Trimethylbenzene	ug/L (ppb)	10	97	100	70-130	3
sec-Butylbenzene	ug/L (ppb)	10	99	101	70-130	2
p-Isopropyltoluene	ug/L (ppb)	10	100	102	70-130	2
1,3-Dichlorobenzene	ug/L (ppb)	10	98	101	70-130	3
1,4-Dichlorobenzene	ug/L (ppb)	10	100	101	70-130	1
1,2-Dichlorobenzene	ug/L (ppb)	10	98	98	70-130	0
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	99	108	70-130	9
1,2,4-Trichlorobenzene	ug/L (ppb)	10	95	97	70-130	2
Hexachlorobutadiene	ug/L (ppb)	10	94	98	70-130	4
Naphthalene	ug/L (ppb)	10	95	97	70-130	2
1,2,3-Trichlorobenzene	ug/L (ppb)	10	92	97	70-130	5

Date of Report: 09/14/22
Date Received: 08/26/22
Project: TWAAFA-001, F&BI 208431

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D SIM

Laboratory Code: 208396-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
1,4-Dioxane	ug/L (ppb)	2	<0.4	73	45 vo	50-150	47 vo

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
1,4-Dioxane	ug/L (ppb)	2	114	123	70-130	8

Date of Report: 09/14/22
Date Received: 08/26/22
Project: TWAAFA-001, F&BI 208431

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: 208396-05 1/0.5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Phenol	ug/L (ppb)	2.5	<1	35 vo	29 vo	50-150	19
Bis(2-chloroethyl) ether	ug/L (ppb)	2.5	<0.1	76	79	50-150	4
2-Chlorophenol	ug/L (ppb)	2.5	<1	77	78	50-150	1
1,3-Dichlorobenzene	ug/L (ppb)	2.5	1.8	89 b	93 b	50-150	4 b
1,4-Dichlorobenzene	ug/L (ppb)	2.5	5.0	109 b	117 b	50-150	7 b
1,2-Dichlorobenzene	ug/L (ppb)	2.5	5.4	112 b	120 b	50-150	7 b
Benzyl alcohol	ug/L (ppb)	13	<1	65	64	50-150	2
2,2'-Oxybis(1-chloropropane)	ug/L (ppb)	2.5	<0.1	78	81	50-150	4
2-Methylphenol	ug/L (ppb)	2.5	<1	72	70	50-150	3
Hexachloroethane	ug/L (ppb)	2.5	<0.1	331 ip	341 ip	50-150	3
N-Nitroso-di-n-propylamine	ug/L (ppb)	2.5	<0.1	101	105	50-150	4
3-Methylphenol + 4-Methylphenol	ug/L (ppb)	2.5	<2	64	61	50-150	5
Nitrobenzene	ug/L (ppb)	2.5	<0.1	100	102	50-150	2
Isophorone	ug/L (ppb)	2.5	<0.1	90	88	50-150	2
2-Nitrophenol	ug/L (ppb)	2.5	<1	85	89	50-150	5
2,4-Dimethylphenol	ug/L (ppb)	2.5	<1	90	89	50-150	1
Benzoic acid	ug/L (ppb)	20	<5	120	114	50-150	5
Bis(2-chloroethoxy)methane	ug/L (ppb)	2.5	<0.1	98	95	50-150	3
2,4-Dichlorophenol	ug/L (ppb)	2.5	<1	90	88	50-150	2
1,2,4-Trichlorobenzene	ug/L (ppb)	2.5	<0.1	83	86	50-150	4
Naphthalene	ug/L (ppb)	2.5	48 ve	316 b	419 b	50-150	28 b
Hexachlorobutadiene	ug/L (ppb)	2.5	<0.1	80	84	50-150	5
4-Chloroaniline	ug/L (ppb)	13	<10	28 vo	29 vo	50-150	4
4-Chloro-3-methylphenol	ug/L (ppb)	2.5	<1	102	97	50-150	5
2-Methylnaphthalene	ug/L (ppb)	2.5	4.3	98 b	108 b	50-150	10 b
1-Methylnaphthalene	ug/L (ppb)	2.5	24 ve	160 b	184 b	50-150	14 b
Hexachlorocyclopentadiene	ug/L (ppb)	2.5	<0.3	57	81	50-150	35 vo
2,4,6-Trichlorophenol	ug/L (ppb)	2.5	<1	81	88	50-150	8
2,4,5-Trichlorophenol	ug/L (ppb)	2.5	<1	77	82	50-150	6
2-Chloronaphthalene	ug/L (ppb)	2.5	<0.1	75	84	50-150	11
2-Nitroaniline	ug/L (ppb)	13	<0.5	79	83	50-150	5
Dimethyl phthalate	ug/L (ppb)	2.5	<1	75	79	50-150	5
Acenaphthylene	ug/L (ppb)	2.5	0.19	74	80	50-150	8
2,6-Dinitrotoluene	ug/L (ppb)	2.5	<0.5	88	93	50-150	6
3-Nitroaniline	ug/L (ppb)	13	<10	32 vo	36 vo	50-150	12
Acenaphthene	ug/L (ppb)	2.5	17 ve	58 b	130 b	50-150	77 b
2,4-Dinitrophenol	ug/L (ppb)	5	<3	87	90	50-150	3
Dibenzofuran	ug/L (ppb)	2.5	10	79 b	111 b	50-150	34 b
2,4-Dinitrotoluene	ug/L (ppb)	2.5	<0.5	65	67	50-150	3
4-Nitrophenol	ug/L (ppb)	5	<3	34 vo	33 vo	50-150	3
Diethyl phthalate	ug/L (ppb)	2.5	<1	78	76	50-150	3
Fluorene	ug/L (ppb)	2.5	12	70 b	102 b	50-150	37 b
4-Chlorophenyl phenyl ether	ug/L (ppb)	2.5	<0.1	78	83	50-150	6
N-Nitrosodiphenylamine	ug/L (ppb)	2.5	<0.1	112	125	50-150	11
4-Nitroaniline	ug/L (ppb)	13	<10	38 vo	47 vo	50-150	21 vo
4,6-Dinitro-2-methylphenol	ug/L (ppb)	2.5	<3	108	112	50-150	4
4-Bromophenyl phenyl ether	ug/L (ppb)	2.5	<0.1	87	100	50-150	14
Hexachlorobenzene	ug/L (ppb)	2.5	<0.1	87	97	50-150	11
Pentachlorophenol	ug/L (ppb)	2.5	<0.5	102	104	50-150	2
Phenanthrene	ug/L (ppb)	2.5	1.8	85 b	101 b	50-150	17 b
Anthracene	ug/L (ppb)	2.5	0.98	82	90	50-150	9
Carbazole	ug/L (ppb)	2.5	8.6	60 b	90 b	50-150	40 b
Di-n-butyl phthalate	ug/L (ppb)	2.5	<1	72	80	50-150	11
Fluoranthene	ug/L (ppb)	2.5	1.8	74 b	87 b	50-150	16 b
Pyrene	ug/L (ppb)	2.5	0.98	107	90	50-150	17
Benzyl butyl phthalate	ug/L (ppb)	2.5	<1	111	113	50-150	2
Benz(a)anthracene	ug/L (ppb)	2.5	0.047	92	95	50-150	3
Chrysene	ug/L (ppb)	2.5	0.046	90	92	50-150	2
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	2.5	<1.6	102	100	50-150	2
Di-n-octyl phthalate	ug/L (ppb)	2.5	<1	126	139	50-150	10
Benzo(a)pyrene	ug/L (ppb)	2.5	<0.01	97	101	50-150	4
Benzo(b)fluoranthene	ug/L (ppb)	2.5	<0.01	103	107	50-150	4
Benzo(k)fluoranthene	ug/L (ppb)	2.5	<0.01	103	109	50-150	6
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	2.5	<0.01	72	65	50-150	10
Dibenz(a,h)anthracene	ug/L (ppb)	2.5	<0.01	72	65	50-150	10
Benzo(g,h,i)perylene	ug/L (ppb)	2.5	<0.02	62	55	50-150	12

Date of Report: 09/14/22
Date Received: 08/26/22
Project: TWAAFA-001, F&BI 208431

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Phenol	ug/L (ppb)	2.5	26	10-86
Bis(2-chloroethyl) ether	ug/L (ppb)	2.5	84	60-108
2-Chlorophenol	ug/L (ppb)	2.5	75	10-97
1,3-Dichlorobenzene	ug/L (ppb)	2.5	74	48-96
1,4-Dichlorobenzene	ug/L (ppb)	2.5	75	48-96
1,2-Dichlorobenzene	ug/L (ppb)	2.5	76	52-96
Benzyl alcohol	ug/L (ppb)	13	62	10-76
2,2'-Oxybis(1-chloropropane)	ug/L (ppb)	2.5	79	59-101
2-Methylphenol	ug/L (ppb)	2.5	66	10-80
Hexachloroethane	ug/L (ppb)	2.5	76	47-97
N-Nitroso-di-n-propylamine	ug/L (ppb)	2.5	86	71-106
3-Methylphenol + 4-Methylphenol	ug/L (ppb)	2.5	56	10-66
Nitrobenzene	ug/L (ppb)	2.5	85	60-90
Isophorone	ug/L (ppb)	2.5	88	71-110
2-Nitrophenol	ug/L (ppb)	2.5	82	27-120
2,4-Dimethylphenol	ug/L (ppb)	2.5	63	10-106
Benzoic acid	ug/L (ppb)	20	9 vo	10-102
Bis(2-chloroethoxy)methane	ug/L (ppb)	2.5	89	55-117
2,4-Dichlorophenol	ug/L (ppb)	2.5	82	23-116
1,2,4-Trichlorobenzene	ug/L (ppb)	2.5	79	56-98
Naphthalene	ug/L (ppb)	2.5	77	62-97
Hexachlorobutadiene	ug/L (ppb)	2.5	76	48-100
4-Chloroaniline	ug/L (ppb)	13	21 vo	28-121
4-Chloro-3-methylphenol	ug/L (ppb)	2.5	82	18-113
2-Methylnaphthalene	ug/L (ppb)	2.5	76	64-101
1-Methylnaphthalene	ug/L (ppb)	2.5	76	64-93
Hexachlorocyclopentadiene	ug/L (ppb)	2.5	85	49-113
2,4,6-Trichlorophenol	ug/L (ppb)	2.5	89	16-131
2,4,5-Trichlorophenol	ug/L (ppb)	2.5	85	26-129
2-Chloronaphthalene	ug/L (ppb)	2.5	85	67-102
2-Nitroaniline	ug/L (ppb)	13	91	31-168
Dimethyl phthalate	ug/L (ppb)	2.5	90	70-130
Acenaphthylene	ug/L (ppb)	2.5	86	70-130
2,6-Dinitrotoluene	ug/L (ppb)	2.5	87	70-130
3-Nitroaniline	ug/L (ppb)	13	49	33-128
Acenaphthene	ug/L (ppb)	2.5	81	70-130
2,4-Dinitrophenol	ug/L (ppb)	5	84	10-137
Dibenzofuran	ug/L (ppb)	2.5	92	67-114
2,4-Dinitrotoluene	ug/L (ppb)	2.5	68	53-132
4-Nitrophenol	ug/L (ppb)	5	31	10-89
Diethyl phthalate	ug/L (ppb)	2.5	83	60-128
Fluorene	ug/L (ppb)	2.5	86	70-130
4-Chlorophenyl phenyl ether	ug/L (ppb)	2.5	88	70-130
N-Nitrosodiphenylamine	ug/L (ppb)	2.5	92	70-130
4-Nitroaniline	ug/L (ppb)	13	77	32-124
4,6-Dinitro-2-methylphenol	ug/L (ppb)	2.5	100	10-146
4-Bromophenyl phenyl ether	ug/L (ppb)	2.5	93	70-130
Hexachlorobenzene	ug/L (ppb)	2.5	94	61-112
Pentachlorophenol	ug/L (ppb)	2.5	93	10-144
Phenanthrene	ug/L (ppb)	2.5	94	70-130
Anthracene	ug/L (ppb)	2.5	93	70-130
Carbazole	ug/L (ppb)	2.5	97	70-130
Di-n-butyl phthalate	ug/L (ppb)	2.5	88	28-147
Fluoranthene	ug/L (ppb)	2.5	98	70-130
Pyrene	ug/L (ppb)	2.5	103	70-130
Benzyl butyl phthalate	ug/L (ppb)	2.5	101	34-142
Benz(a)anthracene	ug/L (ppb)	2.5	99	70-130
Chrysene	ug/L (ppb)	2.5	98	70-130
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	2.5	98	44-140
Di-n-octyl phthalate	ug/L (ppb)	2.5	90	33-147
Benzo(a)pyrene	ug/L (ppb)	2.5	97	70-130
Benzo(b)fluoranthene	ug/L (ppb)	2.5	98	70-130
Benzo(k)fluoranthene	ug/L (ppb)	2.5	98	70-130
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	2.5	109	70-130
Dibenz(a,h)anthracene	ug/L (ppb)	2.5	109	70-130
Benzo(g,h,i)perylene	ug/L (ppb)	2.5	108	70-130

Date of Report: 09/14/22
Date Received: 08/26/22
Project: TWAAFA-001, F&BI 208431

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR POLYCHLORINATED BIPHENYLS AS AROCLOR 1016/1260 BY EPA METHOD 8082A

Laboratory Code: 208396-05 1/0.5 (Matrix Spike) 1/0.5

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	ug/L (ppb)	0.25	<0.0053 j	43 vo	32 vo	50-150	29 vo
Aroclor 1260	ug/L (ppb)	0.25	<0.0075 j	44 vo	37 vo	50-150	17

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Aroclor 1016	ug/L (ppb)	0.25	33	25-165
Aroclor 1260	ug/L (ppb)	0.25	36	25-163

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

205431

SAMPLE CHAIN OF CUSTODY

8/29/22 (NP) 26 EO4/AT6/VW6

Page # 1 of 2

Report To: Anthony Cerruti / Trevor Louviere
cc: Tasya Gray

Company DOF

Address 1001 SW Klickitat Way

City, State, ZIP Seattle, WA 98134

Phone 215-767-7749 Email acerruti@dofnw.com

SAMPLERS (*signature*)	
PROJECT NAME: TWAAFA	PO #: TWAAFA-001
REMARKS: SVOCs lab filtered at 0.7 micron before analysis Project Specific RLs - (Yes) / No	INVOICE TO: DOF

TURNAROUND TIME
- ✓ Standard Turnaround
- __ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- Dispose after 30 days
- Archive Samples
- Other

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	VOCs by EPA 8260D / SIM Dual Acquisition	NWTPH-Dx	EPH / VPH	NWTPH-Gx	Total Metals 6020B (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn)	Mecury by 1631E	SVOCs EPA 8270E SIM Dual Acquisiton	cPAHs by EPA 8270	1,4 Dioxane by EPA 8260D SIM	LL PCBs 8082A	MS/MSD Collected? (Y/N)	Notes (* SVOC full suite includes cPAH)
CCW-3A-0822	01A-N	8/25/22	1735	W	18	X	X	X	X	X	X	X		X	X		● Added per
FIELD BLANK#1-0822	02	8/25/22	1715		14	X	X		X	X	X	X		X	X		AC 8/26/22 ME
CCW-3C-0822	03	8/25/22	1830		14	X	X		X	X	X	X		X	X		
CCW-1C-0822	04	8/26/22	0835		14	X	X		X	X	X	X		X	X		
TRIP BLANK #4-0822	05A-D	8/26/22	0830		4	X			X								
CCW-1B-0822	06A-N	8/26/22	0925		14	X	X		X	X	X	X		X	X		
FIELD BLANK #2-0822	07	8/26/22	0930		14	X	X		X	X	X	X		X	X		
CCW-8B-0822	08A-K	8/26/22	1025		14	X	X	●	X	X	X	X		X	X		
MW-4-0822	09A-N	8/26/22	1140		14	X	X		X	X	X	X		X	X		
CCW-4C-0822	10A-N	8/26/22	1235		14	X	X		X	X	X	X		X	X		

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	ANTHONY CERRUTI	DOF	8/26/22	1615
Received by:	VINH	FBI	8-26-22	1615
Relinquished by:		Samples received at 5 °C		
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

208431

SAMPLE CHAIN OF CUSTODY

8/29/22 (NP) 26

EO4/AI6/LWG

Page # 2 of 2

Report To: Anthony Cerruti / Trevor Louviere
cc: Tasya Gray

Company DOF

Address 1001 SW Klickitat Way

City, State, ZIP Seattle, WA 98134

Phone 215-767-7749 Email acerruti@dofnw.com

SAMPLERS (*signature*)

PROJECT NAME: TWAAFA

PO#: TWAAFA-001

REMARKS: SVOCs lab filtered at 0.7 micron before analysis

Project Specific RLs - (Yes) / No

INVOICE TO: DOF

TURNAROUND TIME
✓ Standard Turnaround
__ RUSH _____
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Archive Samples
Other

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	VOCs by EPA 8260D / SIM Dual Acquisition	NWTPH-Dx	EPH / VPH	NWTPH-Gx	Total Metals 6020B (As, Cd, Cr, Cu, Pb, Ni, Zn, Mn)	Mecury by 1631E	SVOCs EPA 8270E SIM Dual Acquisiton	cPAHs by EPA 8270	1,4 Dioxane by EPA 8260D SIM	LL PCBs 8082A	MS/MSD Collected? (Y/N)	Notes
CCW-5B-0822	11 A-N	8/26/22	1330	18 ↔ W		X	X	X	X	X	X	X		X	X		
CCW-9-5B-0822	12	8/26/22	1335	14 ↔ W		X	X		X	X		X		X	X		
CCW-5C-0822	13	8/26/22	1430	14 ↔ W		X	X		X	X	X	X		X	X		

* SVOC full suite includes cPAH

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	ANTHONY CERRUTI	DOF	8/26/22	1615
Received by:	JINH	FRM	8-23-22	1615
Relinquished by:				
Received by:		Samples received at 5 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman & Bruya
Michael Erdahl
3012 16th Ave. W.
Seattle, WA 98119

RE: 208431
Work Order Number: 2208425

September 13, 2022

Attention Michael Erdahl:

Fremont Analytical, Inc. received 3 sample(s) on 8/29/2022 for the analyses presented in the following report.

Extractable Petroleum Hydrocarbons by NWEPH

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *09/13/2022*

CLIENT: Friedman & Bruya
Project: 208431
Work Order: 2208425

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2208425-001	CCW-3A-0822	08/25/2022 5:35 PM	08/29/2022 12:14 PM
2208425-002	CCW-8B-0822	08/26/2022 10:25 AM	08/29/2022 12:14 PM
2208425-003	CCW-5B-0822	08/26/2022 1:30 PM	08/29/2022 12:14 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Original

Case Narrative

WO#: **2208425**
Date: **9/13/2022**

CLIENT: Friedman & Bruya
Project: 208431

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MCL - Maximum Contaminant Level
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **2208425**
Date Reported: **9/13/2022**

Client: Friedman & Bruya
Collection Date: 8/25/2022 5:35:00 PM
Project: 208431
Lab ID: 2208425-001
Matrix: Water
Client Sample ID: **CCW-3A-0822**

Extractable Petroleum Hydrocarbons by NWEPH

Batch ID: 37608 Analyst: KJ

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Aliphatic Hydrocarbon (C8-C10)	ND	77.9		µg/L	1	9/7/2022 7:25:13 PM
Aliphatic Hydrocarbon (C10-C12)	ND	39.0	*	µg/L	1	9/7/2022 7:25:13 PM
Aliphatic Hydrocarbon (C12-C16)	ND	39.0		µg/L	1	9/7/2022 7:25:13 PM
Aliphatic Hydrocarbon (C16-C21)	ND	39.0		µg/L	1	9/7/2022 7:25:13 PM
Aliphatic Hydrocarbon (C21-C34)	ND	39.0		µg/L	1	9/7/2022 7:25:13 PM
Aromatic Hydrocarbon (C8-C10)	ND	77.9		µg/L	1	9/8/2022 9:36:31 AM
Aromatic Hydrocarbon (C10-C12)	ND	39.0	*	µg/L	1	9/8/2022 9:36:31 AM
Aromatic Hydrocarbon (C12-C16)	ND	39.0		µg/L	1	9/8/2022 9:36:31 AM
Aromatic Hydrocarbon (C16-C21)	ND	39.0		µg/L	1	9/8/2022 1:35:53 AM
Aromatic Hydrocarbon (C21-C34)	59.6	39.0		µg/L	1	9/8/2022 9:36:31 AM
Surr: 1-Chlorooctadecane	55.5	50 - 150		%Rec	1	9/7/2022 7:25:13 PM
Surr: o-Terphenyl	58.1	50 - 150		%Rec	1	9/8/2022 9:36:31 AM

NOTES:
* - Associated LCS does not meet acceptance criteria; refer to QC summary.

Analytical Report

Work Order: **2208425**
Date Reported: **9/13/2022**

Client: Friedman & Bruya
Collection Date: 8/26/2022 10:25:00 AM
Project: 208431
Lab ID: 2208425-002
Matrix: Water
Client Sample ID: **CCW-8B-0822**

Extractable Petroleum Hydrocarbons by NWEPH

Batch ID: 37608 Analyst: KJ

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Aliphatic Hydrocarbon (C8-C10)	ND	78.4		µg/L	1	9/7/2022 7:47:04 PM
Aliphatic Hydrocarbon (C10-C12)	ND	39.2	*	µg/L	1	9/7/2022 7:47:04 PM
Aliphatic Hydrocarbon (C12-C16)	ND	39.2		µg/L	1	9/7/2022 7:47:04 PM
Aliphatic Hydrocarbon (C16-C21)	ND	39.2		µg/L	1	9/7/2022 7:47:04 PM
Aliphatic Hydrocarbon (C21-C34)	ND	39.2		µg/L	1	9/7/2022 7:47:04 PM
Aromatic Hydrocarbon (C8-C10)	ND	78.4		µg/L	1	9/8/2022 9:58:19 AM
Aromatic Hydrocarbon (C10-C12)	ND	39.2	*	µg/L	1	9/8/2022 9:58:19 AM
Aromatic Hydrocarbon (C12-C16)	39.5	39.2		µg/L	1	9/8/2022 9:58:19 AM
Aromatic Hydrocarbon (C16-C21)	ND	39.2		µg/L	1	9/8/2022 1:58:54 AM
Aromatic Hydrocarbon (C21-C34)	ND	39.2		µg/L	1	9/8/2022 9:58:19 AM
Surr: 1-Chlorooctadecane	63.7	50 - 150		%Rec	1	9/7/2022 7:47:04 PM
Surr: o-Terphenyl	62.2	50 - 150		%Rec	1	9/8/2022 9:58:19 AM

NOTES:
* - Associated LCS does not meet acceptance criteria; refer to QC summary.

Analytical Report

Work Order: **2208425**
Date Reported: **9/13/2022**

Client: Friedman & Bruya
Collection Date: 8/26/2022 1:30:00 PM
Project: 208431
Lab ID: 2208425-003
Matrix: Water
Client Sample ID: **CCW-5B-0822**

Extractable Petroleum Hydrocarbons by NWEPH

Batch ID: 37608 Analyst: KJ

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Aliphatic Hydrocarbon (C8-C10)	ND	78.8		µg/L	1	9/7/2022 8:08:52 PM
Aliphatic Hydrocarbon (C10-C12)	ND	39.4	*	µg/L	1	9/7/2022 8:08:52 PM
Aliphatic Hydrocarbon (C12-C16)	ND	39.4		µg/L	1	9/7/2022 8:08:52 PM
Aliphatic Hydrocarbon (C16-C21)	ND	39.4		µg/L	1	9/7/2022 8:08:52 PM
Aliphatic Hydrocarbon (C21-C34)	ND	39.4		µg/L	1	9/7/2022 8:08:52 PM
Aromatic Hydrocarbon (C8-C10)	ND	78.8		µg/L	1	9/8/2022 10:19:59 AM
Aromatic Hydrocarbon (C10-C12)	63.1	39.4	*	µg/L	1	9/8/2022 10:19:59 AM
Aromatic Hydrocarbon (C12-C16)	76.7	39.4		µg/L	1	9/8/2022 10:19:59 AM
Aromatic Hydrocarbon (C16-C21)	83.1	39.4	Q	µg/L	1	9/8/2022 10:19:59 AM
Aromatic Hydrocarbon (C21-C34)	ND	39.4		µg/L	1	9/8/2022 10:19:59 AM
Surr: 1-Chlorooctadecane	50.1	50 - 150		%Rec	1	9/7/2022 8:08:52 PM
Surr: o-Terphenyl	79.9	50 - 150		%Rec	1	9/8/2022 10:19:59 AM

NOTES:

* - Associated LCS does not meet acceptance criteria; refer to QC summary.

Q - Associated calibration verification is below acceptance criteria (79.8, nominal 80-120).

Work Order: 2208425
CLIENT: Friedman & Bruya
Project: 208431

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **ALI ICB**	SampType: **ICB**	Units: **mg/Kg**	Prep Date: **8/1/2022**	RunNo: **77238**
Client ID: **ICB**	Batch ID: **37608**		Analysis Date: **8/1/2022**	SeqNo: **1587164**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	ND	20.0									
Aliphatic Hydrocarbon (C10-C12)	ND	10.0									
Aliphatic Hydrocarbon (C12-C16)	ND	10.0									
Aliphatic Hydrocarbon (C16-C21)	ND	10.0									
Aliphatic Hydrocarbon (C21-C34)	ND	10.0									
Surr: 1-Chlorooctadecane	42.6		40.00		107	60	140				
Surr: o-Terphenyl	43.8		40.00		109	60	140				

Sample ID: **ALI ICV**	SampType: **ICV**	Units: **mg/Kg**	Prep Date: **8/1/2022**	RunNo: **77238**
Client ID: **ICV**	Batch ID: **37608**		Analysis Date: **8/1/2022**	SeqNo: **1587165**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	212	20.0	200.0	0	106	80	120				
Aliphatic Hydrocarbon (C10-C12)	104	10.0	100.0	0	104	80	120				
Aliphatic Hydrocarbon (C12-C16)	104	10.0	100.0	0	104	80	120				
Aliphatic Hydrocarbon (C16-C21)	104	10.0	100.0	0	104	80	120				
Aliphatic Hydrocarbon (C21-C34)	105	10.0	100.0	0	105	80	120				
Surr: 1-Chlorooctadecane	42.7		40.00		107	60	140				
Surr: o-Terphenyl	43.3		40.00		108	60	140				

Sample ID: **ARO ICB**	SampType: **ICB**	Units: **mg/Kg**	Prep Date: **8/1/2022**	RunNo: **77238**
Client ID: **ICB**	Batch ID: **37608**		Analysis Date: **8/1/2022**	SeqNo: **1587174**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	ND	20.0									
Aromatic Hydrocarbon (C10-C12)	ND	10.0									
Aromatic Hydrocarbon (C12-C16)	ND	10.0									
Aromatic Hydrocarbon (C16-C21)	ND	10.0									
Aromatic Hydrocarbon (C21-C34)	ND	10.0									
Surr: 1-Chlorooctadecane	53.1		40.00		133	60	140				
Surr: o-Terphenyl	52.5		40.00		131	60	140				

Work Order: 2208425
CLIENT: Friedman & Bruya
Project: 208431

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **ARO ICB** SampType: **ICB** Units: **mg/Kg** Prep Date: **8/1/2022** RunNo: **77238**
Client ID: **ICB** Batch ID: **37608** Analysis Date: **8/1/2022** SeqNo: **1587174**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: **ARO ICV** SampType: **ICV** Units: **mg/Kg** Prep Date: **8/2/2022** RunNo: **77238**
Client ID: **ICV** Batch ID: **37608** Analysis Date: **8/2/2022** SeqNo: **1587175**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	220	20.0	200.0	0	110	80	120				
Aromatic Hydrocarbon (C10-C12)	99.4	10.0	100.0	0	99.4	80	120				
Aromatic Hydrocarbon (C12-C16)	110	10.0	100.0	0	110	80	120				
Aromatic Hydrocarbon (C16-C21)	88.2	10.0	100.0	0	88.2	80	120				
Aromatic Hydrocarbon (C21-C34)	104	10.0	100.0	0	104	80	120				
Surr: 1-Chlorooctadecane	39.8		40.00		99.4	60	140				
Surr: o-Terphenyl	39.7		40.00		99.3	60	140				

Sample ID: **ALI-CCV-37608A** SampType: **CCV** Units: **µg/L** Prep Date: **9/7/2022** RunNo: **78099**
Client ID: **CCV** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605025**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	200	80.0	200.0	0	100	80	120				
Aliphatic Hydrocarbon (C10-C12)	97.8	40.0	100.0	0	97.8	80	120				
Aliphatic Hydrocarbon (C12-C16)	95.1	40.0	100.0	0	95.1	80	120				
Aliphatic Hydrocarbon (C16-C21)	93.8	40.0	100.0	0	93.8	80	120				
Aliphatic Hydrocarbon (C21-C34)	87.2	40.0	100.0	0	87.2	80	120				
Surr: 1-Chlorooctadecane	37.2		40.00		92.9	60	140				
Surr: o-Terphenyl	38.1		40.00		95.3	60	140				

Sample ID: **MB-37608** SampType: **MBLK** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **MBLKW** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605027**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	ND	78.9		0	0						

Work Order: 2208425
CLIENT: Friedman & Bruya
Project: 208431

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **MB-37608** SampType: **MBLK** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **MBLKW** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605027**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C10-C12)	ND	39.4		0	0						*
Aliphatic Hydrocarbon (C12-C16)	ND	39.4		0	0						
Aliphatic Hydrocarbon (C16-C21)	ND	39.4		0	0						
Aliphatic Hydrocarbon (C21-C34)	ND	39.4		0	0						
Surr: 1-Chlorooctadecane	267		394.4		67.8	50	150				

NOTES:
* - Associated LCS does not meet acceptance criteria; refer to QC summary.

Sample ID: **2208367-002AMS** SampType: **MS** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **BATCH** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605034**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	279	78.7	983.6	0	28.4	8.66	130				
Aliphatic Hydrocarbon (C10-C12)	240	39.3	491.8	0	48.8	70	130				S
Aliphatic Hydrocarbon (C12-C16)	301	39.3	491.8	0	61.3	70	130				S
Aliphatic Hydrocarbon (C16-C21)	320	39.3	491.8	0	65.1	70	130				S
Aliphatic Hydrocarbon (C21-C34)	348	39.3	491.8	0	70.7	70	130				
Surr: 1-Chlorooctadecane	250		393.5		63.6	50	150				

NOTES:
S - Outlying spike recoveries were associated with this sample.

Sample ID: **LCS-37608** SampType: **LCS** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **LCSW** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605038**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	311	78.6	982.0	0	31.6	23	130				
Aliphatic Hydrocarbon (C10-C12)	311	39.3	491.0	0	63.3	70	130				S
Aliphatic Hydrocarbon (C12-C16)	398	39.3	491.0	0	81.0	70	130				
Aliphatic Hydrocarbon (C16-C21)	388	39.3	491.0	0	79.0	70	130				
Aliphatic Hydrocarbon (C21-C34)	391	39.3	491.0	0	79.6	70	130				
Surr: 1-Chlorooctadecane	325		392.8		82.8	50	150				

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.

Work Order: 2208425
CLIENT: Friedman & Bruya
Project: 208431

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **LCSD-37608** SampType: **LCSD** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **LCSW02** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605039**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	257	78.0	975.1	0	26.4	23	130	310.6	18.8	20	
Aliphatic Hydrocarbon (C10-C12)	266	39.0	487.5	0	54.5	70	130	310.7	15.6	20	S
Aliphatic Hydrocarbon (C12-C16)	347	39.0	487.5	0	71.3	70	130	397.7	13.5	20	
Aliphatic Hydrocarbon (C16-C21)	343	39.0	487.5	0	70.3	70	130	387.9	12.3	20	
Aliphatic Hydrocarbon (C21-C34)	366	39.0	487.5	0	75.2	70	130	391.0	6.50	20	
Surr: 1-Chlorooctadecane	279		390.0		71.6	50	150		0		

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.

Sample ID: **ARO-CCV-37608A** SampType: **CCV** Units: **µg/L** Prep Date: **9/7/2022** RunNo: **78099**
Client ID: **CCV** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605164**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	236	80.0	200.0	0	118	80	120				
Aromatic Hydrocarbon (C10-C12)	105	40.0	100.0	0	105	80	120				
Aromatic Hydrocarbon (C12-C16)	121	40.0	100.0	0	121	80	120				S
Aromatic Hydrocarbon (C16-C21)	94.9	40.0	100.0	0	94.9	80	120				
Aromatic Hydrocarbon (C21-C34)	93.0	40.0	100.0	0	93.0	80	120				
Surr: 1-Chlorooctadecane	42.0		40.00		105	60	140				
Surr: o-Terphenyl	42.7		40.00		107	60	140				

NOTES:
S - Outlying spike recovery observed (high bias). Detections will be qualified with a Q.

Sample ID: **LCS-37608** SampType: **LCS** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **LCSW** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605166**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	373	78.6	982.0	0	37.9	28.4	130				
Aromatic Hydrocarbon (C10-C12)	326	39.3	491.0	0	66.4	70	130				S
Aromatic Hydrocarbon (C12-C16)	420	39.3	491.0	0	85.6	70	130				
Aromatic Hydrocarbon (C16-C21)	405	39.3	491.0	0	82.5	70	130				
Aromatic Hydrocarbon (C21-C34)	345	39.3	491.0	0	70.3	70	130				
Surr: o-Terphenyl	399		392.8		102	50	150				

Work Order: 2208425
CLIENT: Friedman & Bruya
Project: 208431

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **LCS-37608** SampType: **LCS** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **LCSW** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605166**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.

Sample ID: **ARO-CCV-37608B** SampType: **CCV** Units: **µg/L** Prep Date: **9/8/2022** RunNo: **78099**
Client ID: **CCV** Batch ID: **37608** Analysis Date: **9/8/2022** SeqNo: **1605176**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	211	80.0	200.0	0	105	80	120				
Aromatic Hydrocarbon (C10-C12)	93.2	40.0	100.0	0	93.2	80	120				
Aromatic Hydrocarbon (C12-C16)	102	40.0	100.0	0	102	80	120				
Aromatic Hydrocarbon (C16-C21)	80.8	40.0	100.0	0	80.8	80	120				
Aromatic Hydrocarbon (C21-C34)	93.6	40.0	100.0	0	93.6	80	120				
Surr: 1-Chlorooctadecane	33.7		40.00		84.2	60	140				
Surr: o-Terphenyl	35.5		40.00		88.7	60	140				

Sample ID: **LCSD-37608** SampType: **LCSD** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **LCSW02** Batch ID: **37608** Analysis Date: **9/8/2022** SeqNo: **1605181**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	380	78.0	975.1	0	39.0	28.4	130	398.7	4.68	20	
Aromatic Hydrocarbon (C10-C12)	255	39.0	487.5	0	52.4	70	130	275.0	7.38	20	S
Aromatic Hydrocarbon (C12-C16)	342	39.0	487.5	0	70.1	70	130	342.5	0.190	20	
Aromatic Hydrocarbon (C16-C21)	244	39.0	487.5	0	50.1	70	130	360.2	38.4	20	RS
Aromatic Hydrocarbon (C21-C34)	365	39.0	487.5	0	74.9	70	130	322.6	12.4	20	
Surr: o-Terphenyl	244		390.0		62.7	50	150		0		

NOTES:
S - Outlying spike recovery observed (Aro C10-12). Samples will be qualified with a *.
S, R - Outlying spike recovery/RPD observed (Aro C16-21). The LCS passed for this range.

Work Order: 2208425
CLIENT: Friedman & Bruya
Project: 208431

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **2208367-002AMS** SampType: **MS** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **BATCH** Batch ID: **37608** Analysis Date: **9/8/2022** SeqNo: **1605182**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	364	78.7	983.6	0	37.0	5	130				
Aromatic Hydrocarbon (C10-C12)	300	39.3	491.8	0	60.9	70	130				S
Aromatic Hydrocarbon (C12-C16)	388	39.3	491.8	17.44	75.4	70	130				
Aromatic Hydrocarbon (C16-C21)	275	39.3	491.8	34.15	48.9	70	130				S
Aromatic Hydrocarbon (C21-C34)	346	39.3	491.8	0	70.4	70	130				
Surr: o-Terphenyl	288		393.5		73.3	50	150				

NOTES:
S - Outlying spike recoveries were associated with this sample.

Sample ID: **ALI-CCV-37608C** SampType: **CCV** Units: **µg/L** Prep Date: **9/8/2022** RunNo: **78099**
Client ID: **CCV** Batch ID: **37608** Analysis Date: **9/8/2022** SeqNo: **1605303**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	220	80.0	200.0	0	110	80	120				
Aliphatic Hydrocarbon (C10-C12)	109	40.0	100.0	0	109	80	120				
Aliphatic Hydrocarbon (C12-C16)	103	40.0	100.0	0	103	80	120				
Aliphatic Hydrocarbon (C16-C21)	99.4	40.0	100.0	0	99.4	80	120				
Aliphatic Hydrocarbon (C21-C34)	100	40.0	100.0	0	100	80	120				
Surr: 1-Chlorooctadecane	40.8		40.00		102	60	140				
Surr: o-Terphenyl	42.0		40.00		105	60	140				

Sample ID: **MB-37608** SampType: **MBLK** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **MBLKW** Batch ID: **37608** Analysis Date: **9/8/2022** SeqNo: **1605306**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	ND	78.9		0	0						
Aromatic Hydrocarbon (C10-C12)	ND	39.4		0	0						
Aromatic Hydrocarbon (C12-C16)	ND	39.4		0	0						
Aromatic Hydrocarbon (C16-C21)	ND	39.4		0	0						Q
Aromatic Hydrocarbon (C21-C34)	ND	39.4		0	0						
Surr: o-Terphenyl	348		394.4		88.3	50	150				

Work Order: 2208425
CLIENT: Friedman & Bruya
Project: 208431

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **MB-37608** SampType: **MBLK** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **MBLKW** Batch ID: **37608** Analysis Date: **9/8/2022** SeqNo: **1605306**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
Q - Associated calibration verification is below acceptance criteria (79.8, nominal 80-120).

Sample ID: **ARO-CCV-37608D** SampType: **CCV** Units: **µg/L** Prep Date: **9/8/2022** RunNo: **78099**
Client ID: **CCV** Batch ID: **37608** Analysis Date: **9/8/2022** SeqNo: **1605311**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	199	80.0	200.0	0	99.7	80	120				
Aromatic Hydrocarbon (C10-C12)	87.3	40.0	100.0	0	87.3	80	120				
Aromatic Hydrocarbon (C12-C16)	93.6	40.0	100.0	0	93.6	80	120				
Aromatic Hydrocarbon (C16-C21)	80.2	40.0	100.0	0	80.2	80	120				
Aromatic Hydrocarbon (C21-C34)	92.1	40.0	100.0	0	92.1	80	120				
Surr: 1-Chlorooctadecane	31.4		40.00		78.5	60	140				
Surr: o-Terphenyl	32.5		40.00		81.2	60	140				

Sample Log-In Check List

Client Name:	FB	Work Order Number:	2208425
Logged by:	Gabrielle Coeuille	Date Received:	8/29/2022 12:14:00 PM

Chain of Custody

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

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Present ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >2°C to 6°C *	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☑	NA ☐
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	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: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample 1	6.0

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

2208425

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER Fremont

PROJECT NAME/NO. 208431

PO # C-333

REMARKS EIMEDD, Tier IV

TURNAROUND TIME
- [x] Standard TAT
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Dispose after 30 days
- [ ] Return samples
- [ ] Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Dioxins/Furans	EPH	VPH								Notes
CCW-3A-0822		8/25/22	1735	water	4		X	X								
CCW-8B-0822		8/26/22	1025	↓	4		X	X								
CCW-5B-0822		8/26/22	1330	↓	3		X	X								

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	8/29/22	0944
Received by:	Yeyi Chen	Yeyi Chen	Fremont Analytical	8/29/22	12:09
Relinquished by:					
Received by:					

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

2208425

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER Fremont

PROJECT NAME/NO. 208431

PO # C-333

REMARKS Cancel VPH analysis per EY 9/8/2022 -BB

EIMEDD, Tier IV

TURNAROUND TIME

☒ Standard TAT

☐ RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Dispose after 30 days

☐ Return samples

☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Dioxins/Furans	EPH	VPH								Notes
CCW-3A-0822		8/25/22	1735	water	4		X	X								
CCW-8B-0822		8/26/22	1025	↓	4		X	X								
CCW-5B-0822		8/26/22	1330	↓	3		X	X								

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	8/29/22	0944
Received by:	Yeyi Chen	Yeyi Chen	Fremont Analytical	8/29/22	12:09
Relinquished by:					
Received by:					

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

October 14, 2022

Audrey Hackett, Project Manager
Maul Foster Alongi
2815 2nd Ave, Suite 540
Seattle, WA 98121

Dear Ms Hackett:

Included are the additional results from the testing of material submitted on August 23, 2022 from the TWAAFA - Groundwater Sampling, F&BI 208343 project. There are 4 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Carolyn Wise
MFA1014R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 23, 2020 by Friedman & Bruya, Inc. from the Maul Foster Alongi TWAAFA - Groundwater Sampling, F&BI 208343 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Maul Foster Alongi
208343 -01	TWA-1-0822
208343 -02	TWA-2-0822
208343 -03	TWA-3-0822
208343 -04	TWA-100-0822
208343 -05	SB-1A-0822
208343 -06	SB-2A-0822
208343 -07	Field Blank #1-0822
208343 -08	TWA-6D-0822
208343 -09	TWA-5D-0822
208343 -10	Trip Blank #1-0822
208343 -11	SB-3A-0822

All quality control requirements were acceptable.

Date of Report: 10/14/22
Date Received: 08/23/22
Project: TWAAFA - Groundwater Sampling, F&BI 208343
Date Extracted: 08/26/22
Date Analyzed: 08/29/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
SB-1A-0822 208343-05	<100	118
Method Blank 02-1751 MB	<100	115

Date of Report: 10/14/22
Date Received: 08/23/22
Project: TWAAFA - Groundwater Sampling, F&BI 208343

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 208343-05 Matrix Spike

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	ug/L (ppb)	1,000	<100	89	105	50-150	16

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	105	70-119

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

208343

SAMPLE CHAIN OF CUSTODY ME 8/23/22 E031 AI46 VW6

Page # of

Report To: Audrey Hackett/Carolyn Wise

Company: Maul Foster Alongi, Inc.

Address: 2815 2nd Avenue, Suite 540

City, State, ZIP: Seattle WA 98121

Phone: 206-331-1835 Email: ahackett@maulfoster.com

SAMPLERS (*signature*)

PROJECT NAME: TWAAFA - Groundwater Sampling

PO #: M0615.20.005-03

REMARKS: SVOCs lab filtered at 0.7 micron before analysis

Project Specific RLs - (Yes) / No

INVOICE TO: A. Hackett, MFA

TURNAROUND TIME
X :Standard Turnaround
:RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Archive Samples
Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	DRO/ORO by NWTPH-Dx w/SG	DRO/ORO - NWTPH-Dx wo/SG	GRO - NWTPH-Gx	EPH - NWTPH-EPH	VPH - NWTPH-VPH	VOCs by 8260D	1,4-Dioxane - 8260D	SVOCs by 8270E	Total Metals by 6020	Mercury by 1613E	LL PCBs by 8082	Notes
						ANALYSES REQUESTED											* only VOAs
TWA-1-0822	01A-R	8/22/22	12:00	W	18		X	X	X	X	X	X	X	X	X	X	received Other
TWA-2-0822	02A-N	8/22/22	13:00	W	14		X	X			X	X	X	X	X	X	containers received
TWA-3-0822	03A-N	8/22/22	14:00	W	14		X	X			X	X	X	X	X	X	8/24/22 SDG 208351 ME
TWA-10D-0822	04A-N	8/22/22	17:00	W	14		X	X			X	X	X	X	X	X	
SB-1A-0822	05A-AA	8/23/22	09:30	W	27	31	X	X			X	X	X	X	X	X	[redacted]
SB-2A-0822	06A-I	8/23/22	10:50	W	149		X	X			X	X	X	X	X	X	HS/17SD Location
Field Blank#1-0822	07A-L	8/23/22	9:10	W	18		X	X			X	X	X	X	X	X	Extra Volume
TWA-6D-0822	08A-N	8/23/22	11:30	W	14		X	X	X	X	X	X	X	X	X	X	
TWA-5D-0822	09A-N	8/23/22	13:40	W	14		X	X			X	X	X	X	X	X	
Trip Blank#1-0822	10A-B			W	2			X			X						

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Christian Sifford	MFA	8/23/22	14:10
Received by:	VINH	FB1	8-23-22	14:40
Relinquished by:				
Received by:		Samples received at 4 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

208343

SAMPLE CHAIN OF CUSTODY ME 8/23/22 E03/A16/VW6

Page # 1 of 2

Report To: Audrey Hackett/Carolyn Wise

Company: Maul Foster Alongi, Inc.

Address: 2815 2nd Avenue, Suite 540

City, State, ZIP: Seattle WA 98121

Phone: 206-331-1835 Email: ahackett@maulfoster.com

SAMPLERS (*signature*)	
PROJECT NAME: TWAAFA - Groundwater Sampling	PO #: M0615.20.005-03
REMARKS: SVOCs lab filtered at 0.7 micron before analysis Project Specific RLs - **Yes** / No	INVOICE TO: A. Hackett, MFA

TURNAROUND TIME
X :Standard Turnaround
:RUSH_____
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Archive Samples
Other_____

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: DRO/ORO by NWTPH-Dx w/SG	DRO/ORO - NWTPH-Dx wo/SG	GRO - NWTPH-Gx	EPH - NWTPH-EPH	VPH - NWTPH-VPH	VOCs by 8260D	1,4-Dioxane - 8260D	SVOCs by 8270E	Total Metals by 6020	Mercury by 1613E	LL PCBs by 8082	Notes
	11A-N																
SB-3A-0822	~~A~~	8/23/22	1300	W	14		X	X			X	X	X	X	X	X	

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Christian Sifford	MFA	8/23/22	14:00
Received by:	VINH	FQI	8-23-22	14:40
Relinquished by:				
Received by:		Samples received at 4°C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

SAMPLE CONDITION UPON RECEIPT CHECKLIST

HW

PROJECT # 208343 CLIENT MFA INITIALS/DATE: 8/23/22

If custody seals are present on cooler, are they intact? ☒ NA ☐ YES ☐ NO

Cooler/Sample temperature 4 °C

Were samples received on ice/cold packs? ☒ YES ☐ NO

How did samples arrive?
- ☐ Over the Counter
- ☒ Picked up by F&BI
- ☐ FedEx/UPS/GSO

Number of days samples have been sitting prior to receipt at laboratory 0-1 days

Is there a Chain-of-Custody* (COC)? ☒ YES ☐ NO
*or other representative documents, letters, and/or shipping memos

Are the samples clearly identified? (explain "no" answer below) ☒ YES ☐ NO

Is the following information provided on the COC* ? (explain "no" answer below)

Sample ID's	☒ Yes	☐ No	# of Containers	☐ Yes	☒ No
Date Sampled	☒ Yes	☐ No	Relinquished	☒ Yes	☐ No
Time Sampled	☒ Yes	☐ No	Requested analysis	☒ Yes	☐ No

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below) ☒ YES ☐ NO

Were appropriate sample containers used? ☒ YES ☐ NO ☐ Unknown

If custody seals are present on samples, are they intact? ☒ NA ☐ YES ☐ NO

Are samples requiring no headspace, headspace free? ☒ NA ☒ YES ☐ NO

Air Samples: Were any additional canisters received? ☒ NA ☐ YES ☐ NO

If Yes, number of unused 1L canisters _____

number of unused 6L canisters _____

Explain "no" items from above (use the back if needed)

Only VOAs were received for samples -06 & 07. The additional containers were received 8/25/22 under SDG 208351. COC was amended accordingly. ME 8/23/22

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

September 28, 2022

Audrey Hackett, Project Manager
Maul Foster Alongi
2815 2nd Ave, Suite 540
Seattle, WA 98121

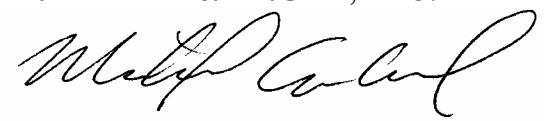
Dear Ms Hackett:

Included is the amended report from the testing of material submitted on August 24, 2022 from the TWAAFA - Groundwater Sampling M0615.20.005-03, F&BI 208351 project. The bis(2-ethylhexyl) phthalate reporting limit has been included in the case narrative.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
c: Carolyn Wise
MFA0912R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

September 12, 2022

Audrey Hackett, Project Manager
Maul Foster Alongi
2815 2nd Ave, Suite 540
Seattle, WA 98121

Dear Ms Hackett:

Included are the results from the testing of material submitted on August 24, 2022 from the TWAAFA - Groundwater Sampling M0615.20.005-03, F&BI 208351 project. There are 41 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Carolyn Wise
MFA0912R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 24, 2022 by Friedman & Bruya, Inc. from the Maul Foster Alongi TWAAFA - Groundwater Sampling M0615.20.005-03, F&BI 208351 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Maul Foster Alongi
208351 -01	SB-2A-0822
208351 -02	Field Blank 1-0822
208351 -03	MW-1-0822
208351 -04	MW-9-1-0822
208351 -05	Trip Blank 2-0822

Samples Field Blank 1-0822, MW-1-0822, and MW-9-1-0822 were sent to Fremont Analytical for EPH and VPH analysis. Fremont Analytical notified Friedman and Bruya that their VPH instrument suffered catastrophic failure, and the samples were not analyzed. Due to the samples being out of the holding time, MFA elected not to proceed with analysis. The EPH report is enclosed.

Methylene chloride was detected in the 8260D analysis of sample Trip Blank 2-0822 and the method blank. The data were flagged as due to laboratory contamination.

The 8260D laboratory control sample exceeded the acceptance criteria and relative percent difference for methylene chloride. The data were flagged accordingly.

The 8260D SIM matrix spike and matrix spike duplicate failed the relative percent difference for 1,4-dioxane. The laboratory control sample passed the acceptance criteria, therefore the results were due to matrix effect.

The 8270E and 8082A matrix spike and matrix spike duplicate recoveries were outside of acceptance limits for several compounds due to the use of the method default acceptance criteria of 50-150%.

Phenanthrene and bis(2-ethylhexyl)phthalate were detected in the 8270E method blank. The data were flagged accordingly.

The 8082A PCB results were reported to the method detection limit. The data were flagged accordingly.

The 8270E bis(2-ethylhexyl) phthalate reporting limit for the samples is 1.6 ug/L. The results were reported between the method detection limit and the reporting limit for samples.

All other quality control requirements were acceptable.

Date of Report: 09/12/22
Date Received: 08/24/22
Project: TWAAFA - Groundwater Sampling M0615.20.005-03, F&BI 208351
Date Extracted: 08/29/22
Date Analyzed: 08/29/22 and 08/30/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 51-134)
MW-1-0822 208351-03	220	111
MW-9-1-0822 208351-04	220	111
Trip Blank 2-0822 208351-05	<100	101
Method Blank 02-1752 MB	<100	102

Date of Report: 09/12/22
Date Received: 08/24/22
Project: TWAAFA - Groundwater Sampling M0615.20.005-03, F&BI 208351
Date Extracted: 08/24/22
Date Analyzed: 08/24/22 and 08/25/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
SB-2A-0822 208351-01	110 x	<250	133
Field Blank 1-0822 208351-02	<50	<250	143
MW-1-0822 208351-03	10,000 x	2,800 x	ip
MW-9-1-0822 208351-04	11,000 x	3,900 x	ip
Method Blank 02-2031 MB	<50	<250	142

Analysis For Total Metals By EPA Method 6020B

Client ID:	SB-2A-0822	Client:	Maul Foster Alongi
Date Received:	08/24/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/30/22	Lab ID:	208351-01
Date Analyzed:	08/31/22	Data File:	208351-01.246
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Antimony	<1
Arsenic	5.62
Barium	5.18
Beryllium	<1
Cadmium	<1
Chromium	<1
Cobalt	<1
Copper	<2.4
Iron	1,340
Lead	<1
Manganese	425
Nickel	4.11
Selenium	<1
Silver	<1
Thallium	<1
Vanadium	1.07
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	Field Blank 1-0822	Client:	Maul Foster Alongi
Date Received:	08/24/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/30/22	Lab ID:	208351-02
Date Analyzed:	08/31/22	Data File:	208351-02.247
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Antimony	<1
Arsenic	<1
Barium	<1
Beryllium	<1
Cadmium	<1
Chromium	1.14
Cobalt	<1
Copper	2.61
Iron	<50
Lead	<1
Manganese	<1
Nickel	<1
Selenium	<1
Silver	<1
Thallium	<1
Vanadium	<1
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-1-0822	Client:	Maul Foster Alongi
Date Received:	08/24/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/30/22	Lab ID:	208351-03
Date Analyzed:	08/31/22	Data File:	208351-03.248
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Antimony	<1
Arsenic	1.61
Barium	20.4
Beryllium	<1
Cadmium	<1
Chromium	1.71
Cobalt	<1
Copper	5.44
Lead	1.29
Manganese	190
Nickel	3.04
Selenium	1.61
Silver	<1
Thallium	<1
Vanadium	3.62
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-1-0822	Client:	Maul Foster Alongi
Date Received:	08/24/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/30/22	Lab ID:	208351-03 x10
Date Analyzed:	08/30/22	Data File:	208351-03 x10.129
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Iron	13,100

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-9-1-0822	Client:	Maul Foster Alongi
Date Received:	08/24/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/30/22	Lab ID:	208351-04
Date Analyzed:	08/31/22	Data File:	208351-04.249
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Antimony	<1
Arsenic	1.69
Barium	20.5
Beryllium	<1
Cadmium	<1
Chromium	1.78
Cobalt	<1
Copper	5.70
Lead	1.33
Manganese	194
Nickel	3.28
Selenium	1.61
Silver	<1
Thallium	<1
Vanadium	3.76
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-9-1-0822	Client:	Maul Foster Alongi
Date Received:	08/24/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/30/22	Lab ID:	208351-04 x10
Date Analyzed:	08/30/22	Data File:	208351-04 x10.130
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Iron	13,600

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Maul Foster Alongi
Date Received:	NA	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/30/22	Lab ID:	I2-596 mb
Date Analyzed:	08/30/22	Data File:	I2-596 mb.103
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Antimony	<1
Arsenic	<1
Barium	<1
Beryllium	<1
Cadmium	<1
Chromium	<1
Cobalt	<1
Copper	<2.4
Iron	<50
Lead	<1
Manganese	<1
Nickel	<1
Selenium	<1
Silver	<1
Thallium	<1
Vanadium	<1
Zinc	<5

Date of Report: 09/12/22
Date Received: 08/24/22
Project: TWAAFA - Groundwater Sampling M0615.20.005-03, F&BI 208351
Date Extracted: 08/26/22
Date Analyzed: 08/29/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES
FOR TOTAL MERCURY
USING EPA METHOD 1631E
Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Total Mercury
SB-2A-0822 208351-01	<0.02
Field Blank 1-0822 208351-02	<0.02
MW-1-0822 208351-03	<0.02
MW-9-1-0822 208351-04	<0.02
Method Blank i2-590 MB	<0.02

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW-1-0822	Client:	Maul Foster Alongi
Date Received:	08/24/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208351-03
Date Analyzed:	08/26/22	Data File:	082639.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	78	126
Toluene-d8	99	84	115
4-Bromofluorobenzene	101	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.022	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	1.4
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	42	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW-9-1-0822	Client:	Maul Foster Alongi
Date Received:	08/24/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208351-04
Date Analyzed:	08/27/22	Data File:	082640.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	78	126
Toluene-d8	96	84	115
4-Bromofluorobenzene	100	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.022	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	1.5
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	40	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Trip Blank 2-0822	Client:	Maul Foster Alongi
Date Received:	08/24/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208351-05
Date Analyzed:	08/26/22	Data File:	082637.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	78	126
Toluene-d8	101	84	115
4-Bromofluorobenzene	101	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	8.0 lc jl	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Maul Foster Alongi
Date Received:	Not Applicable	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	02-1953 mb
Date Analyzed:	08/26/22	Data File:	082636.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	78	126
Toluene-d8	100	84	115
4-Bromofluorobenzene	103	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	8.2 lc jl	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	MW-1-0822	Client:	Maul Foster Alongi
Date Received:	08/24/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208351-03
Date Analyzed:	08/27/22	Data File:	082626.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	0.62

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	MW-9-1-0822	Client:	Maul Foster Alongi
Date Received:	08/24/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208351-04
Date Analyzed:	08/27/22	Data File:	082627.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	91	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	0.85

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	Method Blank	Client:	Maul Foster Alongi
Date Received:	Not Applicable	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	02-1952 mb
Date Analyzed:	08/26/22	Data File:	082611.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	SB-2A-0822	Client:	Maul Foster Alongi
Date Received:	08/24/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/25/22	Lab ID:	208351-01 1/0.5
Date Analyzed:	08/26/22	Data File:	082620.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	42	10	60
Phenol-d6	30	10	49
Nitrobenzene-d5	83	15	144
2-Fluorobiphenyl	92	25	128
2,4,6-Tribromophenol	112	10	142
Terphenyl-d14	118	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5	Phenanthrene	<0.01
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	1.6 fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Field Blank 1-0822	Client:	Maul Foster Alongi
Date Received:	08/24/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/25/22	Lab ID:	208351-02 1/0.5
Date Analyzed:	08/26/22	Data File:	082621.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	45	10	60
Phenol-d6	31	10	49
Nitrobenzene-d5	89	15	144
2-Fluorobiphenyl	96	25	128
2,4,6-Tribromophenol	109	10	142
Terphenyl-d14	113	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5	Phenanthrene	0.011 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	1.6 fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW-1-0822	Client:	Maul Foster Alongi
Date Received:	08/24/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/25/22	Lab ID:	208351-03 1/0.5
Date Analyzed:	08/26/22	Data File:	082622.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	26	10	60
Phenol-d6	24	10	49
Nitrobenzene-d5	67	15	144
2-Fluorobiphenyl	63	25	128
2,4,6-Tribromophenol	83	10	142
Terphenyl-d14	117	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	1.1
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1	Dibenzofuran	0.35
1,2-Dichlorobenzene	0.12	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	1.4
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5	Phenanthrene	0.56
Bis(2-chloroethoxy)methane	<0.1	Anthracene	0.66
2,4-Dichlorophenol	<1	Carbazole	6.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	0.16	Fluoranthene	0.11
Hexachlorobutadiene	<0.1	Pyrene	0.22
4-Chloroaniline	<10	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	0.014
2-Methylnaphthalene	0.28	Chrysene	0.025
1-Methylnaphthalene	9.2	Bis(2-ethylhexyl) phthalate	2.3 fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW-9-1-0822	Client:	Maul Foster Alongi
Date Received:	08/24/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/25/22	Lab ID:	208351-04 1/0.5
Date Analyzed:	08/26/22	Data File:	082623.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	42	10	60
Phenol-d6	33	10	49
Nitrobenzene-d5	88	15	144
2-Fluorobiphenyl	81	25	128
2,4,6-Tribromophenol	97	10	142
Terphenyl-d14	135	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	1.2
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1	Dibenzofuran	0.43
1,2-Dichlorobenzene	0.13	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	1.8
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5	Phenanthrene	1.3
Bis(2-chloroethoxy)methane	<0.1	Anthracene	0.83
2,4-Dichlorophenol	<1	Carbazole	3.3
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	2.1
Naphthalene	0.22	Fluoranthene	0.15
Hexachlorobutadiene	<0.1	Pyrene	0.30
4-Chloroaniline	<10	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	0.025
2-Methylnaphthalene	<0.1	Chrysene	0.048
1-Methylnaphthalene	9.2	Bis(2-ethylhexyl) phthalate	3.3 fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	0.011
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Maul Foster Alongi
Date Received:	Not Applicable	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/25/22	Lab ID:	02-2035 mb 1/0.5
Date Analyzed:	08/26/22	Data File:	082611.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	39	10	60
Phenol-d6	27	10	49
Nitrobenzene-d5	83	15	144
2-Fluorobiphenyl	84	25	128
2,4,6-Tribromophenol	99	10	142
Terphenyl-d14	106	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5	Phenanthrene	<0.01
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	1.2 lc j
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	SB-2A-0822	Client:	Maul Foster Alongi
Date Received:	08/24/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/24/22	Lab ID:	208351-01 1/0.5
Date Analyzed:	08/26/22	Data File:	082629.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	59	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0050 j
Aroclor 1232	<0.0050 j
Aroclor 1016	<0.0050 j
Aroclor 1242	<0.0050 j
Aroclor 1248	<0.0070 j
Aroclor 1254	<0.0070 j
Aroclor 1260	<0.0070 j
Aroclor 1262	<0.0070 j
Aroclor 1268	<0.0070 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Field Blank 1-0822	Client:	Maul Foster Alongi
Date Received:	08/24/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/24/22	Lab ID:	208351-02 1/0.5
Date Analyzed:	08/26/22	Data File:	082630.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	43	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0054 j
Aroclor 1232	<0.0054 j
Aroclor 1016	<0.0054 j
Aroclor 1242	<0.0054 j
Aroclor 1248	<0.0076 j
Aroclor 1254	<0.0076 j
Aroclor 1260	<0.0076 j
Aroclor 1262	<0.0076 j
Aroclor 1268	<0.0076 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MW-1-0822	Client:	Maul Foster Alongi
Date Received:	08/24/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/24/22	Lab ID:	208351-03 1/0.5
Date Analyzed:	08/26/22	Data File:	082631.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	30	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0054 j
Aroclor 1232	<0.0054 j
Aroclor 1016	<0.0054 j
Aroclor 1242	<0.0054 j
Aroclor 1248	<0.0076 j
Aroclor 1254	<0.0076 j
Aroclor 1260	<0.0076 j
Aroclor 1262	<0.0076 j
Aroclor 1268	<0.0076 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	MW-9-1-0822	Client:	Maul Foster Alongi
Date Received:	08/24/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/24/22	Lab ID:	208351-04 1/0.5
Date Analyzed:	08/26/22	Data File:	082632.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	35	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0050 j
Aroclor 1232	<0.0050 j
Aroclor 1016	<0.0050 j
Aroclor 1242	<0.0050 j
Aroclor 1248	<0.0070 j
Aroclor 1254	<0.0070 j
Aroclor 1260	<0.0070 j
Aroclor 1262	<0.0070 j
Aroclor 1268	<0.0070 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Maul Foster Alongi
Date Received:	Not Applicable	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/24/22	Lab ID:	02-2032 mb 1/0.5
Date Analyzed:	08/26/22	Data File:	082617.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	34	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0050 j
Aroclor 1232	<0.0050 j
Aroclor 1016	<0.0050 j
Aroclor 1242	<0.0050 j
Aroclor 1248	<0.0070 j
Aroclor 1254	<0.0070 j
Aroclor 1260	<0.0070 j
Aroclor 1262	<0.0070 j
Aroclor 1268	<0.0070 j

Date of Report: 09/12/22
Date Received: 08/24/22
Project: TWAAFA - Groundwater Sampling M0615.20.005-03, F&BI 208351

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 208411-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	104	69-134

Date of Report: 09/12/22
Date Received: 08/24/22
Project: TWAAFA - Groundwater Sampling M0615.20.005-03, F&BI 208351

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 208343-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	5,000	<50	84	88	50-150	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	ug/L (ppb)	2,500	76	63-142

Date of Report: 09/12/22
Date Received: 08/24/22
Project: TWAAFA - Groundwater Sampling M0615.20.005-03, F&BI 208351

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 208343-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Antimony	ug/L (ppb)	20	<1	97	94	75-125	3
Arsenic	ug/L (ppb)	10	2.71	104	99	75-125	5
Barium	ug/L (ppb)	50	7.12	113	108	75-125	5
Beryllium	ug/L (ppb)	5	<1	100	95	75-125	5
Cadmium	ug/L (ppb)	5	<1	99	98	75-125	1
Chromium	ug/L (ppb)	20	<1	97	95	75-125	2
Cobalt	ug/L (ppb)	20	1.11	97	96	75-125	1
Copper	ug/L (ppb)	20	<5	94	91	75-125	3
Iron	ug/L (ppb)	100	3,170	58 b	0 b	75-125	200 b
Lead	ug/L (ppb)	10	<1	92	90	75-125	2
Manganese	ug/L (ppb)	20	316	55 b	18 b	75-125	101 b
Nickel	ug/L (ppb)	20	4.44	97	94	75-125	3
Selenium	ug/L (ppb)	5	<1	106	106	75-125	0
Silver	ug/L (ppb)	5	<1	97	95	75-125	2
Thallium	ug/L (ppb)	5	<1	88	87	75-125	1
Vanadium	ug/L (ppb)	20	2.69	101	98	75-125	3
Zinc	ug/L (ppb)	50	<5	90	88	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Antimony	ug/L (ppb)	20	94	80-120
Arsenic	ug/L (ppb)	10	91	80-120
Barium	ug/L (ppb)	50	95	80-120
Beryllium	ug/L (ppb)	5	99	80-120
Cadmium	ug/L (ppb)	5	95	80-120
Chromium	ug/L (ppb)	20	94	80-120
Cobalt	ug/L (ppb)	20	96	80-120
Copper	ug/L (ppb)	20	99	80-120
Iron	ug/L (ppb)	100	94	80-120
Lead	ug/L (ppb)	10	98	80-120
Manganese	ug/L (ppb)	20	94	80-120
Nickel	ug/L (ppb)	20	97	80-120
Selenium	ug/L (ppb)	5	97	80-120
Silver	ug/L (ppb)	5	95	80-120
Thallium	ug/L (ppb)	5	93	80-120
Vanadium	ug/L (ppb)	20	95	80-120
Zinc	ug/L (ppb)	50	97	80-120

Date of Report: 09/12/22
Date Received: 08/24/22
Project: TWAAFA - Groundwater Sampling M0615.20.005-03, F&BI 208351

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Laboratory Code: 208343-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Mercury	ug/L (ppb)	0.01	<0.008	97	95	71-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Mercury	ug/L (ppb)	0.01	91	78-125

Date of Report: 09/12/22
Date Received: 08/24/22
Project: TWAAFA - Groundwater Sampling M0615.20.005-03, F&BI 208351

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 208396-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	<1	104	94	50-150	10
Chloromethane	ug/L (ppb)	10	<10	78	76	50-150	3
Vinyl chloride	ug/L (ppb)	10	0.21	101	93	50-150	8
Bromomethane	ug/L (ppb)	10	<5	107	95	50-150	12
Chloroethane	ug/L (ppb)	10	<1	101	94	50-150	7
Trichlorofluoromethane	ug/L (ppb)	10	<1	95	85	50-150	11
Acetone	ug/L (ppb)	50	<50	87	80	50-150	8
1,1-Dichloroethene	ug/L (ppb)	10	<1	89	84	50-150	6
Hexane	ug/L (ppb)	10	<5	94	85	50-150	10
Methylene chloride	ug/L (ppb)	10	<5	77	66	50-150	15
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	89	80	50-150	11
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	96	90	50-150	6
1,1-Dichloroethane	ug/L (ppb)	10	<1	89	83	50-150	7
2,2-Dichloropropane	ug/L (ppb)	10	<1	106	97	50-150	9
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	97	86	50-150	12
Chloroform	ug/L (ppb)	10	<1	89	84	50-150	6
2-Butanone (MEK)	ug/L (ppb)	50	<20	87	91	50-150	4
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	98	93	50-150	5
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	90	82	50-150	9
1,1-Dichloropropene	ug/L (ppb)	10	<1	93	88	50-150	6
Carbon tetrachloride	ug/L (ppb)	10	<0.5	93	86	50-150	8
Benzene	ug/L (ppb)	10	24	90 b	87 b	50-150	3 b
Trichloroethene	ug/L (ppb)	10	<0.5	95	92	50-150	3
1,2-Dichloropropane	ug/L (ppb)	10	<1	89	83	50-150	7
Bromodichloromethane	ug/L (ppb)	10	<0.5	90	85	50-150	6
Dibromomethane	ug/L (ppb)	10	<1	95	89	50-150	7
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	88	81	50-150	8
cis-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	95	85	50-150	11
Toluene	ug/L (ppb)	10	33	94 b	113 b	50-150	18 b
trans-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	94	87	50-150	8
1,1,2-Trichloroethane	ug/L (ppb)	10	<0.5	90	87	50-150	3
2-Hexanone	ug/L (ppb)	50	<10	92	85	50-150	8
1,3-Dichloropropane	ug/L (ppb)	10	<1	89	84	50-150	6
Tetrachloroethene	ug/L (ppb)	10	<1	95	95	50-150	0
Dibromochloromethane	ug/L (ppb)	10	<0.5	93	89	50-150	4
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	93	88	50-150	6
Chlorobenzene	ug/L (ppb)	10	63	94 b	106 b	50-150	12 b
Ethylbenzene	ug/L (ppb)	10	91	96 b	99 b	50-150	3 b
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<1	91	88	50-150	3
m,p-Xylene	ug/L (ppb)	20	10	94 b	88 b	50-150	7 b
o-Xylene	ug/L (ppb)	10	19	92 b	94 b	50-150	2 b
Styrene	ug/L (ppb)	10	<1	97	91	50-150	6
Isopropylbenzene	ug/L (ppb)	10	9.9	94 b	94 b	50-150	0 b
Bromoform	ug/L (ppb)	10	<5	95	90	50-150	5
n-Propylbenzene	ug/L (ppb)	10	17	91 b	95 b	50-150	4 b
Bromobenzene	ug/L (ppb)	10	<1	90	85	50-150	6
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	89	90	50-150	1
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<0.2	89	89	50-150	0
1,2,3-Trichloropropane	ug/L (ppb)	10	<1	80	79	50-150	1
2-Chlorotoluene	ug/L (ppb)	10	<1	89	89	50-150	0
4-Chlorotoluene	ug/L (ppb)	10	<1	91	87	50-150	4
tert-Butylbenzene	ug/L (ppb)	10	1.2	91	96	50-150	5
1,2,4-Trimethylbenzene	ug/L (ppb)	10	4.6	91 b	93 b	50-150	2 b
sec-Butylbenzene	ug/L (ppb)	10	2.5	93 b	95 b	50-150	2 b
p-Isopropyltoluene	ug/L (ppb)	10	<1	94	93	50-150	1
1,3-Dichlorobenzene	ug/L (ppb)	10	5.8	89 b	89 b	50-150	0 b
1,4-Dichlorobenzene	ug/L (ppb)	10	16	91 b	92 b	50-150	1 b
1,2-Dichlorobenzene	ug/L (ppb)	10	15	84 b	94 b	50-150	11 b
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<10	97	96	50-150	1
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	91	93	50-150	2
Hexachlorobutadiene	ug/L (ppb)	10	<0.5	93	94	50-150	1
Naphthalene	ug/L (ppb)	10	130	78 b	175 b	50-150	77 b
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<1	93	93	50-150	0

Date of Report: 09/12/22
Date Received: 08/24/22
Project: TWAAFA - Groundwater Sampling M0615.20.005-03, F&BI 208351

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	117	108	46-206	8
Chloromethane	ug/L (ppb)	10	102	92	70-142	10
Vinyl chloride	ug/L (ppb)	10	113	105	70-130	7
Bromomethane	ug/L (ppb)	10	125	102	56-197	20
Chloroethane	ug/L (ppb)	10	112	104	70-130	7
Trichlorofluoromethane	ug/L (ppb)	10	101	100	70-130	1
Acetone	ug/L (ppb)	50	102	95	10-140	7
1,1-Dichloroethene	ug/L (ppb)	10	100	95	70-130	5
Hexane	ug/L (ppb)	10	102	99	54-136	3
Methylene chloride	ug/L (ppb)	10	141 vo	94	43-134	40 vo
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	101	95	70-130	6
trans-1,2-Dichloroethene	ug/L (ppb)	10	107	101	70-130	6
1,1-Dichloroethane	ug/L (ppb)	10	99	93	70-130	6
2,2-Dichloropropane	ug/L (ppb)	10	116	108	70-130	7
cis-1,2-Dichloroethene	ug/L (ppb)	10	108	97	70-130	11
Chloroform	ug/L (ppb)	10	99	94	70-130	5
2-Butanone (MEK)	ug/L (ppb)	50	96	92	17-154	4
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	102	100	70-130	2
1,1,1-Trichloroethane	ug/L (ppb)	10	100	95	70-130	5
1,1-Dichloropropene	ug/L (ppb)	10	99	99	70-130	0
Carbon tetrachloride	ug/L (ppb)	10	105	100	70-130	5
Benzene	ug/L (ppb)	10	103	100	70-130	3
Trichloroethene	ug/L (ppb)	10	104	102	70-130	2
1,2-Dichloropropane	ug/L (ppb)	10	100	96	70-130	4
Bromodichloromethane	ug/L (ppb)	10	102	97	70-130	5
Dibromomethane	ug/L (ppb)	10	105	103	70-130	2
4-Methyl-2-pentanone	ug/L (ppb)	50	107	99	68-130	8
cis-1,3-Dichloropropene	ug/L (ppb)	10	110	100	69-131	10
Toluene	ug/L (ppb)	10	105	101	70-130	4
trans-1,3-Dichloropropene	ug/L (ppb)	10	101	97	70-130	4
1,1,2-Trichloroethane	ug/L (ppb)	10	102	98	70-130	4
2-Hexanone	ug/L (ppb)	50	100	97	45-138	3
1,3-Dichloropropane	ug/L (ppb)	10	100	97	70-130	3
Tetrachloroethene	ug/L (ppb)	10	104	100	70-130	4
Dibromochloromethane	ug/L (ppb)	10	103	98	60-148	5
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	103	99	70-130	4
Chlorobenzene	ug/L (ppb)	10	101	97	70-130	4
Ethylbenzene	ug/L (ppb)	10	102	98	70-130	4
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	98	96	70-130	2
m,p-Xylene	ug/L (ppb)	20	103	98	70-130	5
o-Xylene	ug/L (ppb)	10	100	97	70-130	3
Styrene	ug/L (ppb)	10	99	95	70-130	4
Isopropylbenzene	ug/L (ppb)	10	100	97	70-130	3
Bromoform	ug/L (ppb)	10	104	100	69-138	4
n-Propylbenzene	ug/L (ppb)	10	99	97	70-130	2
Bromobenzene	ug/L (ppb)	10	102	98	70-130	4
1,3,5-Trimethylbenzene	ug/L (ppb)	10	96	94	70-130	2
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	101	98	70-130	3
1,2,3-Trichloropropane	ug/L (ppb)	10	95	94	70-130	1
2-Chlorotoluene	ug/L (ppb)	10	97	94	70-130	3
4-Chlorotoluene	ug/L (ppb)	10	99	98	70-130	1
tert-Butylbenzene	ug/L (ppb)	10	98	98	70-130	0
1,2,4-Trimethylbenzene	ug/L (ppb)	10	96	94	70-130	2
sec-Butylbenzene	ug/L (ppb)	10	98	98	70-130	0
p-Isopropyltoluene	ug/L (ppb)	10	99	98	70-130	1
1,3-Dichlorobenzene	ug/L (ppb)	10	98	96	70-130	2
1,4-Dichlorobenzene	ug/L (ppb)	10	97	97	70-130	0
1,2-Dichlorobenzene	ug/L (ppb)	10	95	96	70-130	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	98	101	70-130	3
1,2,4-Trichlorobenzene	ug/L (ppb)	10	94	95	70-130	1
Hexachlorobutadiene	ug/L (ppb)	10	98	98	70-130	0
Naphthalene	ug/L (ppb)	10	93	93	70-130	0
1,2,3-Trichlorobenzene	ug/L (ppb)	10	94	97	70-130	3

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Project: TWAAFA - Groundwater Sampling M0615.20.005-03, F&BI 208351

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D SIM

Laboratory Code: 208373-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
1,4-Dioxane	ug/L (ppb)	2	1.3	93 b	108 b	50-150	15 b

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QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D SIM

Laboratory Code: 208343-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
1,4-Dioxane	ug/L (ppb)	2	<0.4	128	102	50-150	23 vo

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
1,4-Dioxane	ug/L (ppb)	2	77	94	70-130	20

Date of Report: 09/12/22
Date Received: 08/24/22
Project: TWAAFA - Groundwater Sampling M0615.20.005-03, F&BI 208351

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: 208343-05 1/0.5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Phenol	ug/L (ppb)	2.5	<1	18	25	10-76	33 vo
Bis(2-chloroethyl) ether	ug/L (ppb)	2.5	<0.1	37	50	35-104	30 vo
2-Chlorophenol	ug/L (ppb)	2.5	<1	47	51	18-97	8
1,3-Dichlorobenzene	ug/L (ppb)	2.5	<0.1	15 vo	46	34-90	102 vo
1,4-Dichlorobenzene	ug/L (ppb)	2.5	<0.1	17 vo	46	36-90	92 vo
1,2-Dichlorobenzene	ug/L (ppb)	2.5	<0.1	24 vo	44	38-90	59 vo
Benzyl alcohol	ug/L (ppb)	2.5	<1	56	53	27-89	6
2,2'-Oxybis(1-chloropropane)	ug/L (ppb)	13	<0.1	45	54	30-109	18
2-Methylphenol	ug/L (ppb)	2.5	<1	55	52	25-95	6
Hexachloroethane	ug/L (ppb)	2.5	<0.1	18 vo	48	38-88	91 vo
N-Nitroso-di-n-propylamine	ug/L (ppb)	2.5	<0.1	64	65	50-150	2
3-Methylphenol + 4-Methylphenol	ug/L (ppb)	2.5	<2	52	52	15-95	0
Nitrobenzene	ug/L (ppb)	2.5	<0.1	56	58	41-114	4
Isophorone	ug/L (ppb)	2.5	<0.1	72	74	50-150	3
2-Nitrophenol	ug/L (ppb)	2.5	<1	58	63	21-113	8
2,4-Dimethylphenol	ug/L (ppb)	2.5	<1	69	72	50-150	4
Benzoic acid	ug/L (ppb)	2.5	<5	24	23	10-73	4
Bis(2-chloroethoxy)methane	ug/L (ppb)	20	<0.1	69	67	50-150	3
2,4-Dichlorophenol	ug/L (ppb)	2.5	<1	68	73	26-110	7
1,2,4-Trichlorobenzene	ug/L (ppb)	2.5	<0.1	47	52	42-95	10
Naphthalene	ug/L (ppb)	2.5	<0.1	54	55	46-95	2
Hexachlorobutadiene	ug/L (ppb)	2.5	<0.1	47	50	39-94	6
4-Chloroaniline	ug/L (ppb)	2.5	<10	52	61	16-114	16
4-Chloro-3-methylphenol	ug/L (ppb)	13	<1	79	82	46-123	4
2-Methylnaphthalene	ug/L (ppb)	2.5	<0.1	63	62	50-150	2
1-Methylnaphthalene	ug/L (ppb)	2.5	<0.1	65	64	50-150	2
Hexachlorocyclopentadiene	ug/L (ppb)	2.5	<0.3	53	55	28-122	4
2,4,6-Trichlorophenol	ug/L (ppb)	2.5	<1	77	80	10-149	4
2,4,5-Trichlorophenol	ug/L (ppb)	2.5	<1	85	80	10-143	6
2-Chloronaphthalene	ug/L (ppb)	2.5	<0.1	68	66	50-150	3
2-Nitroaniline	ug/L (ppb)	2.5	<0.5	88	89	41-139	1
Dimethyl phthalate	ug/L (ppb)	13	<1	87	88	50-150	1
Acenaphthylene	ug/L (ppb)	2.5	<0.01	74	75	50-150	1
2,6-Dinitrotoluene	ug/L (ppb)	2.5	<0.5	95	89	50-150	7
3-Nitroaniline	ug/L (ppb)	2.5	<10	72	79	21-124	9
Acenaphthene	ug/L (ppb)	13	<0.01	74	75	50-150	1
2,4-Dinitrophenol	ug/L (ppb)	2.5	<3	85	88	10-182	3
Dibenzofuran	ug/L (ppb)	5	<0.1	77	78	46-116	1
2,4-Dinitrotoluene	ug/L (ppb)	2.5	<0.5	84	92	50-150	9
4-Nitrophenol	ug/L (ppb)	2.5	<3	33	34	10-86	3
Diethyl phthalate	ug/L (ppb)	5	<1	90	93	50-150	3
Fluorene	ug/L (ppb)	2.5	<0.01	81	82	50-150	1
4-Chlorophenyl phenyl ether	ug/L (ppb)	2.5	<0.1	81	80	50-150	1
N-Nitrosodiphenylamine	ug/L (ppb)	2.5	<0.1	85	84	50-150	1
4-Nitroaniline	ug/L (ppb)	2.5	<10	82	88	46-105	7
4,6-Dinitro-2-methylphenol	ug/L (ppb)	2.5	<3	94	104	10-223	10
4-Bromophenyl phenyl ether	ug/L (ppb)	13	<0.1	85	86	50-150	1
Hexachlorobenzene	ug/L (ppb)	2.5	<0.1	84	86	50-150	2
Pentachlorophenol	ug/L (ppb)	2.5	<0.5	92	98	10-207	6
Phenanthrene	ug/L (ppb)	2.5	0.012 fb	86	91	50-150	6
Anthracene	ug/L (ppb)	2.5	<0.01	86	91	50-150	6
Carbazole	ug/L (ppb)	2.5	<0.1	98	106	50-150	8
Di-n-butyl phthalate	ug/L (ppb)	2.5	<1	95	94	50-150	1
Fluoranthene	ug/L (ppb)	2.5	<0.01	91	99	50-150	8
Pyrene	ug/L (ppb)	2.5	<0.01	96	102	50-150	6
Benzyl butyl phthalate	ug/L (ppb)	2.5	<1	101	107	50-150	6
Benz(a)anthracene	ug/L (ppb)	3.8	<0.01	98	99	50-150	1
Chrysene	ug/L (ppb)	2.5	<0.01	95	96	50-150	1
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	2.5	<1.6	97	103	46-157	6
Di-n-octyl phthalate	ug/L (ppb)	3.8	<1	114	115	50-150	1
Benzo(a)pyrene	ug/L (ppb)	2.5	<0.01	99	97	50-150	2
Benzo(b)fluoranthene	ug/L (ppb)	2.5	<0.01	101	95	50-150	6
Benzo(k)fluoranthene	ug/L (ppb)	2.5	<0.01	100	99	50-150	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	2.5	<0.01	97	106	50-150	9
Dibenz(a,h)anthracene	ug/L (ppb)	2.5	<0.01	98	106	50-150	8
Benzo(g,h,i)perylene	ug/L (ppb)	2.5	<0.02	92	101	50-150	9

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QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: 208373-02 1/0.5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Phenol	ug/L (ppb)	2.5	<1	22 vo	18 vo	50-150	20
Bis(2-chloroethyl) ether	ug/L (ppb)	2.5	<0.1	52	42 vo	50-150	21 vo
2-Chlorophenol	ug/L (ppb)	2.5	<1	45 vo	40 vo	50-150	12
1,3-Dichlorobenzene	ug/L (ppb)	2.5	<0.1	40 vo	36 vo	50-150	11
1,4-Dichlorobenzene	ug/L (ppb)	2.5	<0.1	41 vo	36 vo	50-150	13
1,2-Dichlorobenzene	ug/L (ppb)	2.5	<0.1	43 vo	38 vo	50-150	12
Benzyl alcohol	ug/L (ppb)	2.5	<1	50	42 vo	50-150	17
2,2'-Oxybis(1-chloropropane)	ug/L (ppb)	13	<0.1	50	42 vo	50-150	17
2-Methylphenol	ug/L (ppb)	2.5	<1	50	43 vo	50-150	15
Hexachloroethane	ug/L (ppb)	2.5	<0.1	41 vo	37 vo	50-150	10
N-Nitroso-di-n-propylamine	ug/L (ppb)	2.5	<0.1	62	54	50-150	14
3-Methylphenol + 4-Methylphenol	ug/L (ppb)	2.5	<2	44 vo	40 vo	50-150	10
Nitrobenzene	ug/L (ppb)	2.5	<0.1	52	45 vo	50-150	14
Isophorone	ug/L (ppb)	2.5	<0.1	61	55	50-150	10
2-Nitrophenol	ug/L (ppb)	2.5	<1	52	44 vo	50-150	17
2,4-Dimethylphenol	ug/L (ppb)	2.5	<1	58	55	50-150	5
Benzoic acid	ug/L (ppb)	2.5	<5	30 vo	28 vo	50-150	7
Bis(2-chloroethoxy)methane	ug/L (ppb)	20	<0.1	61	54	50-150	12
2,4-Dichlorophenol	ug/L (ppb)	2.5	<1	59	56	50-150	5
1,2,4-Trichlorobenzene	ug/L (ppb)	2.5	<0.1	47 vo	44 vo	50-150	7
Naphthalene	ug/L (ppb)	2.5	<0.1	49 vo	45 vo	50-150	9
Hexachlorobutadiene	ug/L (ppb)	2.5	<0.1	45 vo	42 vo	50-150	7
4-Chloroaniline	ug/L (ppb)	2.5	<10	52	54	50-150	4
4-Chloro-3-methylphenol	ug/L (ppb)	13	<1	69	69	50-150	0
2-Methylnaphthalene	ug/L (ppb)	2.5	<0.1	54	50	50-150	8
1-Methylnaphthalene	ug/L (ppb)	2.5	<0.1	55	51	50-150	8
Hexachlorocyclopentadiene	ug/L (ppb)	2.5	<0.3	46 vo	48 vo	50-150	4
2,4,6-Trichlorophenol	ug/L (ppb)	2.5	<1	70	65	50-150	7
2,4,5-Trichlorophenol	ug/L (ppb)	2.5	<1	73	72	50-150	1
2-Chloronaphthalene	ug/L (ppb)	2.5	<0.1	59	54	50-150	9
2-Nitroaniline	ug/L (ppb)	2.5	<0.5	76	75	50-150	1
Dimethyl phthalate	ug/L (ppb)	13	<1	75	73	50-150	3
Acenaphthylene	ug/L (ppb)	2.5	<0.01	65	61	50-150	6
2,6-Dinitrotoluene	ug/L (ppb)	2.5	<0.5	76	73	50-150	4
3-Nitroaniline	ug/L (ppb)	2.5	<10	65	67	50-150	3
Acenaphthene	ug/L (ppb)	13	<0.01	61	58	50-150	5
2,4-Dinitrophenol	ug/L (ppb)	2.5	<3	86	82	50-150	5
Dibenzofuran	ug/L (ppb)	5	<0.1	63	61	50-150	3
2,4-Dinitrotoluene	ug/L (ppb)	2.5	<0.5	61	61	50-150	0
4-Nitrophenol	ug/L (ppb)	2.5	<3	34 vo	32 vo	50-150	6
Diethyl phthalate	ug/L (ppb)	5	<1	77	77	50-150	0
Fluorene	ug/L (ppb)	2.5	<0.01	70	68	50-150	3
4-Chlorophenyl phenyl ether	ug/L (ppb)	2.5	<0.1	71	71	50-150	0
N-Nitrosodiphenylamine	ug/L (ppb)	2.5	<0.1	77	74	50-150	4
4-Nitroaniline	ug/L (ppb)	2.5	<10	63	62	50-150	2
4,6-Dinitro-2-methylphenol	ug/L (ppb)	2.5	<3	93	89	50-150	4
4-Bromophenyl phenyl ether	ug/L (ppb)	13	<0.1	73	69	50-150	6
Hexachlorobenzene	ug/L (ppb)	2.5	<0.1	69	68	50-150	1
Pentachlorophenol	ug/L (ppb)	2.5	<0.5	99	98	50-150	1
Phenanthrene	ug/L (ppb)	2.5	0.014 fb	75	72	50-150	4
Anthracene	ug/L (ppb)	2.5	<0.01	72	72	50-150	0
Carbazole	ug/L (ppb)	2.5	<0.1	79	78	50-150	1
Di-n-butyl phthalate	ug/L (ppb)	2.5	<1	90	92	50-150	2
Fluoranthene	ug/L (ppb)	2.5	<0.01	76	75	50-150	1
Pyrene	ug/L (ppb)	2.5	<0.01	79	76	50-150	4
Benzyl butyl phthalate	ug/L (ppb)	2.5	<1	83	89	50-150	7
Benz(a)anthracene	ug/L (ppb)	3.8	<0.01	78	78	50-150	0
Chrysene	ug/L (ppb)	2.5	<0.01	76	78	50-150	3
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	2.5	1.6	80 b	111 b	50-150	32 b
Di-n-octyl phthalate	ug/L (ppb)	3.8	<1	69	75	50-150	8
Benzo(a)pyrene	ug/L (ppb)	2.5	<0.01	76	78	50-150	3
Benzo(b)fluoranthene	ug/L (ppb)	2.5	<0.01	79	83	50-150	5
Benzo(k)fluoranthene	ug/L (ppb)	2.5	<0.01	77	79	50-150	3
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	2.5	<0.01	75	75	50-150	0
Dibenz(a,h)anthracene	ug/L (ppb)	2.5	<0.01	75	75	50-150	0
Benzo(g,h,i)perylene	ug/L (ppb)	2.5	<0.02	69	71	50-150	3

Date of Report: 09/12/22
Date Received: 08/24/22
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QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Phenol	ug/L (ppb)	2.5	26	10-30
Bis(2-chloroethyl) ether	ug/L (ppb)	2.5	76	43-117
2-Chlorophenol	ug/L (ppb)	2.5	69	21-97
1,3-Dichlorobenzene	ug/L (ppb)	2.5	69	39-102
1,4-Dichlorobenzene	ug/L (ppb)	2.5	73	41-103
1,2-Dichlorobenzene	ug/L (ppb)	2.5	71	43-105
Benzyl alcohol	ug/L (ppb)	2.5	66	14-82
2,2'-Oxybis(1-chloropropane)	ug/L (ppb)	13	74	51-110
2-Methylphenol	ug/L (ppb)	2.5	62	19-77
Hexachloroethane	ug/L (ppb)	2.5	70	39-104
N-Nitroso-di-n-propylamine	ug/L (ppb)	2.5	81	60-114
3-Methylphenol + 4-Methylphenol	ug/L (ppb)	2.5	58	14-63
Nitrobenzene	ug/L (ppb)	2.5	78	53-114
Isophorone	ug/L (ppb)	2.5	82	62-113
2-Nitrophenol	ug/L (ppb)	2.5	74	41-117
2,4-Dimethylphenol	ug/L (ppb)	2.5	58	23-105
Benzoic acid	ug/L (ppb)	2.5	13	10-25
Bis(2-chloroethoxy)methane	ug/L (ppb)	20	79	56-111
2,4-Dichlorophenol	ug/L (ppb)	2.5	76	34-113
1,2,4-Trichlorobenzene	ug/L (ppb)	2.5	70	48-104
Naphthalene	ug/L (ppb)	2.5	71	50-104
Hexachlorobutadiene	ug/L (ppb)	2.5	72	40-107
4-Chloroaniline	ug/L (ppb)	2.5	81	34-120
4-Chloro-3-methylphenol	ug/L (ppb)	13	79	34-111
2-Methylnaphthalene	ug/L (ppb)	2.5	73	54-109
1-Methylnaphthalene	ug/L (ppb)	2.5	74	55-108
Hexachlorocyclopentadiene	ug/L (ppb)	2.5	60	34-126
2,4,6-Trichlorophenol	ug/L (ppb)	2.5	81	28-125
2,4,5-Trichlorophenol	ug/L (ppb)	2.5	85	39-120
2-Chloronaphthalene	ug/L (ppb)	2.5	77	57-130
2-Nitroaniline	ug/L (ppb)	2.5	91	51-146
Dimethyl phthalate	ug/L (ppb)	13	87	64-118
Acenaphthylene	ug/L (ppb)	2.5	83	60-114
2,6-Dinitrotoluene	ug/L (ppb)	2.5	103	66-121
3-Nitroaniline	ug/L (ppb)	2.5	89	42-134
Acenaphthene	ug/L (ppb)	13	83	57-110
2,4-Dinitrophenol	ug/L (ppb)	2.5	79	10-171
Dibenzofuran	ug/L (ppb)	5	85	52-116
2,4-Dinitrotoluene	ug/L (ppb)	2.5	90	55-127
4-Nitrophenol	ug/L (ppb)	2.5	34	10-46
Diethyl phthalate	ug/L (ppb)	5	79	63-118
Fluorene	ug/L (ppb)	2.5	86	61-115
4-Chlorophenyl phenyl ether	ug/L (ppb)	2.5	89	61-112
N-Nitrosodiphenylamine	ug/L (ppb)	2.5	83	63-116
4-Nitroaniline	ug/L (ppb)	2.5	111	42-150
4,6-Dinitro-2-methylphenol	ug/L (ppb)	2.5	84	13-152
4-Bromophenyl phenyl ether	ug/L (ppb)	13	81	62-115
Hexachlorobenzene	ug/L (ppb)	2.5	89	60-113
Pentachlorophenol	ug/L (ppb)	2.5	79	14-137
Phenanthrene	ug/L (ppb)	2.5	87	63-113
Anthracene	ug/L (ppb)	2.5	88	65-117
Carbazole	ug/L (ppb)	2.5	97	67-131
Di-n-butyl phthalate	ug/L (ppb)	2.5	61	37-135
Fluoranthene	ug/L (ppb)	2.5	93	68-121
Pyrene	ug/L (ppb)	2.5	91	66-125
Benzyl butyl phthalate	ug/L (ppb)	2.5	87	56-128
Benz(a)anthracene	ug/L (ppb)	3.8	95	70-130
Chrysene	ug/L (ppb)	2.5	93	67-119
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	2.5	72	57-124
Di-n-octyl phthalate	ug/L (ppb)	3.8	92	43-132
Benzo(a)pyrene	ug/L (ppb)	2.5	92	68-126
Benzo(b)fluoranthene	ug/L (ppb)	2.5	94	62-130
Benzo(k)fluoranthene	ug/L (ppb)	2.5	92	67-125
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	2.5	100	63-131
Dibenz(a,h)anthracene	ug/L (ppb)	2.5	101	62-133
Benzo(g,h,i)perylene	ug/L (ppb)	2.5	99	57-133

Date of Report: 09/12/22
Date Received: 08/24/22
Project: TWAAFA - Groundwater Sampling M0615.20.005-03, F&BI 208351

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR POLYCHLORINATED BIPHENYLS AS AROCLOR 1016/1260 BY EPA METHOD 8082A

Laboratory Code: 208343-05 1/0.5 (Matrix Spike) 1/0.5

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	ug/L (ppb)	0.25	<0.0058 j	50	39 vo	50-150	25 vo
Aroclor 1260	ug/L (ppb)	0.25	<0.0083 j	68	64	50-150	6

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Aroclor 1016	ug/L (ppb)	0.25	36	25-165
Aroclor 1260	ug/L (ppb)	0.25	56	25-163

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

208351

SAMPLE CHAIN OF CUSTODY

ME 08-24-22

EO4 AI3 VW 4

Page # _____ of _____

Report To: Audrey Hackett/Carolyn Wise

Company: Maul Foster Alongi, Inc.

Address: 2815 2nd Avenue, Suite 540

City, State, ZIP: Seattle WA 98121

Phone: 206-331-1835 Email: ahackett@maulfoster.com

SAMPLERS (signature)

PROJECT NAME: TWAAFA - Groundwater Sampling

PO #: M0615.20.005-03

REMARKS: SVOCs lab filtered at 0.7 micron before analysis

Project Specific RLs - (Yes) / No

INVOICE TO: A. Hackett, MFA

TURNAROUND TIME
X :Standard Turnaround
:RUSH_____
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Archive Samples
Other_____

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	DRO/ORO by NWTPH-Dx w/SG	DRO/ORO - NWTPH-Dx wo/SG	GRO - NWTPH-Gx	EPH - NWTPH-EPH	VPH - NWTPH-VPH	VOCs by 8260D	1,4-Dioxane - 8260D	SVOCs by 8270E	Total Metals by 6020	Mercury by 1613E	LL PCBs by 8082	Notes
						ANALYSES REQUESTED											* VOAs received
SB-2A-0822	01 A-E	8/23/22	10:50	GW	5		X	X			X	X	X	X	X	X	on 8/23/22 under SDG 208343
Field Blank#1-0822	02 A-F	8/23/22	9:10	GW	6 EMB EMB 6		X	X	X	X	X	X	X	X	X	X	Rec 6 containers EMB mc
MW-1-0822	03 A-R	8/23/22	16:00	GW	18		X	X	X	X	X	X	X	X	X	X	
MW-9-1-0822	04	8/23/22	16:00	GW	18		X	X	X	X	X	X	X	X	X	X	
Trip Blank#2-0822	05 A-B	8/23/22			2			X			X						
														Samples	received at	4	°C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Christian Sifford	MFA	8/24/22	10:10
Received by:	Eric Jones	EaB	8/24/22	10:10
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 208351 CLIENT MFA INITIALS/ DATE: EWB 8/24

If custody seals are present on cooler, are they intact? ☒ NA ☐ YES ☐ NO

Cooler/Sample temperature 4 °C

Were samples received on ice/cold packs? ☒ YES ☐ NO

How did samples arrive?
- ☒ Over the Counter
- ☐ Picked up by F&BI
- ☐ FedEx/UPS/GSO

Number of days samples have been sitting prior to receipt at laboratory 1 days

Is there a Chain-of-Custody* (COC)? ☒ YES ☐ NO
*or other representative documents, letters, and/or shipping memos

Are the samples clearly identified? (explain "no" answer below) ☒ YES ☐ NO

Is the following information provided on the COC* ? (explain "no" answer below)

Sample ID's	☒ Yes	☐ No	# of Containers	☒ Yes	☐ No
Date Sampled	☒ Yes	☐ No	Relinquished	☒ Yes	☐ No
Time Sampled	☒ Yes	☐ No	Requested analysis	☒ Yes	☐ No

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below) ☒ YES ☐ NO

Were appropriate sample containers used? ☐ YES ☒ NO ☐ Unknown

If custody seals are present on samples, are they intact? ☒ NA ☐ YES ☐ NO

Are samples requiring no headspace, headspace free? ☐ NA ☒ YES ☐ NO

Air Samples: Were any additional canisters received? ☒ NA ☐ YES ☐ NO

If Yes, number of unused 1L canisters _____

number of unused 6L canisters _____

Explain "no" items from above (use the back if needed)

No VOA Rec Gr - 01-02. VOAs were included with project 208343

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman & Bruya
Michael Erdahl
3012 16th Ave. W.
Seattle, WA 98119

RE: 208351
Work Order Number: 2208366

September 08, 2022

Attention Michael Erdahl:

Fremont Analytical, Inc. received 3 sample(s) on 8/24/2022 for the analyses presented in the following report.

Extractable Petroleum Hydrocarbons by NWEPH

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *09/08/2022*

CLIENT: Friedman & Bruya
Project: 208351
Work Order: 2208366

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2208366-001	Field Blank #1-0822	08/23/2022 9:10 AM	08/24/2022 2:56 PM
2208366-002	MW-1-0822	08/23/2022 4:00 PM	08/24/2022 2:56 PM
2208366-003	MW-9-1-0822	08/23/2022 4:00 PM	08/24/2022 2:56 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Original

Case Narrative

WO#: **2208366**
Date: **9/8/2022**

CLIENT: Friedman & Bruya
Project: 208351

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MCL - Maximum Contaminant Level
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **2208366**
Date Reported: **9/8/2022**

Client: Friedman & Bruya
Collection Date: 8/23/2022 9:10:00 AM
Project: 208351
Lab ID: 2208366-001
Matrix: Water
Client Sample ID: Field Blank #1-0822

Extractable Petroleum Hydrocarbons by NWEPH

Batch ID: 37608 Analyst: KJ

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Aliphatic Hydrocarbon (C8-C10)	ND	79.9		µg/L	1	9/7/2022 5:14:24 PM
Aliphatic Hydrocarbon (C10-C12)	ND	40.0	*	µg/L	1	9/7/2022 5:14:24 PM
Aliphatic Hydrocarbon (C12-C16)	ND	40.0		µg/L	1	9/7/2022 5:14:24 PM
Aliphatic Hydrocarbon (C16-C21)	ND	40.0		µg/L	1	9/7/2022 5:14:24 PM
Aliphatic Hydrocarbon (C21-C34)	ND	40.0		µg/L	1	9/7/2022 5:14:24 PM
Aromatic Hydrocarbon (C8-C10)	ND	79.9		µg/L	1	9/7/2022 11:25:22 PM
Aromatic Hydrocarbon (C10-C12)	ND	40.0	*	µg/L	1	9/7/2022 11:25:22 PM
Aromatic Hydrocarbon (C12-C16)	ND	40.0		µg/L	1	9/7/2022 11:25:22 PM
Aromatic Hydrocarbon (C16-C21)	ND	40.0		µg/L	1	9/7/2022 11:25:22 PM
Aromatic Hydrocarbon (C21-C34)	ND	40.0		µg/L	1	9/7/2022 11:25:22 PM
Surr: 1-Chlorooctadecane	76.9	50 - 150		%Rec	1	9/7/2022 5:14:24 PM
Surr: o-Terphenyl	74.8	50 - 150		%Rec	1	9/7/2022 11:25:22 PM

NOTES:
* - Associated LCS does not meet acceptance criteria; refer to QC summary.

Analytical Report

Work Order: **2208366**
Date Reported: **9/8/2022**

Client: Friedman & Bruya
Collection Date: 8/23/2022 4:00:00 PM
Project: 208351
Lab ID: 2208366-002
Matrix: Water
Client Sample ID: MW-1-0822

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 37608		Analyst: KJ
Aliphatic Hydrocarbon (C8-C10)	ND	78.4		µg/L	1	9/7/2022 5:36:05 PM
Aliphatic Hydrocarbon (C10-C12)	ND	39.2	*	µg/L	1	9/7/2022 5:36:05 PM
Aliphatic Hydrocarbon (C12-C16)	ND	39.2		µg/L	1	9/7/2022 5:36:05 PM
Aliphatic Hydrocarbon (C16-C21)	ND	39.2		µg/L	1	9/7/2022 5:36:05 PM
Aliphatic Hydrocarbon (C21-C34)	ND	39.2		µg/L	1	9/7/2022 5:36:05 PM
Aromatic Hydrocarbon (C8-C10)	ND	78.4		µg/L	1	9/7/2022 11:47:19 PM
Aromatic Hydrocarbon (C10-C12)	ND	39.2	*	µg/L	1	9/7/2022 11:47:19 PM
Aromatic Hydrocarbon (C12-C16)	126	39.2	Q	µg/L	1	9/7/2022 11:47:19 PM
Aromatic Hydrocarbon (C16-C21)	110	39.2		µg/L	1	9/7/2022 11:47:19 PM
Aromatic Hydrocarbon (C21-C34)	ND	39.2		µg/L	1	9/7/2022 11:47:19 PM
Surr: 1-Chlorooctadecane	66.9	50 - 150		%Rec	1	9/7/2022 5:36:05 PM
Surr: o-Terphenyl	68.3	50 - 150		%Rec	1	9/7/2022 11:47:19 PM

NOTES:
* - Associated LCS does not meet acceptance criteria; refer to QC summary.
Q - Associated calibration verification is above acceptance criteria. Result may be high-biased.

Analytical Report

Work Order: **2208366**
Date Reported: **9/8/2022**

Client: Friedman & Bruya
Collection Date: 8/23/2022 4:00:00 PM
Project: 208351
Lab ID: 2208366-003
Matrix: Water
Client Sample ID: MW-9-1-0822

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 37608		Analyst: KJ
Aliphatic Hydrocarbon (C8-C10)	ND	78.3		µg/L	1	9/7/2022 5:57:47 PM
Aliphatic Hydrocarbon (C10-C12)	ND	39.1	*	µg/L	1	9/7/2022 5:57:47 PM
Aliphatic Hydrocarbon (C12-C16)	ND	39.1		µg/L	1	9/7/2022 5:57:47 PM
Aliphatic Hydrocarbon (C16-C21)	ND	39.1		µg/L	1	9/7/2022 5:57:47 PM
Aliphatic Hydrocarbon (C21-C34)	ND	39.1		µg/L	1	9/7/2022 5:57:47 PM
Aromatic Hydrocarbon (C8-C10)	ND	78.3		µg/L	1	9/8/2022 12:09:04 AM
Aromatic Hydrocarbon (C10-C12)	ND	39.1	*	µg/L	1	9/8/2022 12:09:04 AM
Aromatic Hydrocarbon (C12-C16)	117	39.1	Q	µg/L	1	9/8/2022 12:09:04 AM
Aromatic Hydrocarbon (C16-C21)	92.9	39.1		µg/L	1	9/8/2022 12:09:04 AM
Aromatic Hydrocarbon (C21-C34)	ND	39.1		µg/L	1	9/8/2022 12:09:04 AM
Surr: 1-Chlorooctadecane	63.1	50 - 150		%Rec	1	9/7/2022 5:57:47 PM
Surr: o-Terphenyl	76.0	50 - 150		%Rec	1	9/8/2022 12:09:04 AM

NOTES:
* - Associated LCS does not meet acceptance criteria; refer to QC summary.
Q - Associated calibration verification is above acceptance criteria. Result may be high-biased.

Work Order: 2208366
CLIENT: Friedman & Bruya
Project: 208351

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **ALI-CCV-37608A** SampType: **CCV** Units: **µg/L** Prep Date: **9/7/2022** RunNo: **78099**
Client ID: **CCV** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605025**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	200	80.0	200.0	0	100	80	120				
Aliphatic Hydrocarbon (C10-C12)	97.8	40.0	100.0	0	97.8	80	120				
Aliphatic Hydrocarbon (C12-C16)	95.1	40.0	100.0	0	95.1	80	120				
Aliphatic Hydrocarbon (C16-C21)	93.8	40.0	100.0	0	93.8	80	120				
Aliphatic Hydrocarbon (C21-C34)	87.2	40.0	100.0	0	87.2	80	120				
Surr: 1-Chlorooctadecane	37.2		40.00		92.9	60	140				
Surr: o-Terphenyl	38.1		40.00		95.3	60	140				

Sample ID: **MB-37608** SampType: **MBLK** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **MBLKW** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605027**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	ND	78.9		0	0						
Aliphatic Hydrocarbon (C10-C12)	ND	39.4		0	0						*
Aliphatic Hydrocarbon (C12-C16)	ND	39.4		0	0						
Aliphatic Hydrocarbon (C16-C21)	ND	39.4		0	0						
Aliphatic Hydrocarbon (C21-C34)	ND	39.4		0	0						
Surr: 1-Chlorooctadecane	267		394.4		67.8	50	150				

NOTES:
* - Associated LCS does not meet acceptance criteria; refer to QC summary.

Sample ID: **2208367-002AMS** SampType: **MS** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **BATCH** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605034**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	279	78.7	983.6	0	28.4	8.66	130				
Aliphatic Hydrocarbon (C10-C12)	240	39.3	491.8	0	48.8	70	130				S
Aliphatic Hydrocarbon (C12-C16)	301	39.3	491.8	0	61.3	70	130				S
Aliphatic Hydrocarbon (C16-C21)	320	39.3	491.8	0	65.1	70	130				S
Aliphatic Hydrocarbon (C21-C34)	348	39.3	491.8	0	70.7	70	130				
Surr: 1-Chlorooctadecane	250		393.5		63.6	50	150				

Work Order: 2208366
CLIENT: Friedman & Bruya
Project: 208351

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **2208367-002AMS** SampType: **MS** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **BATCH** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605034**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recoveries were associated with this sample.

Sample ID: **LCS-37608** SampType: **LCS** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **LCSW** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605038**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	311	78.6	982.0	0	31.6	23	130				
Aliphatic Hydrocarbon (C10-C12)	311	39.3	491.0	0	63.3	70	130				S
Aliphatic Hydrocarbon (C12-C16)	398	39.3	491.0	0	81.0	70	130				
Aliphatic Hydrocarbon (C16-C21)	388	39.3	491.0	0	79.0	70	130				
Aliphatic Hydrocarbon (C21-C34)	391	39.3	491.0	0	79.6	70	130				
Surr: 1-Chlorooctadecane	325		392.8		82.8	50	150				

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.

Sample ID: **LCSD-37608** SampType: **LCSD** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **LCSW02** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605039**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	257	78.0	975.1	0	26.4	23	130	310.6	18.8	20	
Aliphatic Hydrocarbon (C10-C12)	266	39.0	487.5	0	54.5	70	130	310.7	15.6	20	S
Aliphatic Hydrocarbon (C12-C16)	347	39.0	487.5	0	71.3	70	130	397.7	13.5	20	
Aliphatic Hydrocarbon (C16-C21)	343	39.0	487.5	0	70.3	70	130	387.9	12.3	20	
Aliphatic Hydrocarbon (C21-C34)	366	39.0	487.5	0	75.2	70	130	391.0	6.50	20	
Surr: 1-Chlorooctadecane	279		390.0		71.6	50	150		0		

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.

Work Order: 2208366
CLIENT: Friedman & Bruya
Project: 208351

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **ARO-CCV-37608A** SampType: **CCV** Units: **µg/L** Prep Date: **9/7/2022** RunNo: **78099**
Client ID: **CCV** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605164**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	236	80.0	200.0	0	118	80	120				
Aromatic Hydrocarbon (C10-C12)	105	40.0	100.0	0	105	80	120				
Aromatic Hydrocarbon (C12-C16)	121	40.0	100.0	0	121	80	120				S
Aromatic Hydrocarbon (C16-C21)	94.9	40.0	100.0	0	94.9	80	120				
Aromatic Hydrocarbon (C21-C34)	93.0	40.0	100.0	0	93.0	80	120				
Surr: 1-Chlorooctadecane	42.0		40.00		105	60	140				
Surr: o-Terphenyl	42.7		40.00		107	60	140				

NOTES:
S - Outlying spike recovery observed (high bias). Detections will be qualified with a Q.

Sample ID: **LCS-37608** SampType: **LCS** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **LCSW** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605166**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	373	78.6	982.0	0	37.9	28.4	130				
Aromatic Hydrocarbon (C10-C12)	326	39.3	491.0	0	66.4	70	130				S
Aromatic Hydrocarbon (C12-C16)	420	39.3	491.0	0	85.6	70	130				
Aromatic Hydrocarbon (C16-C21)	405	39.3	491.0	0	82.5	70	130				
Aromatic Hydrocarbon (C21-C34)	345	39.3	491.0	0	70.3	70	130				
Surr: o-Terphenyl	399		392.8		102	50	150				

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.

Sample ID: **ARO-CCV-37608B** SampType: **CCV** Units: **µg/L** Prep Date: **9/8/2022** RunNo: **78099**
Client ID: **CCV** Batch ID: **37608** Analysis Date: **9/8/2022** SeqNo: **1605176**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	211	80.0	200.0	0	105	80	120				
Aromatic Hydrocarbon (C10-C12)	93.2	40.0	100.0	0	93.2	80	120				
Aromatic Hydrocarbon (C12-C16)	102	40.0	100.0	0	102	80	120				
Aromatic Hydrocarbon (C16-C21)	80.8	40.0	100.0	0	80.8	80	120				
Aromatic Hydrocarbon (C21-C34)	93.6	40.0	100.0	0	93.6	80	120				
Surr: 1-Chlorooctadecane	33.7		40.00		84.2	60	140				

Work Order: 2208366
CLIENT: Friedman & Bruya
Project: 208351

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **ARO-CCV-37608B** SampType: **CCV** Units: **µg/L** Prep Date: **9/8/2022** RunNo: **78099**
Client ID: **CCV** Batch ID: **37608** Analysis Date: **9/8/2022** SeqNo: **1605176**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: o-Terphenyl	35.5		40.00		88.7	60	140				

Sample ID: **LCSD-37608** SampType: **LCSD** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **LCSW02** Batch ID: **37608** Analysis Date: **9/8/2022** SeqNo: **1605181**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	380	78.0	975.1	0	39.0	28.4	130	398.7	4.68	20	
Aromatic Hydrocarbon (C10-C12)	255	39.0	487.5	0	52.4	70	130	275.0	7.38	20	S
Aromatic Hydrocarbon (C12-C16)	342	39.0	487.5	0	70.1	70	130	342.5	0.190	20	
Aromatic Hydrocarbon (C16-C21)	244	39.0	487.5	0	50.1	70	130	360.2	38.4	20	RS
Aromatic Hydrocarbon (C21-C34)	365	39.0	487.5	0	74.9	70	130	322.6	12.4	20	
Surr: o-Terphenyl	244		390.0		62.7	50	150		0		

NOTES:
S - Outlying spike recovery observed (Aro C10-12). Samples will be qualified with a *.
S, R - Outlying spike recovery/RPD observed (Aro C16-21). The LCS passed for this range.

Sample ID: **2208367-002AMS** SampType: **MS** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **BATCH** Batch ID: **37608** Analysis Date: **9/8/2022** SeqNo: **1605182**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	364	78.7	983.6	0	37.0	5	130				
Aromatic Hydrocarbon (C10-C12)	300	39.3	491.8	0	60.9	70	130				S
Aromatic Hydrocarbon (C12-C16)	388	39.3	491.8	17.44	75.4	70	130				
Aromatic Hydrocarbon (C16-C21)	275	39.3	491.8	34.15	48.9	70	130				S
Aromatic Hydrocarbon (C21-C34)	346	39.3	491.8	0	70.4	70	130				
Surr: o-Terphenyl	288		393.5		73.3	50	150				

NOTES:
S - Outlying spike recoveries were associated with this sample.

Work Order: 2208366
CLIENT: Friedman & Bruya
Project: 208351

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **ALI-CCV-37608C** SampType: **CCV** Units: **µg/L** Prep Date: **9/8/2022** RunNo: **78099**
Client ID: **CCV** Batch ID: **37608** Analysis Date: **9/8/2022** SeqNo: **1605303**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	220	80.0	200.0	0	110	80	120				
Aliphatic Hydrocarbon (C10-C12)	109	40.0	100.0	0	109	80	120				
Aliphatic Hydrocarbon (C12-C16)	103	40.0	100.0	0	103	80	120				
Aliphatic Hydrocarbon (C16-C21)	99.4	40.0	100.0	0	99.4	80	120				
Aliphatic Hydrocarbon (C21-C34)	100	40.0	100.0	0	100	80	120				
Surr: 1-Chlorooctadecane	40.8		40.00		102	60	140				
Surr: o-Terphenyl	42.0		40.00		105	60	140				

Sample ID: **MB-37608** SampType: **MBLK** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **MBLKW** Batch ID: **37608** Analysis Date: **9/8/2022** SeqNo: **1605306**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	ND	78.9		0	0						
Aromatic Hydrocarbon (C10-C12)	ND	39.4		0	0						
Aromatic Hydrocarbon (C12-C16)	ND	39.4		0	0						
Aromatic Hydrocarbon (C16-C21)	ND	39.4		0	0						Q
Aromatic Hydrocarbon (C21-C34)	ND	39.4		0	0						
Surr: o-Terphenyl	348		394.4		88.3	50	150				

NOTES:
Q - Associated calibration verification is below acceptance criteria (79.8, nominal 80-120).

Sample ID: **ARO-CCV-37608D** SampType: **CCV** Units: **µg/L** Prep Date: **9/8/2022** RunNo: **78099**
Client ID: **CCV** Batch ID: **37608** Analysis Date: **9/8/2022** SeqNo: **1605311**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	199	80.0	200.0	0	99.7	80	120				
Aromatic Hydrocarbon (C10-C12)	87.3	40.0	100.0	0	87.3	80	120				
Aromatic Hydrocarbon (C12-C16)	93.6	40.0	100.0	0	93.6	80	120				
Aromatic Hydrocarbon (C16-C21)	80.2	40.0	100.0	0	80.2	80	120				
Aromatic Hydrocarbon (C21-C34)	92.1	40.0	100.0	0	92.1	80	120				
Surr: 1-Chlorooctadecane	31.4		40.00		78.5	60	140				
Surr: o-Terphenyl	32.5		40.00		81.2	60	140				

Work Order: 2208366
CLIENT: Friedman & Bruya
Project: 208351

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **ARO-CCV-37608D** SampType: **CCV** Units: **µg/L** Prep Date: **9/8/2022** RunNo: **78099**
Client ID: **CCV** Batch ID: **37608** Analysis Date: **9/8/2022** SeqNo: **1605311**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample Log-In Check List

Client Name:	FB	Work Order Number:	2208366
Logged by:	Gabrielle Coeuille	Date Received:	8/24/2022 2:56:00 PM

Chain of Custody

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

Log In

3.	Coolers are present?	Yes	☑	No	☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes	☑	No	☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes	☐	No	☐	Not Present ☑
6.	Was an attempt made to cool the samples?	Yes	☑	No	☐	NA ☐
7.	Were all items received at a temperature of >2°C to 6°C *	Yes	☑	No	☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes	☑	No	☐	
9.	Sufficient sample volume for indicated test(s)?	Yes	☑	No	☐	
10.	Are samples properly preserved?	Yes	☑	No	☐	
11.	Was preservative added to bottles?	Yes	☐	No	☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes	☐	No	☑	NA ☐
13.	Did all samples containers arrive in good condition(unbroken)?	Yes	☑	No	☐	
14.	Does paperwork match bottle labels?	Yes	☑	No	☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No	☐	
16.	Is it clear what analyses were requested?	Yes	☑	No	☐	
17.	Were all holding times able to be met?	Yes	☑	No	☐	

Special Handling (if applicable)

18.	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: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample 1	1.6

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

22083664

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER Fremont

PROJECT NAME/NO. 208351

PO # C-325

REMARKS EQuIS, Tier IV

TURNAROUND TIME
☒ Standard TAT
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Dioxins/Furans	EPH	VPH								Notes
Field Blank #1-0822		8/23/22	0910	water			x	x								
MW-1-0822		↓	1600	↓			x	x								
MW-9-1-0822		↓	1600	↓			x	x								

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Michael Erdahl	Friedman & Bruya	8/24/22	1401
Received by: Yeji Chen	Yeji	Fremont Analytical	8/24/22	14:56
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

22083666

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER Fremont

PROJECT NAME/NO. 208351

PO # C-325

REMARKS

Cancel VPH analysis per E.Y.-9/8/22-BB

EQuIS, Tier IV

TURNAROUND TIME

☒ Standard TAT

☐ RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Dispose after 30 days

☐ Return samples

☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Dioxins/Furans	EPH	VPH								Notes
Field Blank #1-0822		8/23/22	0910	water			x	x								
MW-1-0822		↓	1600	↓			x	x								
MW-9-1-0822		↓	1600	↓			x	x								

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Michael Erdahl	Friedman & Bruya	8/24/22	1401
Received by: Yeji Chen	Yeji	Fremont Analytical	8/24/22	14:56
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

September 28, 2022

Audrey Hackett, Project Manager
Maul Foster Alongi
2815 2nd Ave, Suite 540
Seattle, WA 98121

Dear Ms Hackett:

Included is the amended report from the testing of material submitted on August 23, 2022 from the TWAAFA - Groundwater Sampling, M0615.20.005-03, F&BI 208343 project. The bis-2(ethylhexyl)phthalate reporting limit has been included in the report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Carolyn Wise, Fiona Bellows
MFA0912R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

September 12, 2022

Audrey Hackett, Project Manager
Maul Foster Alongi
2815 2nd Ave, Suite 540
Seattle, WA 98121

Dear Ms Hackett:

Included are the results from the testing of material submitted on August 23, 2022 from the TWAAFA - Groundwater Sampling, M0615.20.005-03, F&BI 208343 project. There are 72 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Carolyn WiseMFA0912R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 23, 2022 by Friedman & Bruya, Inc. from the Maul Foster Alongi TWAAFA - Groundwater Sampling, F&BI 208343 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Maul Foster Alongi
208343 -01	TWA-1-0822
208343 -02	TWA-2-0822
208343 -03	TWA-3-0822
208343 -04	TWA-10D-0822
208343 -05	SB-1A-0822
208343 -06	SB-2A-0822
208343 -07	Field Blank 1-0822
208343 -08	TWA-6D-0822
208343 -09	TWA-5D-0822
208343 -10	Trip Blank 1-0822
208343 -11	SB-3A-0822

Samples TWA-1-0822 and TWA-6D-0822 were sent to Fremont Analytical for EPH and VPH analysis. Fremont Analytical notified Friedman and Bruya that their VPH instrument suffered catastrophic failure, and the samples were not analyzed. Due to the samples being out of the holding time, MFA elected not to proceed with analysis. The EPH report is enclosed.

Methylene chloride was detected in the 8260D analysis of sample Trip Blank 1-0822. The data were flagged as due to laboratory contamination.

The 8260D laboratory control sample exceeded the relative percent difference for methylene chloride. The data were flagged accordingly.

The 8260D SIM matrix spike and matrix spike duplicate failed the relative percent difference for 1,4-dioxane. The laboratory control sample passed the acceptance criteria, therefore the results were due to matrix effect.

The 8270E and 8082A matrix spike and matrix spike duplicate recoveries were outside of acceptance limits for several compounds due to the use of the method default acceptance criteria of 50-150%.

Phenanthrene and bis(2-ethylhexyl)phthalate were detected in the 8270E method blank. The data were flagged accordingly.

The 8082A PCB results were reported to the method detection limit. The data were flagged accordingly.

The 8270E bis(2-ethylhexyl) phthalate reporting limit for the samples is 1.6 ug/L. The results were reported between the method detection limit and the reporting limit for samples.

All other quality control requirements were acceptable.

Date of Report: 09/12/22
Date Received: 08/23/22
Project: TWAAFA - Groundwater Sampling, F&BI 208343
Date Extracted: 08/26/22
Date Analyzed: 08/29/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
TWA-1-0822 208343-01	140	113
TWA-2-0822 208343-02	<100	107
TWA-3-0822 208343-03	110	114
TWA-10D-0822 208343-04	<100	109
SB-2A-0822 208343-06	100	100
Field Blank 1-0822 208343-07	<100	111
TWA-6D-0822 208343-08	<100	112
TWA-5D-0822 208343-09	<100	110
Trip Blank 1-0822 208343-10	<100	116
SB-3A-0822 208343-11	<100	105
Method Blank 02-1751 MB	<100	115

Date of Report: 09/12/22
Date Received: 08/23/22
Project: TWAAFA - Groundwater Sampling, F&BI 208343
Date Extracted: 08/24/22
Date Analyzed: 08/25/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
TWA-1-0822 208343-01	1,100 x	550 x	129
TWA-2-0822 208343-02	650 x	640 x	131
TWA-3-0822 208343-03	290 x	530 x	150
TWA-10D-0822 208343-04	51 x	<250	125
SB-1A-0822 208343-05	54 x	<250	144
TWA-6D-0822 208343-08	440 x	<250	86
TWA-5D-0822 208343-09	570 x	300 x	103
SB-3A-0822 208343-11	750 x	520 x	143
Method Blank 02-2031 MB	<50	<250	142

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-1-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/30/22	Lab ID:	208343-01
Date Analyzed:	08/31/22	Data File:	208343-01.230
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Antimony	<1
Arsenic	9.01
Barium	268
Beryllium	<1
Cadmium	<1
Chromium	<1
Cobalt	<1
Copper	<2.4
Lead	<1
Nickel	2.83
Selenium	1.41
Silver	<1
Thallium	<1
Vanadium	5.34
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-1-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/30/22	Lab ID:	208343-01 x10
Date Analyzed:	08/30/22	Data File:	208343-01 x10.113
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Iron	36,400
Manganese	3,520

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-2-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/30/22	Lab ID:	208343-02
Date Analyzed:	08/31/22	Data File:	208343-02.231
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Antimony	10.0
Arsenic	203
Barium	60.7
Beryllium	<1
Cadmium	<1
Chromium	<1
Cobalt	2.27
Copper	7.73
Iron	2,530
Lead	<1
Nickel	8.21
Selenium	1.78
Silver	<1
Thallium	<1
Vanadium	3.89
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-2-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/30/22	Lab ID:	208343-02 x10
Date Analyzed:	08/30/22	Data File:	208343-02 x10.114
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Manganese	2,090

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-3-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/30/22	Lab ID:	208343-03
Date Analyzed:	08/31/22	Data File:	208343-03.232
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Antimony	<1
Arsenic	20.3
Barium	41.1
Beryllium	<1
Cadmium	<1
Chromium	1.06
Cobalt	1.38
Copper	<2.4
Lead	<1
Nickel	6.27
Selenium	3.97
Silver	<1
Thallium	<1
Vanadium	2.76
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-3-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/30/22	Lab ID:	208343-03 x10
Date Analyzed:	08/30/22	Data File:	208343-03 x10.115
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Iron	4,720
Manganese	1,070

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-10D-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/30/22	Lab ID:	208343-04
Date Analyzed:	08/31/22	Data File:	208343-04.233
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Antimony	<1
Arsenic	8.57
Barium	41.1
Beryllium	<1
Cadmium	<1
Chromium	3.20
Cobalt	<1
Copper	<2.4
Iron	1,150
Lead	<1
Manganese	72.7
Nickel	2.94
Silver	<1
Thallium	<1
Vanadium	7.11
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-10D-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/30/22	Lab ID:	208343-04 x10
Date Analyzed:	08/30/22	Data File:	208343-04 x10.116
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Selenium	26.2

Analysis For Total Metals By EPA Method 6020B

Client ID:	SB-1A-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/30/22	Lab ID:	208343-05
Date Analyzed:	08/31/22	Data File:	208343-05.234
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Antimony	<1
Arsenic	2.71
Barium	7.12
Beryllium	<1
Cadmium	<1
Chromium	<1
Cobalt	1.11
Copper	<2.4
Iron	3,170
Lead	<1
Manganese	316
Nickel	4.44
Selenium	<1
Silver	<1
Thallium	<1
Vanadium	2.69
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-6D-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/30/22	Lab ID:	208343-08
Date Analyzed:	08/31/22	Data File:	208343-08.237
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Antimony	<1
Arsenic	7.77
Barium	16.3
Beryllium	<1
Cadmium	<1
Chromium	29.8
Cobalt	1.16
Copper	<2.4
Iron	2,730
Lead	<1
Manganese	793
Nickel	3.08
Selenium	2.57
Silver	<1
Thallium	<1
Vanadium	116
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	TWA-5D-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/30/22	Lab ID:	208343-09
Date Analyzed:	08/31/22	Data File:	208343-09.240
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Antimony	<1
Arsenic	5.66
Barium	20.3
Beryllium	<1
Cadmium	<1
Chromium	5.98
Cobalt	1.35
Copper	<2.4
Iron	1,650
Lead	<1
Manganese	179
Nickel	2.04
Selenium	9.80
Silver	<1
Thallium	<1
Vanadium	17.6
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	SB-3A-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/30/22	Lab ID:	208343-11
Date Analyzed:	08/31/22	Data File:	208343-11.241
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Antimony	<1
Arsenic	1.23
Barium	20.5
Beryllium	<1
Cadmium	<1
Chromium	<1
Cobalt	<1
Copper	<2.4
Iron	3,190
Lead	<1
Manganese	201
Nickel	2.23
Selenium	3.41
Silver	<1
Thallium	<1
Vanadium	2.16
Zinc	<5

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Maul Foster Alongi
Date Received:	NA	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/30/22	Lab ID:	I2-596 mb
Date Analyzed:	08/30/22	Data File:	I2-596 mb.103
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Antimony	<1
Arsenic	<1
Barium	<1
Beryllium	<1
Cadmium	<1
Chromium	<1
Cobalt	<1
Copper	<2.4
Iron	<50
Lead	<1
Manganese	<1
Nickel	<1
Selenium	<1
Silver	<1
Thallium	<1
Vanadium	<1
Zinc	<5

Date of Report: 09/12/22
Date Received: 08/23/22
Project: TWAAFA - Groundwater Sampling, F&BI 208343
Date Extracted: 08/26/22
Date Analyzed: 08/29/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Total Mercury
TWA-1-0822 208343-01	<0.02
TWA-2-0822 208343-02	<0.02
TWA-3-0822 208343-03	<0.02
TWA-10D-0822 208343-04	<0.02
SB-1A-0822 208343-05	<0.02
TWA-6D-0822 208343-08	<0.02
TWA-5D-0822 208343-09	<0.02
SB-3A-0822 208343-11	<0.02
Method Blank i2-590 MB	<0.02

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	TWA-1-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208343-01
Date Analyzed:	08/26/22	Data File:	082612.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	1.1

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	TWA-2-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208343-02
Date Analyzed:	08/26/22	Data File:	082613.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	96	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	TWA-3-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208343-03
Date Analyzed:	08/26/22	Data File:	082614.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	96	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	TWA-10D-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208343-04
Date Analyzed:	08/26/22	Data File:	082615.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	SB-1A-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208343-05
Date Analyzed:	08/27/22	Data File:	082616.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	SB-2A-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208343-06
Date Analyzed:	08/27/22	Data File:	082617.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	Field Blank 1-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208343-07
Date Analyzed:	08/27/22	Data File:	082618.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	TWA-6D-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208343-08
Date Analyzed:	08/27/22	Data File:	082619.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	4.6

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	TWA-5D-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208343-09
Date Analyzed:	08/27/22	Data File:	082620.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	0.65

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	SB-3A-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208343-11
Date Analyzed:	08/27/22	Data File:	082621.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	95	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

Analysis For Volatile Compounds By EPA Method 8260D SIM

Client Sample ID:	Method Blank	Client:	Maul Foster Alongi
Date Received:	Not Applicable	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	02-1952 mb
Date Analyzed:	08/26/22	Data File:	082611.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration ug/L (ppb)
1,4-Dioxane	<0.4

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	TWA-1-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208343-01
Date Analyzed:	08/26/22	Data File:	082612.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	78	126
Toluene-d8	102	84	115
4-Bromofluorobenzene	101	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	0.032	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	1.1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	6.6	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	1.9	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	TWA-2-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208343-02
Date Analyzed:	08/26/22	Data File:	082613.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	78	126
Toluene-d8	103	84	115
4-Bromofluorobenzene	102	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	TWA-3-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208343-03
Date Analyzed:	08/26/22	Data File:	082614.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	78	126
Toluene-d8	103	84	115
4-Bromofluorobenzene	101	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	TWA-10D-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208343-04
Date Analyzed:	08/26/22	Data File:	082615.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	78	126
Toluene-d8	98	84	115
4-Bromofluorobenzene	98	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	SB-1A-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208343-05
Date Analyzed:	08/26/22	Data File:	082616.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	78	126
Toluene-d8	99	84	115
4-Bromofluorobenzene	101	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	SB-2A-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208343-06
Date Analyzed:	08/26/22	Data File:	082617.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	78	126
Toluene-d8	99	84	115
4-Bromofluorobenzene	101	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Field Blank 1-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208343-07
Date Analyzed:	08/26/22	Data File:	082610.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	78	126
Toluene-d8	97	84	115
4-Bromofluorobenzene	100	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	2.3	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	TWA-6D-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208343-08
Date Analyzed:	08/26/22	Data File:	082619.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	78	126
Toluene-d8	97	84	115
4-Bromofluorobenzene	98	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	TWA-5D-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208343-09
Date Analyzed:	08/26/22	Data File:	082620.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	78	126
Toluene-d8	104	84	115
4-Bromofluorobenzene	101	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Trip Blank 1-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208343-10
Date Analyzed:	08/26/22	Data File:	082611.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	78	126
Toluene-d8	104	84	115
4-Bromofluorobenzene	103	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	9.3 lc jl	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	SB-3A-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	208343-11
Date Analyzed:	08/26/22	Data File:	082618.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	78	126
Toluene-d8	98	84	115
4-Bromofluorobenzene	100	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	Maul Foster Alongi
Date Received:	Not Applicable	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/26/22	Lab ID:	02-1950 mb
Date Analyzed:	08/26/22	Data File:	082607.D
Matrix:	Water	Instrument:	GCMS11
Units:	ug/L (ppb)	Operator:	RF

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	78	126
Toluene-d8	92	84	115
4-Bromofluorobenzene	94	72	130

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	TWA-1-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/25/22	Lab ID:	208343-01 1/0.5
Date Analyzed:	08/26/22	Data File:	082613.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	35	10	60
Phenol-d6	27	10	49
Nitrobenzene-d5	71	15	144
2-Fluorobiphenyl	55	25	128
2,4,6-Tribromophenol	76	10	142
Terphenyl-d14	108	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	1.1
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	0.29
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5	Phenanthrene	0.019 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	0.016
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	0.19	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	0.20	Bis(2-ethylhexyl) phthalate	1.6 fb
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	TWA-2-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/25/22	Lab ID:	208343-02 1/0.5
Date Analyzed:	08/26/22	Data File:	082614.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	38	10	60
Phenol-d6	28	10	49
Nitrobenzene-d5	80	15	144
2-Fluorobiphenyl	81	25	128
2,4,6-Tribromophenol	108	10	142
Terphenyl-d14	124	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	0.018
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	0.015
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5	Phenanthrene	0.024 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	0.012
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	0.013
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	1.4 fb j
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	TWA-3-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/25/22	Lab ID:	208343-03 1/0.5
Date Analyzed:	08/26/22	Data File:	082615.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	36	10	60
Phenol-d6	26	10	49
Nitrobenzene-d5	77	15	144
2-Fluorobiphenyl	80	25	128
2,4,6-Tribromophenol	102	10	142
Terphenyl-d14	101	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5	Phenanthrene	0.017 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	1.3 fb j
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	TWA-10D-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/25/22	Lab ID:	208343-04 1/0.5
Date Analyzed:	08/26/22	Data File:	082616.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	44	10	60
Phenol-d6	33	10	49
Nitrobenzene-d5	81	15	144
2-Fluorobiphenyl	92	25	128
2,4,6-Tribromophenol	109	10	142
Terphenyl-d14	110	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5	Phenanthrene	0.010 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	1.1 fb j
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	SB-1A-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/25/22	Lab ID:	208343-05 1/0.5
Date Analyzed:	08/26/22	Data File:	082612.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	16	10	60
Phenol-d6	19	10	49
Nitrobenzene-d5	38	15	144
2-Fluorobiphenyl	61	25	128
2,4,6-Tribromophenol	92	10	142
Terphenyl-d14	98	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5	Phenanthrene	0.012 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	1.2 fb j
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	TWA-6D-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/25/22	Lab ID:	208343-08 1/0.5
Date Analyzed:	08/26/22	Data File:	082617.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	28	10	60
Phenol-d6	22	10	49
Nitrobenzene-d5	52	15	144
2-Fluorobiphenyl	49	25	128
2,4,6-Tribromophenol	70	10	142
Terphenyl-d14	75	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5	Phenanthrene	0.012 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	1.3 fb j
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	TWA-5D-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/25/22	Lab ID:	208343-09 1/0.5
Date Analyzed:	08/26/22	Data File:	082618.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	35	10	60
Phenol-d6	27	10	49
Nitrobenzene-d5	69	15	144
2-Fluorobiphenyl	60	25	128
2,4,6-Tribromophenol	85	10	142
Terphenyl-d14	98	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5	Phenanthrene	0.014 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	1.1 fb j
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	SB-3A-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/25/22	Lab ID:	208343-11 1/0.5
Date Analyzed:	08/26/22	Data File:	082619.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	37	10	60
Phenol-d6	25	10	49
Nitrobenzene-d5	82	15	144
2-Fluorobiphenyl	62	25	128
2,4,6-Tribromophenol	81	10	142
Terphenyl-d14	113	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	0.047
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5	Phenanthrene	0.012 fb
Bis(2-chloroethoxy)methane	<0.1	Anthracene	0.032
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	1.1 fb j
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	Maul Foster Alongi
Date Received:	Not Applicable	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/25/22	Lab ID:	02-2035 mb 1/0.5
Date Analyzed:	08/26/22	Data File:	082611.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	39	10	60
Phenol-d6	27	10	49
Nitrobenzene-d5	83	15	144
2-Fluorobiphenyl	84	25	128
2,4,6-Tribromophenol	99	10	142
Terphenyl-d14	106	41	138

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<1	2,6-Dinitrotoluene	<0.5
Bis(2-chloroethyl) ether	<0.1	3-Nitroaniline	<10
2-Chlorophenol	<1	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.1	2,4-Dinitrophenol	<3
1,4-Dichlorobenzene	<0.1	Dibenzofuran	<0.1
1,2-Dichlorobenzene	<0.1	2,4-Dinitrotoluene	<0.5
Benzyl alcohol	<1	4-Nitrophenol	<3
2,2'-Oxybis(1-chloropropane)	<0.1	Diethyl phthalate	<1
2-Methylphenol	<1	Fluorene	<0.01
Hexachloroethane	<0.1	4-Chlorophenyl phenyl ether	<0.1
N-Nitroso-di-n-propylamine	<0.1	N-Nitrosodiphenylamine	<0.1
3-Methylphenol + 4-Methylphenol	<2	4-Nitroaniline	<10
Nitrobenzene	<0.1	4,6-Dinitro-2-methylphenol	<3
Isophorone	<0.1	4-Bromophenyl phenyl ether	<0.1
2-Nitrophenol	<1	Hexachlorobenzene	<0.1
2,4-Dimethylphenol	<1	Pentachlorophenol	<0.5
Benzoic acid	<5	Phenanthrene	<0.01
Bis(2-chloroethoxy)methane	<0.1	Anthracene	<0.01
2,4-Dichlorophenol	<1	Carbazole	<0.1
1,2,4-Trichlorobenzene	<0.1	Di-n-butyl phthalate	<1
Naphthalene	<0.1	Fluoranthene	<0.01
Hexachlorobutadiene	<0.1	Pyrene	<0.01
4-Chloroaniline	<10	Benzyl butyl phthalate	<1
4-Chloro-3-methylphenol	<1	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.1	Chrysene	<0.01
1-Methylnaphthalene	<0.1	Bis(2-ethylhexyl) phthalate	1.2 lc j
Hexachlorocyclopentadiene	<0.3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<1	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<1	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.1	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.5	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.02

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	TWA-1-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/24/22	Lab ID:	208343-01 1/0.5
Date Analyzed:	08/26/22	Data File:	082619.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	28	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0055 j
Aroclor 1232	<0.0055 j
Aroclor 1016	<0.0055 j
Aroclor 1242	<0.0055 j
Aroclor 1248	<0.0078 j
Aroclor 1254	<0.0078 j
Aroclor 1260	<0.0078 j
Aroclor 1262	<0.0078 j
Aroclor 1268	<0.0078 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	TWA-2-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/24/22	Lab ID:	208343-02 1/0.5
Date Analyzed:	08/26/22	Data File:	082620.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	27	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0055 j
Aroclor 1232	<0.0055 j
Aroclor 1016	<0.0055 j
Aroclor 1242	<0.0055 j
Aroclor 1248	<0.0077 j
Aroclor 1254	<0.0077 j
Aroclor 1260	<0.0077 j
Aroclor 1262	<0.0077 j
Aroclor 1268	<0.0077 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	TWA-3-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/24/22	Lab ID:	208343-03 1/0.5
Date Analyzed:	08/26/22	Data File:	082621.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	31	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0058 j
Aroclor 1232	<0.0058 j
Aroclor 1016	<0.0058 j
Aroclor 1242	<0.0058 j
Aroclor 1248	<0.0082 j
Aroclor 1254	<0.0082 j
Aroclor 1260	<0.0082 j
Aroclor 1262	<0.0082 j
Aroclor 1268	<0.0082 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	TWA-10D-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/24/22	Lab ID:	208343-04 1/0.5
Date Analyzed:	08/26/22	Data File:	082622.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	32	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0051 j
Aroclor 1232	<0.0051 j
Aroclor 1016	<0.0051 j
Aroclor 1242	<0.0051 j
Aroclor 1248	<0.0072 j
Aroclor 1254	<0.0072 j
Aroclor 1260	<0.0072 j
Aroclor 1262	<0.0072 j
Aroclor 1268	<0.0072 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	SB-1A-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/24/22	Lab ID:	208343-05 1/0.5
Date Analyzed:	08/25/22	Data File:	082518.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	36	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0058 j
Aroclor 1232	<0.0058 j
Aroclor 1016	<0.0058 j
Aroclor 1242	<0.0058 j
Aroclor 1248	<0.0083 j
Aroclor 1254	<0.0083 j
Aroclor 1260	<0.0083 j
Aroclor 1262	<0.0083 j
Aroclor 1268	<0.0083 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	TWA-6D-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/24/22	Lab ID:	208343-08 1/0.5
Date Analyzed:	08/26/22	Data File:	082623.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	27	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0050 j
Aroclor 1232	<0.0050 j
Aroclor 1016	<0.0050 j
Aroclor 1242	<0.0050 j
Aroclor 1248	<0.0070 j
Aroclor 1254	<0.0070 j
Aroclor 1260	<0.0070 j
Aroclor 1262	<0.0070 j
Aroclor 1268	<0.0070 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	TWA-5D-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/24/22	Lab ID:	208343-09 1/0.5
Date Analyzed:	08/26/22	Data File:	082624.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	24	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0050 j
Aroclor 1232	<0.0050 j
Aroclor 1016	<0.0050 j
Aroclor 1242	<0.0050 j
Aroclor 1248	<0.0071 j
Aroclor 1254	<0.0071 j
Aroclor 1260	<0.0071 j
Aroclor 1262	<0.0071 j
Aroclor 1268	<0.0071 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	SB-3A-0822	Client:	Maul Foster Alongi
Date Received:	08/23/22	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/24/22	Lab ID:	208343-11 1/0.5
Date Analyzed:	08/26/22	Data File:	082625.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	31	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0050 j
Aroclor 1232	<0.0050 j
Aroclor 1016	<0.0050 j
Aroclor 1242	<0.0050 j
Aroclor 1248	<0.0070 j
Aroclor 1254	<0.0070 j
Aroclor 1260	<0.0070 j
Aroclor 1262	<0.0070 j
Aroclor 1268	<0.0070 j

Analysis For PCBs By EPA Method 8082A

Client Sample ID:	Method Blank	Client:	Maul Foster Alongi
Date Received:	Not Applicable	Project:	TWAAFA - Groundwater Sampling
Date Extracted:	08/24/22	Lab ID:	02-2032 mb 1/0.5
Date Analyzed:	08/26/22	Data File:	082617.D
Matrix:	Water	Instrument:	GC9
Units:	ug/L (ppb)	Operator:	MG

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
TCMX	34	25	160

Compounds:	Concentration ug/L (ppb)
Aroclor 1221	<0.0050 j
Aroclor 1232	<0.0050 j
Aroclor 1016	<0.0050 j
Aroclor 1242	<0.0050 j
Aroclor 1248	<0.0070 j
Aroclor 1254	<0.0070 j
Aroclor 1260	<0.0070 j
Aroclor 1262	<0.0070 j
Aroclor 1268	<0.0070 j

Date of Report: 09/12/22
Date Received: 08/23/22
Project: TWAAFA - Groundwater Sampling, F&BI 208343

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD NWTPH-Gx

Laboratory Code: 208343-05 Matrix Spike

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	ug/L (ppb)	1,000	<100	89	105	50-150	16

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	105	70-119

Date of Report: 09/12/22
Date Received: 08/23/22
Project: TWAAFA - Groundwater Sampling, F&BI 208343

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 208343-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	5,000	<50	84	88	50-150	5

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	ug/L (ppb)	2,500	76	63-142

Date of Report: 09/12/22
Date Received: 08/23/22
Project: TWAAFA - Groundwater Sampling, F&BI 208343

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 208343-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Antimony	ug/L (ppb)	20	<1	97	94	75-125	3
Arsenic	ug/L (ppb)	10	2.71	104	99	75-125	5
Barium	ug/L (ppb)	50	7.12	113	108	75-125	5
Beryllium	ug/L (ppb)	5	<1	100	95	75-125	5
Cadmium	ug/L (ppb)	5	<1	99	98	75-125	1
Chromium	ug/L (ppb)	20	<1	97	95	75-125	2
Cobalt	ug/L (ppb)	20	1.11	97	96	75-125	1
Copper	ug/L (ppb)	20	<5	94	91	75-125	3
Iron	ug/L (ppb)	100	3,170	58 b	0 b	75-125	200 b
Lead	ug/L (ppb)	10	<1	92	90	75-125	2
Manganese	ug/L (ppb)	20	316	55 b	18 b	75-125	101 b
Nickel	ug/L (ppb)	20	4.44	97	94	75-125	3
Selenium	ug/L (ppb)	5	<1	106	106	75-125	0
Silver	ug/L (ppb)	5	<1	97	95	75-125	2
Thallium	ug/L (ppb)	5	<1	88	87	75-125	1
Vanadium	ug/L (ppb)	20	2.69	101	98	75-125	3
Zinc	ug/L (ppb)	50	<5	90	88	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Antimony	ug/L (ppb)	20	94	80-120
Arsenic	ug/L (ppb)	10	91	80-120
Barium	ug/L (ppb)	50	95	80-120
Beryllium	ug/L (ppb)	5	99	80-120
Cadmium	ug/L (ppb)	5	95	80-120
Chromium	ug/L (ppb)	20	94	80-120
Cobalt	ug/L (ppb)	20	96	80-120
Copper	ug/L (ppb)	20	99	80-120
Iron	ug/L (ppb)	100	94	80-120
Lead	ug/L (ppb)	10	98	80-120
Manganese	ug/L (ppb)	20	94	80-120
Nickel	ug/L (ppb)	20	97	80-120
Selenium	ug/L (ppb)	5	97	80-120
Silver	ug/L (ppb)	5	95	80-120
Thallium	ug/L (ppb)	5	93	80-120
Vanadium	ug/L (ppb)	20	95	80-120
Zinc	ug/L (ppb)	50	97	80-120

Date of Report: 09/12/22
Date Received: 08/23/22
Project: TWAAFA - Groundwater Sampling, F&BI 208343

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL MERCURY USING EPA METHOD 1631E

Laboratory Code: 208343-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Mercury	ug/L (ppb)	0.01	<0.0008	97	95	71-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Mercury	ug/L (ppb)	0.01	91	78-125

Date of Report: 09/12/22
Date Received: 08/23/22
Project: TWAAFA - Groundwater Sampling, F&BI 208343

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D SIM

Laboratory Code: 208373-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
1,4-Dioxane	ug/L (ppb)	2	1.3	93 b	108 b	50-150	15 b

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QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D SIM

Laboratory Code: 208343-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
1,4-Dioxane	ug/L (ppb)	2	<0.4	128	102	50-150	23 vo

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
1,4-Dioxane	ug/L (ppb)	2	77	94	70-130	20

Date of Report: 09/12/22
Date Received: 08/23/22
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QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 208312-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	<1	114	111	50-150	3
Chloromethane	ug/L (ppb)	10	<10	101	99	50-150	2
Vinyl chloride	ug/L (ppb)	10	<0.02	110	108	50-150	2
Bromomethane	ug/L (ppb)	10	<5	115	101	50-150	13
Chloroethane	ug/L (ppb)	10	<1	112	109	50-150	3
Trichlorofluoromethane	ug/L (ppb)	10	<1	104	98	50-150	6
Acetone	ug/L (ppb)	50	<50	104	100	50-150	4
1,1-Dichloroethene	ug/L (ppb)	10	<1	100	97	50-150	3
Hexane	ug/L (ppb)	10	<5	99	98	50-150	1
Methylene chloride	ug/L (ppb)	10	<5	136	134	50-150	1
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	101	99	50-150	2
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	107	105	50-150	2
1,1-Dichloroethane	ug/L (ppb)	10	<1	100	97	50-150	3
2,2-Dichloropropane	ug/L (ppb)	10	<1	113	108	50-150	5
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	103	100	50-150	3
Chloroform	ug/L (ppb)	10	<1	97	96	50-150	1
2-Butanone (MEK)	ug/L (ppb)	50	<20	104	103	50-150	1
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	102	100	50-150	2
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	100	98	50-150	2
1,1-Dichloropropene	ug/L (ppb)	10	<1	99	100	50-150	1
Carbon tetrachloride	ug/L (ppb)	10	<0.5	103	103	50-150	0
Benzene	ug/L (ppb)	10	<0.35	103	101	50-150	2
Trichloroethene	ug/L (ppb)	10	<0.5	104	102	50-150	2
1,2-Dichloropropane	ug/L (ppb)	10	<1	100	97	50-150	3
Bromodichloromethane	ug/L (ppb)	10	<0.5	100	99	50-150	1
Dibromomethane	ug/L (ppb)	10	<1	105	104	50-150	1
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	100	105	50-150	5
cis-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	104	99	50-150	5
Toluene	ug/L (ppb)	10	<1	103	104	50-150	1
trans-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	97	97	50-150	0
1,1,2-Trichloroethane	ug/L (ppb)	10	<0.5	99	101	50-150	2
2-Hexanone	ug/L (ppb)	50	<10	97	101	50-150	4
1,3-Dichloropropane	ug/L (ppb)	10	<1	98	100	50-150	2
Tetrachloroethene	ug/L (ppb)	10	<1	102	102	50-150	0
Dibromochloromethane	ug/L (ppb)	10	<0.5	101	102	50-150	1
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	100	103	50-150	3
Chlorobenzene	ug/L (ppb)	10	<1	98	101	50-150	3
Ethylbenzene	ug/L (ppb)	10	<1	102	103	50-150	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<1	101	99	50-150	2
m,p-Xylene	ug/L (ppb)	20	<2	102	102	50-150	0
o-Xylene	ug/L (ppb)	10	<1	101	101	50-150	0
Styrene	ug/L (ppb)	10	<1	98	99	50-150	1
Isopropylbenzene	ug/L (ppb)	10	<1	99	101	50-150	2
Bromoform	ug/L (ppb)	10	<5	105	107	50-150	2
n-Propylbenzene	ug/L (ppb)	10	<1	100	99	50-150	1
Bromobenzene	ug/L (ppb)	10	<1	100	100	50-150	0
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	98	98	50-150	0
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<0.2	100	98	50-150	2
1,2,3-Trichloropropane	ug/L (ppb)	10	<1	98	97	50-150	1
2-Chlorotoluene	ug/L (ppb)	10	<1	100	99	50-150	1
4-Chlorotoluene	ug/L (ppb)	10	<1	102	101	50-150	1
tert-Butylbenzene	ug/L (ppb)	10	<1	99	98	50-150	1
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<1	98	96	50-150	2
sec-Butylbenzene	ug/L (ppb)	10	<1	101	100	50-150	1
p-Isopropyltoluene	ug/L (ppb)	10	<1	102	102	50-150	0
1,3-Dichlorobenzene	ug/L (ppb)	10	<1	100	100	50-150	0
1,4-Dichlorobenzene	ug/L (ppb)	10	<1	101	99	50-150	2
1,2-Dichlorobenzene	ug/L (ppb)	10	<1	99	96	50-150	3
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<10	100	100	50-150	0
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	100	96	50-150	4
Hexachlorobutadiene	ug/L (ppb)	10	<0.5	103	98	50-150	5
Naphthalene	ug/L (ppb)	10	<1	96	97	50-150	1
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<1	98	98	50-150	0

Date of Report: 09/12/22
Date Received: 08/23/22
Project: TWAAFA - Groundwater Sampling, F&BI 208343

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	93	102	46-206	9
Chloromethane	ug/L (ppb)	10	86	94	70-142	9
Vinyl chloride	ug/L (ppb)	10	95	101	70-130	6
Bromomethane	ug/L (ppb)	10	97	104	56-197	7
Chloroethane	ug/L (ppb)	10	97	105	70-130	8
Trichlorofluoromethane	ug/L (ppb)	10	88	92	70-130	4
Acetone	ug/L (ppb)	50	90	90	10-140	0
1,1-Dichloroethene	ug/L (ppb)	10	88	94	70-130	7
Hexane	ug/L (ppb)	10	83	88	54-136	6
Methylene chloride	ug/L (ppb)	10	77	101	43-134	27 vo
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	89	94	70-130	5
trans-1,2-Dichloroethene	ug/L (ppb)	10	93	99	70-130	6
1,1-Dichloroethane	ug/L (ppb)	10	87	93	70-130	7
2,2-Dichloropropane	ug/L (ppb)	10	93	97	70-130	4
cis-1,2-Dichloroethene	ug/L (ppb)	10	91	101	70-130	10
Chloroform	ug/L (ppb)	10	88	91	70-130	3
2-Butanone (MEK)	ug/L (ppb)	50	93	89	17-154	4
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	94	100	70-130	6
1,1,1-Trichloroethane	ug/L (ppb)	10	88	94	70-130	7
1,1-Dichloropropene	ug/L (ppb)	10	91	98	70-130	7
Carbon tetrachloride	ug/L (ppb)	10	92	96	70-130	4
Benzene	ug/L (ppb)	10	95	101	70-130	6
Trichloroethene	ug/L (ppb)	10	98	104	70-130	6
1,2-Dichloropropane	ug/L (ppb)	10	89	93	70-130	4
Bromodichloromethane	ug/L (ppb)	10	95	98	70-130	3
Dibromomethane	ug/L (ppb)	10	95	103	70-130	8
4-Methyl-2-pentanone	ug/L (ppb)	50	85	90	68-130	6
cis-1,3-Dichloropropene	ug/L (ppb)	10	91	97	69-131	6
Toluene	ug/L (ppb)	10	109	106	70-130	3
trans-1,3-Dichloropropene	ug/L (ppb)	10	104	99	70-130	5
1,1,2-Trichloroethane	ug/L (ppb)	10	101	99	70-130	2
2-Hexanone	ug/L (ppb)	50	96	93	45-138	3
1,3-Dichloropropane	ug/L (ppb)	10	100	93	70-130	7
Tetrachloroethene	ug/L (ppb)	10	107	103	70-130	4
Dibromochloromethane	ug/L (ppb)	10	102	101	60-148	1
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	105	98	70-130	7
Chlorobenzene	ug/L (ppb)	10	100	99	70-130	1
Ethylbenzene	ug/L (ppb)	10	101	98	70-130	3
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	105	102	70-130	3
m,p-Xylene	ug/L (ppb)	20	100	98	70-130	2
o-Xylene	ug/L (ppb)	10	103	100	70-130	3
Styrene	ug/L (ppb)	10	94	94	70-130	0
Isopropylbenzene	ug/L (ppb)	10	102	100	70-130	2
Bromoform	ug/L (ppb)	10	105	103	69-138	2
n-Propylbenzene	ug/L (ppb)	10	97	93	70-130	4
Bromobenzene	ug/L (ppb)	10	96	94	70-130	2
1,3,5-Trimethylbenzene	ug/L (ppb)	10	98	94	70-130	4
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	100	96	70-130	4
1,2,3-Trichloropropane	ug/L (ppb)	10	92	89	70-130	3
2-Chlorotoluene	ug/L (ppb)	10	97	93	70-130	4
4-Chlorotoluene	ug/L (ppb)	10	97	93	70-130	4
tert-Butylbenzene	ug/L (ppb)	10	102	102	70-130	0
1,2,4-Trimethylbenzene	ug/L (ppb)	10	98	94	70-130	4
sec-Butylbenzene	ug/L (ppb)	10	101	97	70-130	4
p-Isopropyltoluene	ug/L (ppb)	10	101	97	70-130	4
1,3-Dichlorobenzene	ug/L (ppb)	10	98	95	70-130	3
1,4-Dichlorobenzene	ug/L (ppb)	10	98	94	70-130	4
1,2-Dichlorobenzene	ug/L (ppb)	10	99	96	70-130	3
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	105	103	70-130	2
1,2,4-Trichlorobenzene	ug/L (ppb)	10	101	97	70-130	4
Hexachlorobutadiene	ug/L (ppb)	10	101	98	70-130	3
Naphthalene	ug/L (ppb)	10	101	98	70-130	3
1,2,3-Trichlorobenzene	ug/L (ppb)	10	104	97	70-130	7

Date of Report: 09/12/22
Date Received: 08/23/22
Project: TWAAFA - Groundwater Sampling, F&BI 208343

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 208343-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	<1	109	114	50-150	4
Chloromethane	ug/L (ppb)	10	<10	101	98	50-150	3
Vinyl chloride	ug/L (ppb)	10	<0.02	107	109	50-150	2
Bromomethane	ug/L (ppb)	10	<5	107	113	50-150	5
Chloroethane	ug/L (ppb)	10	<1	109	110	50-150	1
Trichlorofluoromethane	ug/L (ppb)	10	<1	99	100	50-150	1
Acetone	ug/L (ppb)	50	<50	99	96	50-150	3
1,1-Dichloroethene	ug/L (ppb)	10	<1	98	99	50-150	1
Hexane	ug/L (ppb)	10	<5	99	97	50-150	2
Methylene chloride	ug/L (ppb)	10	<5	135	125	50-150	8
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	97	98	50-150	1
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	103	105	50-150	2
1,1-Dichloroethane	ug/L (ppb)	10	<1	96	98	50-150	2
2,2-Dichloropropane	ug/L (ppb)	10	<1	112	112	50-150	0
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	99	106	50-150	7
Chloroform	ug/L (ppb)	10	<1	94	97	50-150	3
2-Butanone (MEK)	ug/L (ppb)	50	<20	98	103	50-150	5
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	97	100	50-150	3
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	97	98	50-150	1
1,1-Dichloropropene	ug/L (ppb)	10	<1	96	102	50-150	6
Carbon tetrachloride	ug/L (ppb)	10	<0.5	102	102	50-150	0
Benzene	ug/L (ppb)	10	<0.35	98	101	50-150	3
Trichloroethene	ug/L (ppb)	10	<0.5	100	104	50-150	4
1,2-Dichloropropane	ug/L (ppb)	10	<1	96	97	50-150	1
Bromodichloromethane	ug/L (ppb)	10	<0.5	96	98	50-150	2
Dibromomethane	ug/L (ppb)	10	<1	99	102	50-150	3
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	101	97	50-150	4
cis-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	97	102	50-150	5
Toluene	ug/L (ppb)	10	<1	101	104	50-150	3
trans-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	96	99	50-150	3
1,1,2-Trichloroethane	ug/L (ppb)	10	<0.5	98	100	50-150	2
2-Hexanone	ug/L (ppb)	50	<10	95	98	50-150	3
1,3-Dichloropropane	ug/L (ppb)	10	<1	97	99	50-150	2
Tetrachloroethene	ug/L (ppb)	10	<1	101	103	50-150	2
Dibromochloromethane	ug/L (ppb)	10	<0.5	97	100	50-150	3
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	98	102	50-150	4
Chlorobenzene	ug/L (ppb)	10	<1	98	101	50-150	3
Ethylbenzene	ug/L (ppb)	10	<1	100	103	50-150	3
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<1	95	101	50-150	6
m,p-Xylene	ug/L (ppb)	20	<2	100	102	50-150	2
o-Xylene	ug/L (ppb)	10	<1	98	101	50-150	3
Styrene	ug/L (ppb)	10	<1	95	98	50-150	3
Isopropylbenzene	ug/L (ppb)	10	<1	98	98	50-150	0
Bromoform	ug/L (ppb)	10	<5	97	104	50-150	7
n-Propylbenzene	ug/L (ppb)	10	<1	98	99	50-150	1
Bromobenzene	ug/L (ppb)	10	<1	97	98	50-150	1
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	94	97	50-150	3
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<0.2	97	98	50-150	1
1,2,3-Trichloropropane	ug/L (ppb)	10	<1	92	94	50-150	2
2-Chlorotoluene	ug/L (ppb)	10	<1	95	97	50-150	2
4-Chlorotoluene	ug/L (ppb)	10	<1	99	99	50-150	0
tert-Butylbenzene	ug/L (ppb)	10	<1	95	97	50-150	2
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<1	94	95	50-150	1
sec-Butylbenzene	ug/L (ppb)	10	<1	97	99	50-150	2
p-Isopropyltoluene	ug/L (ppb)	10	<1	97	100	50-150	3
1,3-Dichlorobenzene	ug/L (ppb)	10	<1	96	99	50-150	3
1,4-Dichlorobenzene	ug/L (ppb)	10	<1	97	99	50-150	2
1,2-Dichlorobenzene	ug/L (ppb)	10	<1	93	97	50-150	4
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<10	97	104	50-150	7
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	93	95	50-150	2
Hexachlorobutadiene	ug/L (ppb)	10	<0.5	96	98	50-150	2
Naphthalene	ug/L (ppb)	10	<1	91	94	50-150	3
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<1	92	94	50-150	2

Date of Report: 09/12/22
Date Received: 08/23/22
Project: TWAAFA - Groundwater Sampling, F&BI 208343

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: 208343-05 1/0.5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Phenol	ug/L (ppb)	2.5	<1	18	25	10-76	33 vo
Bis(2-chloroethyl) ether	ug/L (ppb)	2.5	<0.1	37	50	35-104	30 vo
2-Chlorophenol	ug/L (ppb)	2.5	<1	47	51	18-97	8
1,3-Dichlorobenzene	ug/L (ppb)	2.5	<0.1	15 vo	46	34-90	102 vo
1,4-Dichlorobenzene	ug/L (ppb)	2.5	<0.1	17 vo	46	36-90	92 vo
1,2-Dichlorobenzene	ug/L (ppb)	2.5	<0.1	24 vo	44	38-90	59 vo
Benzyl alcohol	ug/L (ppb)	2.5	<1	56	53	27-89	6
2,2'-Oxybis(1-chloropropane)	ug/L (ppb)	13	<0.1	45	54	30-109	18
2-Methylphenol	ug/L (ppb)	2.5	<1	55	52	25-95	6
Hexachloroethane	ug/L (ppb)	2.5	<0.1	18 vo	48	38-88	91 vo
N-Nitroso-di-n-propylamine	ug/L (ppb)	2.5	<0.1	64	65	50-150	2
3-Methylphenol + 4-Methylphenol	ug/L (ppb)	2.5	<2	52	52	15-95	0
Nitrobenzene	ug/L (ppb)	2.5	<0.1	56	58	41-114	4
Isophorone	ug/L (ppb)	2.5	<0.1	72	74	50-150	3
2-Nitrophenol	ug/L (ppb)	2.5	<1	58	63	21-113	8
2,4-Dimethylphenol	ug/L (ppb)	2.5	<1	69	72	50-150	4
Benzoic acid	ug/L (ppb)	2.5	<5	24	23	10-73	4
Bis(2-chloroethoxy)methane	ug/L (ppb)	20	<0.1	69	67	50-150	3
2,4-Dichlorophenol	ug/L (ppb)	2.5	<1	68	73	26-110	7
1,2,4-Trichlorobenzene	ug/L (ppb)	2.5	<0.1	47	52	42-95	10
Naphthalene	ug/L (ppb)	2.5	<0.1	54	55	46-95	2
Hexachlorobutadiene	ug/L (ppb)	2.5	<0.1	47	50	39-94	6
4-Chloroaniline	ug/L (ppb)	2.5	<10	52	61	16-114	16
4-Chloro-3-methylphenol	ug/L (ppb)	13	<1	79	82	46-123	4
2-Methylnaphthalene	ug/L (ppb)	2.5	<0.1	63	62	50-150	2
1-Methylnaphthalene	ug/L (ppb)	2.5	<0.1	65	64	50-150	2
Hexachlorocyclopentadiene	ug/L (ppb)	2.5	<0.3	53	55	28-122	4
2,4,6-Trichlorophenol	ug/L (ppb)	2.5	<1	77	80	10-149	4
2,4,5-Trichlorophenol	ug/L (ppb)	2.5	<1	85	80	10-143	6
2-Chloronaphthalene	ug/L (ppb)	2.5	<0.1	68	66	50-150	3
2-Nitroaniline	ug/L (ppb)	2.5	<0.5	88	89	41-139	1
Dimethyl phthalate	ug/L (ppb)	13	<1	87	88	50-150	1
Acenaphthylene	ug/L (ppb)	2.5	<0.01	74	75	50-150	1
2,6-Dinitrotoluene	ug/L (ppb)	2.5	<0.5	95	89	50-150	7
3-Nitroaniline	ug/L (ppb)	2.5	<10	72	79	21-124	9
Acenaphthene	ug/L (ppb)	13	<0.01	74	75	50-150	1
2,4-Dinitrophenol	ug/L (ppb)	2.5	<3	85	88	10-182	3
Dibenzofuran	ug/L (ppb)	5	<0.1	77	78	46-116	1
2,4-Dinitrotoluene	ug/L (ppb)	2.5	<0.5	84	92	50-150	9
4-Nitrophenol	ug/L (ppb)	2.5	<3	33	34	10-86	3
Diethyl phthalate	ug/L (ppb)	5	<1	90	93	50-150	3
Fluorene	ug/L (ppb)	2.5	<0.01	81	82	50-150	1
4-Chlorophenyl phenyl ether	ug/L (ppb)	2.5	<0.1	81	80	50-150	1
N-Nitrosodiphenylamine	ug/L (ppb)	2.5	<0.1	85	84	50-150	1
4-Nitroaniline	ug/L (ppb)	2.5	<10	82	88	46-105	7
4,6-Dinitro-2-methylphenol	ug/L (ppb)	2.5	<3	94	104	10-223	10
4-Bromophenyl phenyl ether	ug/L (ppb)	13	<0.1	85	86	50-150	1
Hexachlorobenzene	ug/L (ppb)	2.5	<0.1	84	86	50-150	2
Pentachlorophenol	ug/L (ppb)	2.5	<0.5	92	98	10-207	6
Phenanthrene	ug/L (ppb)	2.5	0.012 fb	86	91	50-150	6
Anthracene	ug/L (ppb)	2.5	<0.01	86	91	50-150	6
Carbazole	ug/L (ppb)	2.5	<0.1	98	106	50-150	8
Di-n-butyl phthalate	ug/L (ppb)	2.5	<1	95	94	50-150	1
Fluoranthene	ug/L (ppb)	2.5	<0.01	91	99	50-150	8
Pyrene	ug/L (ppb)	2.5	<0.01	96	102	50-150	6
Benzyl butyl phthalate	ug/L (ppb)	2.5	<1	101	107	50-150	6
Benz(a)anthracene	ug/L (ppb)	3.8	<0.01	98	99	50-150	1
Chrysene	ug/L (ppb)	2.5	<0.01	95	96	50-150	1
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	2.5	<1.6	97	103	46-157	6
Di-n-octyl phthalate	ug/L (ppb)	3.8	<1	114	115	50-150	1
Benzo(a)pyrene	ug/L (ppb)	2.5	<0.01	99	97	50-150	2
Benzo(b)fluoranthene	ug/L (ppb)	2.5	<0.01	101	95	50-150	6
Benzo(k)fluoranthene	ug/L (ppb)	2.5	<0.01	100	99	50-150	1
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	2.5	<0.01	97	106	50-150	9
Dibenz(a,h)anthracene	ug/L (ppb)	2.5	<0.01	98	106	50-150	8
Benzo(g,h,i)perylene	ug/L (ppb)	2.5	<0.02	92	101	50-150	9

Date of Report: 09/12/22
Date Received: 08/23/22
Project: TWAAFA - Groundwater Sampling, F&BI 208343

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: 208373-02 1/0.5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Phenol	ug/L (ppb)	2.5	<1	22 vo	18 vo	50-150	20
Bis(2-chloroethyl) ether	ug/L (ppb)	2.5	<0.1	52	42 vo	50-150	21 vo
2-Chlorophenol	ug/L (ppb)	2.5	<1	45 vo	40 vo	50-150	12
1,3-Dichlorobenzene	ug/L (ppb)	2.5	<0.1	40 vo	36 vo	50-150	11
1,4-Dichlorobenzene	ug/L (ppb)	2.5	<0.1	41 vo	36 vo	50-150	13
1,2-Dichlorobenzene	ug/L (ppb)	2.5	<0.1	43 vo	38 vo	50-150	12
Benzyl alcohol	ug/L (ppb)	2.5	<1	50	42 vo	50-150	17
2,2'-Oxybis(1-chloropropane)	ug/L (ppb)	13	<0.1	50	42 vo	50-150	17
2-Methylphenol	ug/L (ppb)	2.5	<1	50	43 vo	50-150	15
Hexachloroethane	ug/L (ppb)	2.5	<0.1	41 vo	37 vo	50-150	10
N-Nitroso-di-n-propylamine	ug/L (ppb)	2.5	<0.1	62	54	50-150	14
3-Methylphenol + 4-Methylphenol	ug/L (ppb)	2.5	<2	44 vo	40 vo	50-150	10
Nitrobenzene	ug/L (ppb)	2.5	<0.1	52	45 vo	50-150	14
Isophorone	ug/L (ppb)	2.5	<0.1	61	55	50-150	10
2-Nitrophenol	ug/L (ppb)	2.5	<1	52	44 vo	50-150	17
2,4-Dimethylphenol	ug/L (ppb)	2.5	<1	58	55	50-150	5
Benzoic acid	ug/L (ppb)	2.5	<5	30 vo	28 vo	50-150	7
Bis(2-chloroethoxy)methane	ug/L (ppb)	20	<0.1	61	54	50-150	12
2,4-Dichlorophenol	ug/L (ppb)	2.5	<1	59	56	50-150	5
1,2,4-Trichlorobenzene	ug/L (ppb)	2.5	<0.1	47 vo	44 vo	50-150	7
Naphthalene	ug/L (ppb)	2.5	<0.1	49 vo	45 vo	50-150	9
Hexachlorobutadiene	ug/L (ppb)	2.5	<0.1	45 vo	42 vo	50-150	7
4-Chloroaniline	ug/L (ppb)	2.5	<10	52	54	50-150	4
4-Chloro-3-methylphenol	ug/L (ppb)	13	<1	69	69	50-150	0
2-Methylnaphthalene	ug/L (ppb)	2.5	<0.1	54	50	50-150	8
1-Methylnaphthalene	ug/L (ppb)	2.5	<0.1	55	51	50-150	8
Hexachlorocyclopentadiene	ug/L (ppb)	2.5	<0.3	46 vo	48 vo	50-150	4
2,4,6-Trichlorophenol	ug/L (ppb)	2.5	<1	70	65	50-150	7
2,4,5-Trichlorophenol	ug/L (ppb)	2.5	<1	73	72	50-150	1
2-Chloronaphthalene	ug/L (ppb)	2.5	<0.1	59	54	50-150	9
2-Nitroaniline	ug/L (ppb)	2.5	<0.5	76	75	50-150	1
Dimethyl phthalate	ug/L (ppb)	13	<1	75	73	50-150	3
Acenaphthylene	ug/L (ppb)	2.5	<0.01	65	61	50-150	6
2,6-Dinitrotoluene	ug/L (ppb)	2.5	<0.5	76	73	50-150	4
3-Nitroaniline	ug/L (ppb)	2.5	<10	65	67	50-150	3
Acenaphthene	ug/L (ppb)	13	<0.01	61	58	50-150	5
2,4-Dinitrophenol	ug/L (ppb)	2.5	<3	86	82	50-150	5
Dibenzofuran	ug/L (ppb)	5	<0.1	63	61	50-150	3
2,4-Dinitrotoluene	ug/L (ppb)	2.5	<0.5	61	61	50-150	0
4-Nitrophenol	ug/L (ppb)	2.5	<3	34 vo	32 vo	50-150	6
Diethyl phthalate	ug/L (ppb)	5	<1	77	77	50-150	0
Fluorene	ug/L (ppb)	2.5	<0.01	70	68	50-150	3
4-Chlorophenyl phenyl ether	ug/L (ppb)	2.5	<0.1	71	71	50-150	0
N-Nitrosodiphenylamine	ug/L (ppb)	2.5	<0.1	77	74	50-150	4
4-Nitroaniline	ug/L (ppb)	2.5	<10	63	62	50-150	2
4,6-Dinitro-2-methylphenol	ug/L (ppb)	2.5	<3	93	89	50-150	4
4-Bromophenyl phenyl ether	ug/L (ppb)	13	<0.1	73	69	50-150	6
Hexachlorobenzene	ug/L (ppb)	2.5	<0.1	69	68	50-150	1
Pentachlorophenol	ug/L (ppb)	2.5	<0.5	99	98	50-150	1
Phenanthrene	ug/L (ppb)	2.5	0.014 fb	75	72	50-150	4
Anthracene	ug/L (ppb)	2.5	<0.01	72	72	50-150	0
Carbazole	ug/L (ppb)	2.5	<0.1	79	78	50-150	1
Di-n-butyl phthalate	ug/L (ppb)	2.5	<1	90	92	50-150	2
Fluoranthene	ug/L (ppb)	2.5	<0.01	76	75	50-150	1
Pyrene	ug/L (ppb)	2.5	<0.01	79	76	50-150	4
Benzyl butyl phthalate	ug/L (ppb)	2.5	<1	83	89	50-150	7
Benz(a)anthracene	ug/L (ppb)	3.8	<0.01	78	78	50-150	0
Chrysene	ug/L (ppb)	2.5	<0.01	76	78	50-150	3
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	2.5	1.6	80 b	111 b	50-150	32 b
Di-n-octyl phthalate	ug/L (ppb)	3.8	<1	69	75	50-150	8
Benzo(a)pyrene	ug/L (ppb)	2.5	<0.01	76	78	50-150	3
Benzo(b)fluoranthene	ug/L (ppb)	2.5	<0.01	79	83	50-150	5
Benzo(k)fluoranthene	ug/L (ppb)	2.5	<0.01	77	79	50-150	3
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	2.5	<0.01	75	75	50-150	0
Dibenz(a,h)anthracene	ug/L (ppb)	2.5	<0.01	75	75	50-150	0
Benzo(g,h,i)perylene	ug/L (ppb)	2.5	<0.02	69	71	50-150	3

Date of Report: 09/12/22
Date Received: 08/23/22
Project: TWAAFA - Groundwater Sampling, F&BI 208343

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Phenol	ug/L (ppb)	2.5	26	10-30
Bis(2-chloroethyl) ether	ug/L (ppb)	2.5	76	43-117
2-Chlorophenol	ug/L (ppb)	2.5	69	21-97
1,3-Dichlorobenzene	ug/L (ppb)	2.5	69	39-102
1,4-Dichlorobenzene	ug/L (ppb)	2.5	73	41-103
1,2-Dichlorobenzene	ug/L (ppb)	2.5	71	43-105
Benzyl alcohol	ug/L (ppb)	2.5	66	14-82
2,2'-Oxybis(1-chloropropane)	ug/L (ppb)	13	74	51-110
2-Methylphenol	ug/L (ppb)	2.5	62	19-77
Hexachloroethane	ug/L (ppb)	2.5	70	39-104
N-Nitroso-di-n-propylamine	ug/L (ppb)	2.5	81	60-114
3-Methylphenol + 4-Methylphenol	ug/L (ppb)	2.5	58	14-63
Nitrobenzene	ug/L (ppb)	2.5	78	53-114
Isophorone	ug/L (ppb)	2.5	82	62-113
2-Nitrophenol	ug/L (ppb)	2.5	74	41-117
2,4-Dimethylphenol	ug/L (ppb)	2.5	58	23-105
Benzoic acid	ug/L (ppb)	2.5	13	10-25
Bis(2-chloroethoxy)methane	ug/L (ppb)	20	79	56-111
2,4-Dichlorophenol	ug/L (ppb)	2.5	76	34-113
1,2,4-Trichlorobenzene	ug/L (ppb)	2.5	70	48-104
Naphthalene	ug/L (ppb)	2.5	71	50-104
Hexachlorobutadiene	ug/L (ppb)	2.5	72	40-107
4-Chloroaniline	ug/L (ppb)	2.5	81	34-120
4-Chloro-3-methylphenol	ug/L (ppb)	13	79	34-111
2-Methylnaphthalene	ug/L (ppb)	2.5	73	54-109
1-Methylnaphthalene	ug/L (ppb)	2.5	74	55-108
Hexachlorocyclopentadiene	ug/L (ppb)	2.5	60	34-126
2,4,6-Trichlorophenol	ug/L (ppb)	2.5	81	28-125
2,4,5-Trichlorophenol	ug/L (ppb)	2.5	85	39-120
2-Chloronaphthalene	ug/L (ppb)	2.5	77	57-130
2-Nitroaniline	ug/L (ppb)	2.5	91	51-146
Dimethyl phthalate	ug/L (ppb)	13	87	64-118
Acenaphthylene	ug/L (ppb)	2.5	83	60-114
2,6-Dinitrotoluene	ug/L (ppb)	2.5	103	66-121
3-Nitroaniline	ug/L (ppb)	2.5	89	42-134
Acenaphthene	ug/L (ppb)	13	83	57-110
2,4-Dinitrophenol	ug/L (ppb)	2.5	79	10-171
Dibenzofuran	ug/L (ppb)	5	85	52-116
2,4-Dinitrotoluene	ug/L (ppb)	2.5	90	55-127
4-Nitrophenol	ug/L (ppb)	2.5	34	10-46
Diethyl phthalate	ug/L (ppb)	5	79	63-118
Fluorene	ug/L (ppb)	2.5	86	61-115
4-Chlorophenyl phenyl ether	ug/L (ppb)	2.5	89	61-112
N-Nitrosodiphenylamine	ug/L (ppb)	2.5	83	63-116
4-Nitroaniline	ug/L (ppb)	2.5	111	42-150
4,6-Dinitro-2-methylphenol	ug/L (ppb)	2.5	84	13-152
4-Bromophenyl phenyl ether	ug/L (ppb)	13	81	62-115
Hexachlorobenzene	ug/L (ppb)	2.5	89	60-113
Pentachlorophenol	ug/L (ppb)	2.5	79	14-137
Phenanthrene	ug/L (ppb)	2.5	87	63-113
Anthracene	ug/L (ppb)	2.5	88	65-117
Carbazole	ug/L (ppb)	2.5	97	67-131
Di-n-butyl phthalate	ug/L (ppb)	2.5	61	37-135
Fluoranthene	ug/L (ppb)	2.5	93	68-121
Pyrene	ug/L (ppb)	2.5	91	66-125
Benzyl butyl phthalate	ug/L (ppb)	2.5	87	56-128
Benz(a)anthracene	ug/L (ppb)	3.8	95	70-130
Chrysene	ug/L (ppb)	2.5	93	67-119
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	2.5	72	57-124
Di-n-octyl phthalate	ug/L (ppb)	3.8	92	43-132
Benzo(a)pyrene	ug/L (ppb)	2.5	92	68-126
Benzo(b)fluoranthene	ug/L (ppb)	2.5	94	62-130
Benzo(k)fluoranthene	ug/L (ppb)	2.5	92	67-125
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	2.5	100	63-131
Dibenz(a,h)anthracene	ug/L (ppb)	2.5	101	62-133
Benzo(g,h,i)perylene	ug/L (ppb)	2.5	99	57-133

Date of Report: 09/12/22
Date Received: 08/23/22
Project: TWAAFA - Groundwater Sampling, F&BI 208343

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR POLYCHLORINATED BIPHENYLS AS AROCLOR 1016/1260 BY EPA METHOD 8082A

Laboratory Code: 208343-05 1/0.5 (Matrix Spike) 1/0.5

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Aroclor 1016	ug/L (ppb)	0.25	<0.0058 j	50	39 vo	50-150	25 vo
Aroclor 1260	ug/L (ppb)	0.25	<0.0083 j	68	64	50-150	6

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Aroclor 1016	ug/L (ppb)	0.25	36	25-165
Aroclor 1260	ug/L (ppb)	0.25	56	25-163

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

208343

SAMPLE CHAIN OF CUSTODY ME 8/23/22 E031 AI46 VW6

Page # of

Report To: Audrey Hackett/Carolyn Wise

Company: Maul Foster Alongi, Inc.

Address: 2815 2nd Avenue, Suite 540

City, State, ZIP: Seattle WA 98121

Phone: 206-331-1835 Email: ahackett@maulfoster.com

SAMPLERS (*signature*)

PROJECT NAME: TWAAFA - Groundwater Sampling

PO #: M0615.20.005-03

REMARKS: SVOCs lab filtered at 0.7 micron before analysis

Project Specific RLs - (Yes) / No

INVOICE TO: A. Hackett, MFA

TURNAROUND TIME
X :Standard Turnaround
:RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Archive Samples
Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	DRO/ORO by NWTPH-Dx w/SG	DRO/ORO - NWTPH-Dx wo/SG	GRO - NWTPH-Gx	EPH - NWTPH-EPH	VPH - NWTPH-VPH	VOCs by 8260D	1,4-Dioxane - 8260D	SVOCs by 8270E	Total Metals by 6020	Mercury by 1613E	LL PCBs by 8082	Notes
						ANALYSES REQUESTED											* only VOAs
TWA-1-0822	01A-R	8/22/22	12:00	W	18		X	X	X	X	X	X	X	X	X	X	received Other
TWA-2-0822	02A-N	8/22/22	13:00	W	14		X	X			X	X	X	X	X	X	containers received
TWA-3-0822	03A-N	8/22/22	14:00	W	14		X	X			X	X	X	X	X	X	8/24/22 SDG 208351 ME
TWA-10D-0822	04A-N	8/22/22	17:00	W	14		X	X			X	X	X	X	X	X	
SB-1A-0822	05A-AA	8/23/22	09:30	W	27	31	X	X			X	X	X	X	X	X	[redacted]
SB-2A-0822	06A-I	8/23/22	10:50	W	149		X	X			X	X	X	X	X	X	HS/17SD Location
Field Blank#1-0822	07A-L	8/23/22	9:10	W	18		X	X			X	X	X	X	X	X	Extra Volume
TWA-6D-0822	08A-N	8/23/22	11:30	W	14		X	X	X	X	X	X	X	X	X	X	
TWA-5D-0822	09A-N	8/23/22	13:40	W	14		X	X			X	X	X	X	X	X	
Trip Blank#1-0822	10A-B			W	2			X			X						

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Christian Sifford	MFA	8/23/22	14:10
Received by:	VINH	FB1	8-23-22	14:40
Relinquished by:				
Received by:		Samples received at 4 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

208343

SAMPLE CHAIN OF CUSTODY ME 8/23/22 E03/A16/VW6

Page # 1 of 2

Report To: Audrey Hackett/Carolyn Wise

Company: Maul Foster Alongi, Inc.

Address: 2815 2nd Avenue, Suite 540

City, State, ZIP: Seattle WA 98121

Phone: 206-331-1835 Email: ahackett@maulfoster.com

SAMPLERS (*signature*)	
PROJECT NAME: TWAAFA - Groundwater Sampling	PO #: M0615.20.005-03
REMARKS: SVOCs lab filtered at 0.7 micron before analysis Project Specific RLs - **Yes** / No	INVOICE TO: A. Hackett, MFA

TURNAROUND TIME
X :Standard Turnaround
:RUSH_____
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Archive Samples
Other_____

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: DRO/ORO by NWTPH-Dx w/SG	DRO/ORO - NWTPH-Dx wo/SG	GRO - NWTPH-Gx	EPH - NWTPH-EPH	VPH - NWTPH-VPH	VOCs by 8260D	1,4-Dioxane - 8260D	SVOCs by 8270E	Total Metals by 6020	Mercury by 1613E	LL PCBs by 8082	Notes
	11A-N																
SB-3A-0822	~~A~~	8/23/22	1300	W	14		X	X			X	X	X	X	X	X	

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Christian Sifford	MFA	8/23/22	14:00
Received by:	VINH	FQI	8-23-22	14:40
Relinquished by:				
Received by:		Samples received at 4°C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

SAMPLE CONDITION UPON RECEIPT CHECKLIST

HW

PROJECT # 208343 CLIENT MFA INITIALS/DATE: 8/23/22

If custody seals are present on cooler, are they intact? ☒ NA ☐ YES ☐ NO

Cooler/Sample temperature 4 °C

Were samples received on ice/cold packs? ☒ YES ☐ NO

How did samples arrive?
- ☐ Over the Counter
- ☒ Picked up by F&BI
- ☐ FedEx/UPS/GSO

Number of days samples have been sitting prior to receipt at laboratory 0-1 days

Is there a Chain-of-Custody* (COC)? ☒ YES ☐ NO
*or other representative documents, letters, and/or shipping memos

Are the samples clearly identified? (explain "no" answer below) ☒ YES ☐ NO

Is the following information provided on the COC* ? (explain "no" answer below)

Sample ID's	☒ Yes	☐ No	# of Containers	☐ Yes	☒ No
Date Sampled	☒ Yes	☐ No	Relinquished	☒ Yes	☐ No
Time Sampled	☒ Yes	☐ No	Requested analysis	☒ Yes	☐ No

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below) ☒ YES ☐ NO

Were appropriate sample containers used? ☒ YES ☐ NO ☐ Unknown

If custody seals are present on samples, are they intact? ☒ NA ☐ YES ☐ NO

Are samples requiring no headspace, headspace free? ☒ NA ☒ YES ☐ NO

Air Samples: Were any additional canisters received? ☒ NA ☐ YES ☐ NO

If Yes, number of unused 1L canisters _____

number of unused 6L canisters _____

Explain "no" items from above (use the back if needed)

Only VOAs were received for samples -06 & 07. The additional containers were received 8/25/22 under SDG 208351. COC was amended accordingly. ME 8/23/22

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman & Bruya
Michael Erdahl
3012 16th Ave. W.
Seattle, WA 98119

RE: 208343
Work Order Number: 2208367

September 08, 2022

Attention Michael Erdahl:

Fremont Analytical, Inc. received 2 sample(s) on 8/24/2022 for the analyses presented in the following report.

Extractable Petroleum Hydrocarbons by NWEPH

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *09/08/2022*

CLIENT: Friedman & Bruya
Project: 208343
Work Order: 2208367

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2208367-001	TWA-1-0822	08/22/2022 12:00 PM	08/24/2022 2:56 PM
2208367-002	TWA-6D-0822	08/22/2022 11:30 AM	08/24/2022 2:56 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Original

Case Narrative

WO#: **2208367**
Date: **9/8/2022**

CLIENT: Friedman & Bruya
Project: 208343

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MCL - Maximum Contaminant Level
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **2208367**
Date Reported: **9/8/2022**

Client: Friedman & Bruya
Collection Date: 8/22/2022 12:00:00 PM
Project: 208343
Lab ID: 2208367-001
Matrix: Water
Client Sample ID: TWA-1-0822

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 37608		Analyst: KJ
Aliphatic Hydrocarbon (C8-C10)	ND	79.3		µg/L	1	9/7/2022 6:19:36 PM
Aliphatic Hydrocarbon (C10-C12)	ND	39.7	*	µg/L	1	9/7/2022 6:19:36 PM
Aliphatic Hydrocarbon (C12-C16)	ND	39.7		µg/L	1	9/7/2022 6:19:36 PM
Aliphatic Hydrocarbon (C16-C21)	ND	39.7		µg/L	1	9/7/2022 6:19:36 PM
Aliphatic Hydrocarbon (C21-C34)	ND	39.7		µg/L	1	9/7/2022 6:19:36 PM
Aromatic Hydrocarbon (C8-C10)	ND	79.3		µg/L	1	9/8/2022 12:30:44 AM
Aromatic Hydrocarbon (C10-C12)	ND	39.7	*	µg/L	1	9/8/2022 12:30:44 AM
Aromatic Hydrocarbon (C12-C16)	ND	39.7		µg/L	1	9/8/2022 12:30:44 AM
Aromatic Hydrocarbon (C16-C21)	ND	39.7		µg/L	1	9/8/2022 12:30:44 AM
Aromatic Hydrocarbon (C21-C34)	ND	39.7		µg/L	1	9/8/2022 12:30:44 AM
Surr: 1-Chlorooctadecane	57.0	50 - 150		%Rec	1	9/7/2022 6:19:36 PM
Surr: o-Terphenyl	64.2	50 - 150		%Rec	1	9/8/2022 12:30:44 AM

NOTES:
* - Associated LCS does not meet acceptance criteria; refer to QC summary.

Analytical Report

Work Order: **2208367**
Date Reported: **9/8/2022**

Client: Friedman & Bruya
Collection Date: 8/22/2022 11:30:00 AM
Project: 208343
Lab ID: 2208367-002
Matrix: Water
Client Sample ID: TWA-6D-0822

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Extractable Petroleum Hydrocarbons by NWEPH				Batch ID: 37608		Analyst: KJ
Aliphatic Hydrocarbon (C8-C10)	ND	78.2		µg/L	1	9/7/2022 6:41:25 PM
Aliphatic Hydrocarbon (C10-C12)	ND	39.1	*	µg/L	1	9/7/2022 6:41:25 PM
Aliphatic Hydrocarbon (C12-C16)	ND	39.1		µg/L	1	9/7/2022 6:41:25 PM
Aliphatic Hydrocarbon (C16-C21)	ND	39.1		µg/L	1	9/7/2022 6:41:25 PM
Aliphatic Hydrocarbon (C21-C34)	ND	39.1		µg/L	1	9/7/2022 6:41:25 PM
Aromatic Hydrocarbon (C8-C10)	ND	78.2		µg/L	1	9/8/2022 12:52:35 AM
Aromatic Hydrocarbon (C10-C12)	ND	39.1	*	µg/L	1	9/8/2022 12:52:35 AM
Aromatic Hydrocarbon (C12-C16)	ND	39.1		µg/L	1	9/8/2022 12:52:35 AM
Aromatic Hydrocarbon (C16-C21)	ND	39.1		µg/L	1	9/8/2022 12:52:35 AM
Aromatic Hydrocarbon (C21-C34)	ND	39.1		µg/L	1	9/8/2022 12:52:35 AM
Surr: 1-Chlorooctadecane	12.8	50 - 150	S	%Rec	1	9/7/2022 6:41:25 PM
Surr: o-Terphenyl	37.9	50 - 150	S	%Rec	1	9/8/2022 12:52:35 AM

NOTES:
* - Associated LCS does not meet acceptance criteria; refer to QC summary.
S - Outlying surrogate recovery(ies) observed.

Work Order: 2208367
CLIENT: Friedman & Bruya
Project: 208343

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **ALI-CCV-37608A** SampType: **CCV** Units: **µg/L** Prep Date: **9/7/2022** RunNo: **78099**
Client ID: **CCV** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605025**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	200	80.0	200.0	0	100	80	120				
Aliphatic Hydrocarbon (C10-C12)	97.8	40.0	100.0	0	97.8	80	120				
Aliphatic Hydrocarbon (C12-C16)	95.1	40.0	100.0	0	95.1	80	120				
Aliphatic Hydrocarbon (C16-C21)	93.8	40.0	100.0	0	93.8	80	120				
Aliphatic Hydrocarbon (C21-C34)	87.2	40.0	100.0	0	87.2	80	120				
Surr: 1-Chlorooctadecane	37.2		40.00		92.9	60	140				
Surr: o-Terphenyl	38.1		40.00		95.3	60	140				

Sample ID: **MB-37608** SampType: **MBLK** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **MBLKW** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605027**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	ND	78.9		0	0						
Aliphatic Hydrocarbon (C10-C12)	ND	39.4		0	0						*
Aliphatic Hydrocarbon (C12-C16)	ND	39.4		0	0						
Aliphatic Hydrocarbon (C16-C21)	ND	39.4		0	0						
Aliphatic Hydrocarbon (C21-C34)	ND	39.4		0	0						
Surr: 1-Chlorooctadecane	267		394.4		67.8	50	150				

NOTES:
* - Associated LCS does not meet acceptance criteria; refer to QC summary.

Sample ID: **2208367-002AMS** SampType: **MS** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **TWA-6D-0822** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605034**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	279	78.7	983.6	0	28.4	8.66	130				
Aliphatic Hydrocarbon (C10-C12)	240	39.3	491.8	0	48.8	70	130				S
Aliphatic Hydrocarbon (C12-C16)	301	39.3	491.8	0	61.3	70	130				S
Aliphatic Hydrocarbon (C16-C21)	320	39.3	491.8	0	65.1	70	130				S
Aliphatic Hydrocarbon (C21-C34)	348	39.3	491.8	0	70.7	70	130				
Surr: 1-Chlorooctadecane	250		393.5		63.6	50	150				

Work Order: 2208367
CLIENT: Friedman & Bruya
Project: 208343

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **2208367-002AMS** SampType: **MS** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **TWA-6D-0822** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605034**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
S - Outlying spike recoveries were associated with this sample.

Sample ID: **LCS-37608** SampType: **LCS** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **LCSW** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605038**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	311	78.6	982.0	0	31.6	23	130				
Aliphatic Hydrocarbon (C10-C12)	311	39.3	491.0	0	63.3	70	130				S
Aliphatic Hydrocarbon (C12-C16)	398	39.3	491.0	0	81.0	70	130				
Aliphatic Hydrocarbon (C16-C21)	388	39.3	491.0	0	79.0	70	130				
Aliphatic Hydrocarbon (C21-C34)	391	39.3	491.0	0	79.6	70	130				
Surr: 1-Chlorooctadecane	325		392.8		82.8	50	150				

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.

Sample ID: **LCSD-37608** SampType: **LCSD** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **LCSW02** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605039**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	257	78.0	975.1	0	26.4	23	130	310.6	18.8	20	
Aliphatic Hydrocarbon (C10-C12)	266	39.0	487.5	0	54.5	70	130	310.7	15.6	20	S
Aliphatic Hydrocarbon (C12-C16)	347	39.0	487.5	0	71.3	70	130	397.7	13.5	20	
Aliphatic Hydrocarbon (C16-C21)	343	39.0	487.5	0	70.3	70	130	387.9	12.3	20	
Aliphatic Hydrocarbon (C21-C34)	366	39.0	487.5	0	75.2	70	130	391.0	6.50	20	
Surr: 1-Chlorooctadecane	279		390.0		71.6	50	150		0		

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.

Work Order: 2208367
CLIENT: Friedman & Bruya
Project: 208343

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **ARO-CCV-37608A** SampType: **CCV** Units: **µg/L** Prep Date: **9/7/2022** RunNo: **78099**
Client ID: **CCV** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605164**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	236	80.0	200.0	0	118	80	120				
Aromatic Hydrocarbon (C10-C12)	105	40.0	100.0	0	105	80	120				
Aromatic Hydrocarbon (C12-C16)	121	40.0	100.0	0	121	80	120				S
Aromatic Hydrocarbon (C16-C21)	94.9	40.0	100.0	0	94.9	80	120				
Aromatic Hydrocarbon (C21-C34)	93.0	40.0	100.0	0	93.0	80	120				
Surr: 1-Chlorooctadecane	42.0		40.00		105	60	140				
Surr: o-Terphenyl	42.7		40.00		107	60	140				

NOTES:
S - Outlying spike recovery observed (high bias). Detections will be qualified with a Q.

Sample ID: **LCS-37608** SampType: **LCS** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **LCSW** Batch ID: **37608** Analysis Date: **9/7/2022** SeqNo: **1605166**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	373	78.6	982.0	0	37.9	28.4	130				
Aromatic Hydrocarbon (C10-C12)	326	39.3	491.0	0	66.4	70	130				S
Aromatic Hydrocarbon (C12-C16)	420	39.3	491.0	0	85.6	70	130				
Aromatic Hydrocarbon (C16-C21)	405	39.3	491.0	0	82.5	70	130				
Aromatic Hydrocarbon (C21-C34)	345	39.3	491.0	0	70.3	70	130				
Surr: o-Terphenyl	399		392.8		102	50	150				

NOTES:
S - Outlying spike recovery observed (low bias). Samples will be qualified with a *.

Sample ID: **ARO-CCV-37608B** SampType: **CCV** Units: **µg/L** Prep Date: **9/8/2022** RunNo: **78099**
Client ID: **CCV** Batch ID: **37608** Analysis Date: **9/8/2022** SeqNo: **1605176**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	211	80.0	200.0	0	105	80	120				
Aromatic Hydrocarbon (C10-C12)	93.2	40.0	100.0	0	93.2	80	120				
Aromatic Hydrocarbon (C12-C16)	102	40.0	100.0	0	102	80	120				
Aromatic Hydrocarbon (C16-C21)	80.8	40.0	100.0	0	80.8	80	120				
Aromatic Hydrocarbon (C21-C34)	93.6	40.0	100.0	0	93.6	80	120				
Surr: 1-Chlorooctadecane	33.7		40.00		84.2	60	140				

Work Order: 2208367
CLIENT: Friedman & Bruya
Project: 208343

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **ARO-CCV-37608B**	SampType: **CCV**			Units: **µg/L**		Prep Date: **9/8/2022**		RunNo: **78099**			
Client ID: **CCV**	Batch ID: **37608**					Analysis Date: **9/8/2022**		SeqNo: **1605176**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: o-Terphenyl	35.5		40.00		88.7	60	140				

Sample ID: **LCSD-37608**	SampType: **LCSD**			Units: **µg/L**		Prep Date: **8/29/2022**		RunNo: **78099**			
Client ID: **LCSW02**	Batch ID: **37608**					Analysis Date: **9/8/2022**		SeqNo: **1605181**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	380	78.0	975.1	0	39.0	28.4	130	398.7	4.68	20	
Aromatic Hydrocarbon (C10-C12)	255	39.0	487.5	0	52.4	70	130	275.0	7.38	20	S
Aromatic Hydrocarbon (C12-C16)	342	39.0	487.5	0	70.1	70	130	342.5	0.190	20	
Aromatic Hydrocarbon (C16-C21)	244	39.0	487.5	0	50.1	70	130	360.2	38.4	20	RS
Aromatic Hydrocarbon (C21-C34)	365	39.0	487.5	0	74.9	70	130	322.6	12.4	20	
Surr: o-Terphenyl	244		390.0		62.7	50	150		0		

NOTES:
S - Outlying spike recovery observed (Aro C10-12). Samples will be qualified with a *.
S, R - Outlying spike recovery/RPD observed (Aro C16-21). The LCS passed for this range.

Sample ID: **2208367-002AMS**	SampType: **MS**			Units: **µg/L**		Prep Date: **8/29/2022**		RunNo: **78099**			
Client ID: **TWA-6D-0822**	Batch ID: **37608**					Analysis Date: **9/8/2022**		SeqNo: **1605182**			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	364	78.7	983.6	0	37.0	5	130				
Aromatic Hydrocarbon (C10-C12)	300	39.3	491.8	0	60.9	70	130				S
Aromatic Hydrocarbon (C12-C16)	388	39.3	491.8	17.44	75.4	70	130				
Aromatic Hydrocarbon (C16-C21)	275	39.3	491.8	34.15	48.9	70	130				S
Aromatic Hydrocarbon (C21-C34)	346	39.3	491.8	0	70.4	70	130				
Surr: o-Terphenyl	288		393.5		73.3	50	150				

NOTES:
S - Outlying spike recoveries were associated with this sample.

Work Order: 2208367
CLIENT: Friedman & Bruya
Project: 208343

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **ALI-CCV-37608C** SampType: **CCV** Units: **µg/L** Prep Date: **9/8/2022** RunNo: **78099**
Client ID: **CCV** Batch ID: **37608** Analysis Date: **9/8/2022** SeqNo: **1605303**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aliphatic Hydrocarbon (C8-C10)	220	80.0	200.0	0	110	80	120				
Aliphatic Hydrocarbon (C10-C12)	109	40.0	100.0	0	109	80	120				
Aliphatic Hydrocarbon (C12-C16)	103	40.0	100.0	0	103	80	120				
Aliphatic Hydrocarbon (C16-C21)	99.4	40.0	100.0	0	99.4	80	120				
Aliphatic Hydrocarbon (C21-C34)	100	40.0	100.0	0	100	80	120				
Surr: 1-Chlorooctadecane	40.8		40.00		102	60	140				
Surr: o-Terphenyl	42.0		40.00		105	60	140				

Sample ID: **MB-37608** SampType: **MBLK** Units: **µg/L** Prep Date: **8/29/2022** RunNo: **78099**
Client ID: **MBLKW** Batch ID: **37608** Analysis Date: **9/8/2022** SeqNo: **1605306**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	ND	78.9		0	0						
Aromatic Hydrocarbon (C10-C12)	ND	39.4		0	0						
Aromatic Hydrocarbon (C12-C16)	ND	39.4		0	0						
Aromatic Hydrocarbon (C16-C21)	ND	39.4		0	0						Q
Aromatic Hydrocarbon (C21-C34)	ND	39.4		0	0						
Surr: o-Terphenyl	348		394.4		88.3	50	150				

NOTES:
Q - Associated calibration verification is below acceptance criteria (79.8, nominal 80-120).

Sample ID: **ARO-CCV-37608D** SampType: **CCV** Units: **µg/L** Prep Date: **9/8/2022** RunNo: **78099**
Client ID: **CCV** Batch ID: **37608** Analysis Date: **9/8/2022** SeqNo: **1605311**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aromatic Hydrocarbon (C8-C10)	199	80.0	200.0	0	99.7	80	120				
Aromatic Hydrocarbon (C10-C12)	87.3	40.0	100.0	0	87.3	80	120				
Aromatic Hydrocarbon (C12-C16)	93.6	40.0	100.0	0	93.6	80	120				
Aromatic Hydrocarbon (C16-C21)	80.2	40.0	100.0	0	80.2	80	120				
Aromatic Hydrocarbon (C21-C34)	92.1	40.0	100.0	0	92.1	80	120				
Surr: 1-Chlorooctadecane	31.4		40.00		78.5	60	140				
Surr: o-Terphenyl	32.5		40.00		81.2	60	140				

Work Order: 2208367
CLIENT: Friedman & Bruya
Project: 208343

QC SUMMARY REPORT

Extractable Petroleum Hydrocarbons by NWEPH

Sample ID: **ARO-CCV-37608D** SampType: **CCV** Units: **µg/L** Prep Date: **9/8/2022** RunNo: **78099**
Client ID: **CCV** Batch ID: **37608** Analysis Date: **9/8/2022** SeqNo: **1605311**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample Log-In Check List

Client Name:	FB	Work Order Number:	2208367
Logged by:	Gabrielle Coeuille	Date Received:	8/24/2022 2:56:00 PM

Chain of Custody

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

Log In

3.	Coolers are present?	Yes	☑	No	☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes	☑	No	☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes	☐	No	☐	Not Present ☑
6.	Was an attempt made to cool the samples?	Yes	☑	No	☐	NA ☐
7.	Were all items received at a temperature of >2°C to 6°C *	Yes	☑	No	☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes	☑	No	☐	
9.	Sufficient sample volume for indicated test(s)?	Yes	☑	No	☐	
10.	Are samples properly preserved?	Yes	☑	No	☐	
11.	Was preservative added to bottles?	Yes	☐	No	☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes	☐	No	☑	NA ☐
13.	Did all samples containers arrive in good condition(unbroken)?	Yes	☑	No	☐	
14.	Does paperwork match bottle labels?	Yes	☑	No	☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No	☐	
16.	Is it clear what analyses were requested?	Yes	☑	No	☐	
17.	Were all holding times able to be met?	Yes	☑	No	☐	

Special Handling (if applicable)

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

Person Notified:	Michael Erdhal	Date:	8/25/2022
By Whom:	Gabrielle Coeuille	Via:	☑ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:	No VOAs received for sample 002.		
Client Instructions:	Will be delivered 8/25/22		

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample 1	1.6

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

2208367

Page # 1 of 1

Send Report To Michael Erdahl
Company Friedman and Bruya, Inc.
Address 3012 16th Ave W
City, State, ZIP Seattle, WA 98119
Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER Fremont
PROJECT NAME/NO. 208343
PO # C-325
REMARKS EQUIS, Tier IV

TURNAROUND TIME
☒ Standard TAT
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Dioxins/Furans	EPH	VPH								Notes
TWA-1-0822		5/22/22	1200	water			X	X								
TWA-6D-0822		↓	1130	water			X	X								

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	5/24/22	1401
Received by:	Yeji Chen	Yeji Chen	Fremont Analytical	5/24/22	14:56
Relinquished by:					
Received by:					

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

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Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER Fremont

PROJECT NAME/NO. 208343

PO # C-325

REMARKS EQUIS, Tier IV

TURNAROUND TIME
- [x] Standard TAT
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Dispose after 30 days
- [ ] Return samples
- [ ] Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Dioxins/Furans	EPH	VPH								Notes
TWA-1-0822		8/22/22	1200	water			X	X								
TWA-6D-0822		↓	1130	water			X	X								
															8	Additional (3) VOAs sent to Fremont from FSBS on 8/25/22 ME

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Received by:	Yeji Chen	Yeji Chen	Fremont Analytical	8/24/22	14:56
Relinquished by:		Michael Erdahl	FSBS	8/25/22	0825
Received by:					

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SUBCONTRACTER Fremont

PROJECT NAME/NO.	PO #
208343	C-325

REMARKS

Cancel VPH analysis per E.Y. 9/8/22-BB

EQUIS, Tier IV

TURNAROUND TIME

☒ Standard TAT

☐ RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Dispose after 30 days

☐ Return samples

☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Dioxins/Furans	EPH	VPH							Notes
TWA-1-0822		8/22/22	1200	water			X	X							
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	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
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Received by:	Yeyi Chen	Yeyi Chen	Fremont Analytical	8/24/22	14:56
Relinquished by:		Michael Erdahl	FSBS	8/25/22	0825
Received by:					