

**REPORT**

# Compliance Monitoring Report

## June 2021 Quarterly Groundwater Sampling

### *Landsburg Mine Site*

Submitted to:

**Washington Department of Ecology**

15700 Dayton Ave. N., Shoreline WA 98133

Submitted by:

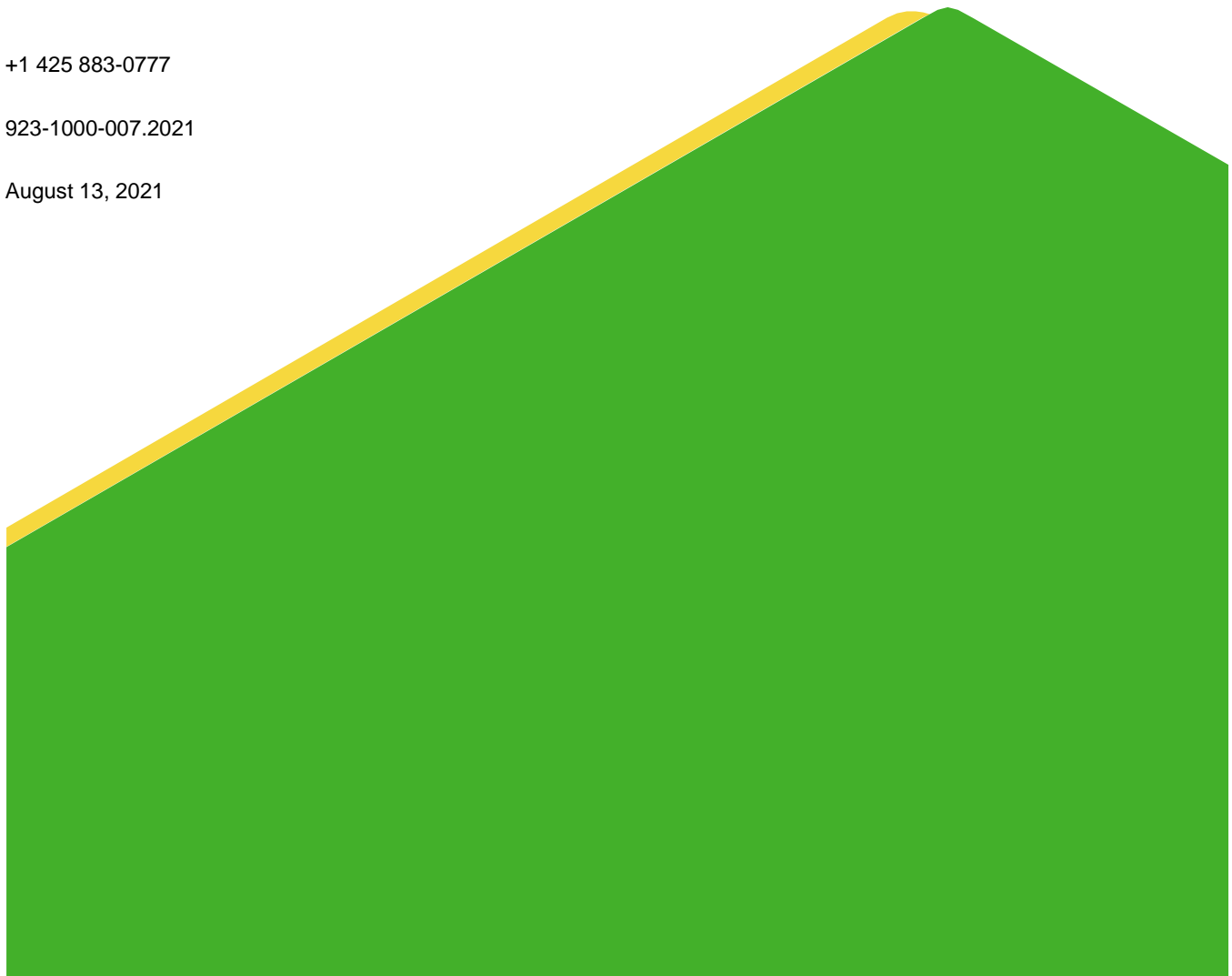
**Golder Associates Inc.**

18300 NE Union Hill Road, Suite 200, Redmond, Washington, USA 98052

+1 425 883-0777

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## Distribution List

Jerome Cruz, PhD - Ecology

Landsburg PLP Group

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June 2021 Laboratory Analytical Report

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## 1.0 INTRODUCTION

The Compliance Monitoring Plan (CMP) (Ecology 2017) describes the long-term confirmational monitoring required after remediation actions are completed at the Landsburg Mine Site (the Site). This letter report presents the results of the second quarterly long-term confirmational monitoring event, which was completed in June 2021. The event was conducted from June 2 to 4, 2021, and included collecting groundwater samples from monitoring wells LMW-2, LMW-3, LMW-4, LMW-5, LMW-6, LMW-7, LMW-8, LMW-9, LMW-10, LMW-11, LMW-12, LMW-13R, LMW-14, LMW-15, LMW-20, LMW-21, and LMW-22.

Figure 1 presents the locations of the monitoring wells. Figure 2 presents a cross-section along the strike at the coal seam that also depicts the location of the monitoring wells. Monitoring wells LMW-2, LMW-4, LMW-10, LMW-12 and LMW-13R are completed to monitor shallow, middle, and deeper zones within the north end of the Rogers Coal Mine subsidence trench. Monitoring wells LMW-3, LMW-5, LMW-8, LMW-9, LMW-11, LMW-14 and LMW-15 are completed to monitor shallow, middle and deeper zones along the southern half of the Rogers Coal Mine. Wells LMW-6 and LMW-7 monitor groundwater from the Frasier and Landsburg Coal Mines to the west and east of the Rogers Coal Mine, respectively. LMW-20, LMW-21, and LMW-22 monitor groundwater north of the Site, between the Site and the Cedar River.

## 2.0 SAMPLING ACTIVITIES

Groundwater sampling was conducted in accordance with the CMP (Ecology 2017), and included the following activities:

- Measurement of static water levels at monitoring wells.
- Well purging with the dedicated pumping systems installed in each well to ensure sample representativeness.
- Measurement of field parameters including: pH, specific conductance, temperature, dissolved oxygen, oxidation-reduction potential (ORP) and turbidity.
- Collection of representative samples in appropriate containers provided by the analytical laboratory.
- Analyses of groundwater samples for the following parameters:
  - Volatile Organic Compounds (VOCs) by United States Environmental Protection Agency (USEPA) USEPA Method 8260D
  - 1,4-Dioxane by USEPA SW-846 Method 8270E
  - Total Petroleum Hydrocarbons (TPHs) by NWTPH-HCID
  - Total Metals by USEPA SW-846 Method 200.8 and SW-846 6010D
  - Total Mercury by USEPA SW-846 Method 7470A

Appendix A presents the laboratory analytical data validation report with added data qualifiers noted. Appendix B presents the laboratory analytical data. Field sampling activities were documented on Sample Integrity Data Sheets (SIDS), provided in Appendix C. Table 1 presents depths to groundwater measured during the event and calculated static water level elevations.



Following sample collection, all bottles were sealed, labeled, and placed in an iced cooler until delivery to the laboratory. Groundwater samples were transported under chain-of-custody procedures to Analytical Resources Incorporated (ARI), of Tukwila, Washington, for analyses.

The laboratory data packages underwent data validation. Items of note are provided in a validation memorandum in Appendix A. In general, data were found to be acceptable with minor qualification, with the following exception: the analytical result for 2-chloroethyl vinyl ether reported for sample LMW-4-0621 was rejected. The matrix spike/matrix spike duplicate (MS/MSD) results were non-detect and the calculated percent recovery of the associated MS/MSD did not recover. Following Guidelines and using professional judgment, the non-detect result for 2-chloroethyl vinyl ether for LMW-4-0621 was rejected. 2-chloroethyl vinyl ether has never been detected at the Site. Data qualifiers are defined, and all data qualifiers assigned under the data validation process are presented in the Appendix A data validation memorandum.

Table 2 presents the field parameter measurements and laboratory analytical results for each groundwater sample.

### 3.0 RESULTS

The results of the June 2021 monitoring event are summarized below:

- Laboratory analyses did not detect TPH above the laboratory reporting limits in any of the groundwater samples.
- There were no VOCs detected in groundwater above the trigger level concentrations prescribed in the CMP (Ecology 2017). The following VOCs were detected above their respective laboratory reporting limits.
  - Carbon disulfide was detected in LMW-10 at a concentration of 0.21 micrograms per liter (µg/L). The reported concentration is considerably lower than the MTCA Method A groundwater cleanup level of 800 µg/L. Carbon disulfide has been detected at low levels in Site groundwater in previous sampling events. The detection of carbon disulfide is attributed to being present in the coal bed material as a natural constituent.
  - 1,1-Dichloroethane (1,1-DCA) was detected in LMW-12 at a concentration of 0.27 µg/L, which is consistent in concentration with previous detections of 1,1-DCA in this well. The reported concentration is significantly less than the MTCA Method B groundwater cleanup level of 7.68 µg/L.
  - Chloroethane was detected in LMW-12 at a concentration of 0.25 µg/L, which is consistent in concentration with previous detections of chloroethane in this well. The reported concentration is significantly less than the MTCA Method B groundwater cleanup level of 80 µg/L.
- 1,4-dioxane was detected in groundwater above the trigger level concentrations prescribed in the CMP. 1,4-Dioxane was detected in LMW-2 (1.5 µg/L) and LMW-4 (1.8 µg/L). The MTCA Method B groundwater cleanup level for 1,4-dioxane is 0.44 µg/L. 1,4-dioxane was initially detected in LMW-2 and LMW-4 in the November 2017 sampling event, which was the first sampling round that included analysis of 1,4-dioxane at the Site. 1,4-Dioxane concentrations reported during the June 2021 round are consistent with concentrations reported during previous sampling of these wells. 1,4-Dioxane has not been detected in any other Site monitoring wells. 1,4-Dioxane was also not detected in the three monitoring wells between the Site and the Cedar River (LMW-20, LMW-21, LMW-22). The 1,4-dioxane detection is being addressed by the Landsburg Mine Site Group in cooperation with Ecology.

- Metals detected in groundwater samples during the current sampling round include the following:
  - Groundwater samples from LMW-8 and LMW-14 contained iron concentrations above the MTCA Method B cleanup level of 11 milligrams per liter (mg/L). Iron has been detected in mine groundwater above MTCA cleanup levels in every monitoring event at the Site. It is a naturally occurring metal that is commonly associated with groundwater from coal mines (Fuste et al. 1983). The concentrations of iron reported during the June 2021 sampling event are within the range of typical concentrations reported during the RI (Golder 1996) and during the Interim Groundwater Sampling events previously conducted at the Site.
  - Groundwater samples from LMW-7 and LMW-11 contained total arsenic at concentrations of 0.00367 mg/L and 0.00972 mg/L, respectively. Arsenic in LMW-11 is greater than the MTCA Method A groundwater cleanup level (0.005 mg/L) but less than the Washington State primary drinking water MCL (0.01 mg/L). The MTCA groundwater cleanup level is based on typical groundwater background levels in the State of Washington. Arsenic has been detected in groundwater from LMW-11 near or above MTCA cleanup levels during every monitoring event since LMW-11 was installed. LMW-11 is screened within the deepest portions of the Rogers coal seam, where the groundwater is naturally reducing with low reduction-oxidation (redox) potential and low dissolved oxygen levels. Arsenic is a naturally occurring metal commonly detectable in groundwater, especially in groundwater having low redox and dissolved oxygen levels. Arsenic was not detected in any other Site wells.
  - Groundwater samples from LMW-14 contained cobalt at concentrations of 0.0224 mg/L, above the MTCA Method B cleanup level of 0.0048 Cobalt mg/L. Cobalt has been detected in LMW-14 in every monitoring event since it was installed. The June 2021 detection of 0.0224 mg/L is less than half of the historical high of 0.0515 mg/L, detected in March 2020. The cobalt detection in LMW-14 is naturally occurring in association with the coal mine water (Golder 2020).

## 4.0 NEXT SAMPLING EVENT

The next compliance monitoring event is a quarterly confirmational monitoring event scheduled for September 2021. It includes sampling of Site groundwater monitoring wells LMW-2 through LMW-15. The next round of sampling for LMW-20, LMW-21, and LMW-22 will be December 2021, for 1,4-dioxane only.

**Golder Associates Inc.**



Joseph Xi, PE  
*Senior Project Engineer*



Gary Zimmerman  
*Principal*

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- Golder. 2020. Landsburg Mine Site Quarterly Groundwater Monitoring Report March 2020 Sampling. Landsburg PLP Group, Black Diamond, Washington. June 18.
- Washington State Department of Ecology (Ecology). 2017. Exhibit D of the Consent Decree – Compliance Monitoring Plan Landsburg Mine Site MTCA Remediation Project, Ravensdale, Washington. Prepared by Golder Associates Inc. June 7.
- Ecology. 2021. Amendment to Cleanup Action Plan Landsburg Mine Site MTCA Remediation Project, Ravensdale, Washington. March 26.

## Tables

Table 1: Groundwater Elevation Data, Landsburg Mine Site, June 3, 2021

	LMW-1	LMW-2	LMW-3	LMW-4 <sup>1</sup>	LMW-5	LMW-6	LMW-7 <sup>1</sup>	LMW-8	LMW-9	LMW-10	LMW-11	LMW-12	LMW-13R	LMW-14 <sup>1</sup>	LMW-15	LMW-20	LMW-21	LMW-22
<b>Water Depths</b>																		
Date of data collection	6/3/2021	6/3/2021	6/3/2021	6/3/2021	6/3/2021	6/3/2021	6/3/2021	6/3/2021	6/3/2021	6/3/2021	6/3/2021	6/3/2021	6/3/2021	6/3/2021	6/3/2021	6/3/2021	6/3/2021	6/3/2021
Time of data collection	11:41 AM	9:27 AM	10:52 AM	9:14 AM	10:56 AM	11:30 AM	10:23 AM	11:00 AM	10:44 AM	9:33 AM	11:22 AM	8:01 AM	9:27 AM	11:50 AM	11:28 AM	9:53 AM	9:51 AM	10:00 AM
Measured to Top of PVC (ft btc)	141.60	7.62	12.71	9.16	14.27	31.74	212.72	4.72	100.10	0.91	157.99	10.44	10.98	160.87	152.00	15.84	11.30	12.54
<b>Surveyed Elevation</b>																		
Top of PVC (ft NAVD88)	765.36	617.79	656.75	619.27	658.27	632.33	771.51	646.97	743.99	618.98	802.19	625.35	625.86	805.12	796.46	546.8	544.09	542.86
Top of Monument (ft NAVD88)	766.16	618.38	657.48	619.89	658.87	633.00	771.88	NC	NC	619.10	802.51	625.49	625.91	805.14	796.61	546.92	544.36	543.13
Ground Level (ft NAVD88)	763.02	614.92	654.40	617.37	655.63	629.95	768.79	645.25	741.13	615.78	799.89	621.90	622.07	802.22	792.64	543.24	540.58	540.00
<b>Corrected Water Elevation</b>																		
Using PVC elevation (ft NAVD88)	623.76	610.17	644.04	610.11	644.00	600.59	558.79	642.25	643.89	618.07	644.20	614.91	614.88	644.25	644.46	530.96	532.79	530.32

Notes:

<sup>1</sup> Data corrected to accommodate well inclination from vertical

NA = Not applicable

NC = Data not collected

ft btc = feet below top of casing

ft NAVD88 = elevation in feet NAVD88

Table 2: June 2021 Groundwater Analytical Results Landsburg Mine Site

ANALYTE	UNITS	LMW-2	LMW-2 Duplicate	LMW-3	LMW-4	LMW-5	LMW-6	LMW-7	LMW-8	LMW-9	LMW-10	LMW-11	LMW-12	LMW-13R	LMW-14	LMW-15	LMW-20	LMW-21	LMW-22	Field Blank	Trip Blank 1	Trip Blank 2
		6/2/2021	6/2/2021	6/4/2021	6/2/2021	6/4/2021	6/3/2021	6/3/2021	6/4/2021	6/4/2021	6/2/2021	6/3/2021	6/3/2021	6/3/2021	6/3/2021	6/3/2021	6/2/2021	6/2/2021	6/2/2021	6/3/2021	-	-
Field Parameter																						
Temperature	°C	12.4	-	11.5	11.4	11.2	10.5	15.1	11.9	10.8	12.9	10.6	10.7	11.0	12.4	11.0	11.9	12.6	13.0	-	-	-
pH	std	6.85	-	7.72	6.92	6.97	6.88	7.33	6.65	6.97	8.63	7.27	6.6	7.34	6.62	7.38	6.65	7.61	7.34	-	-	-
Specific Conductance	uS/cm	776	-	243	763	527	190	411	468	500	288	407	412	694	904	376	235	288	319	-	-	-
Dissolved Oxygen	mg/L	0.75	-	0.73	0.8	0.76	0.78	0.93	0.76	0.91	0.68	1.09	0.75	0.85	0.77	1.16	4.27	2.45	1.26	-	-	-
ORP	mV	-233	-	-81	-193	-66	-54	-47	-102	-79	-263	-74	-54	-119	-48	-127	124	-34	-140	-	-	-
Turbidity	NTU	0.14	-	0.64	0.21	3.83	1.18	4.09	1.48	0.78	0.35	0.47	3.61	0.38	2.63	1.15	0.26	5.21	14.3	-	-	-
Metals (Total)																						
Aluminum	mg/L	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	NA	NA	NA	1 U	NA	NA
Antimony	mg/L	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	NA	NA	NA	0.003 U	NA	NA
Arsenic	mg/L	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.00367	0.003 U	0.003 U	0.003 U	0.00972	0.003 U	0.003 U	0.003 U	0.003 U	NA	NA	NA	0.003 U	NA	NA
Barium	mg/L	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	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	NA	0.5 U	NA	NA
Beryllium	mg/L	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	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA	0.01 U	NA	NA
Cadmium	mg/L	0.002 U	0.002 U	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.01 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	NA	NA	NA	0.002 U	NA	NA
Calcium	mg/L	113	116	38	114	78.2	26.5	34.3	67.1	80.6	6.71	59.8	61	86.2	146	60.2	NA	NA	NA	0.5 U	NA	NA
Chromium	mg/L	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	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA	0.01 U	NA	NA
Cobalt	mg/L	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	0.01 U	0.01 U	0.0224	0.01 U	NA	NA	NA	0.01 U	NA	NA
Copper	mg/L	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	NA	NA	NA	0.003 U	NA	NA
Iron	mg/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.34	0.78	12.5	1.41	0.2 U	0.446	10.8	1.27	11.2	3.88	NA	NA	NA	0.2 U	NA	NA
Lead	mg/L	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	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA	0.01 U	NA	NA
Magnesium	mg/L	71.3	70.4	15.3	68.5	44.3	13.2	16.3	36.6	42.9	3.16	27.6	39.5	39.4	79.1	26.6	NA	NA	NA	0.5 U	NA	NA
Manganese	mg/L	0.244	0.239	0.044	0.194	0.211	0.0315	0.0317	0.461	0.182	0.01 U	0.182	0.575	0.0405	0.568	0.38	NA	NA	NA	0.01 U	NA	NA
Mercury	mg/L	0.001 U	0.001 U	0.001 UJ	0.001 U	0.001 UJ	0.001 UJ	0.001 UJ	0.001 UJ	0.001 UJ	0.001 U	0.001 UJ	0.001 U	0.001 U	0.001 U	0.001 UJ	NA	NA	NA	0.001 U	NA	NA
Nickel	mg/L	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	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA	0.01 U	NA	NA
Potassium	mg/L	3.58	3.5	1.74	3.6	2.27	0.637	2.42	1.89	2.46	1.3	2.06	3.05	3.16	3.95	2	NA	NA	NA	0.5 U	NA	NA
Selenium	mg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NA	NA	NA	0.025 U	NA	NA
Silver	mg/L	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	NA	NA	NA	0.005 U	NA	NA
Sodium	mg/L	20.5	20.3	10.4	23.9	13.7	6.79	57.5	11.6	14.1	67.1	27.1	9.44	54.8	15.1	14.6	NA	NA	NA	0.5 U	NA	NA
Thallium	mg/L	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	NA	NA	NA	0.002 U	NA	NA
Vanadium	mg/L	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	NA	NA	NA	0.003 U	NA	NA
Zinc	mg/L	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	NA	NA	NA	0.02 U	NA	NA
Volatile Organic Compounds (VOCs)																						
Acetone	ug/L	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	5 U	5 U	NA	NA	NA	5 U	5 U	5 U
Acrolein	ug/L	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	NA	NA	NA	5 UJ	5 UJ	5 UJ
Acrylonitrile	ug/L	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	NA	NA	NA	1 UJ	1 UJ	1 UJ
Benzene	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
Bromobenzene	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
Bromochloromethane	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
Bromoform	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
Bromomethane	ug/L	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	NA	NA	NA	1 U	1 U	1 U
methyl ethyl ketone	ug/L	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	5 U	5 U	NA	NA	NA	5 U	5 U	5 U
n-Butylbenzene	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
Sec-Butylbenzene	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
tert-butylbenzene	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
Carbon Disulfide	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U																

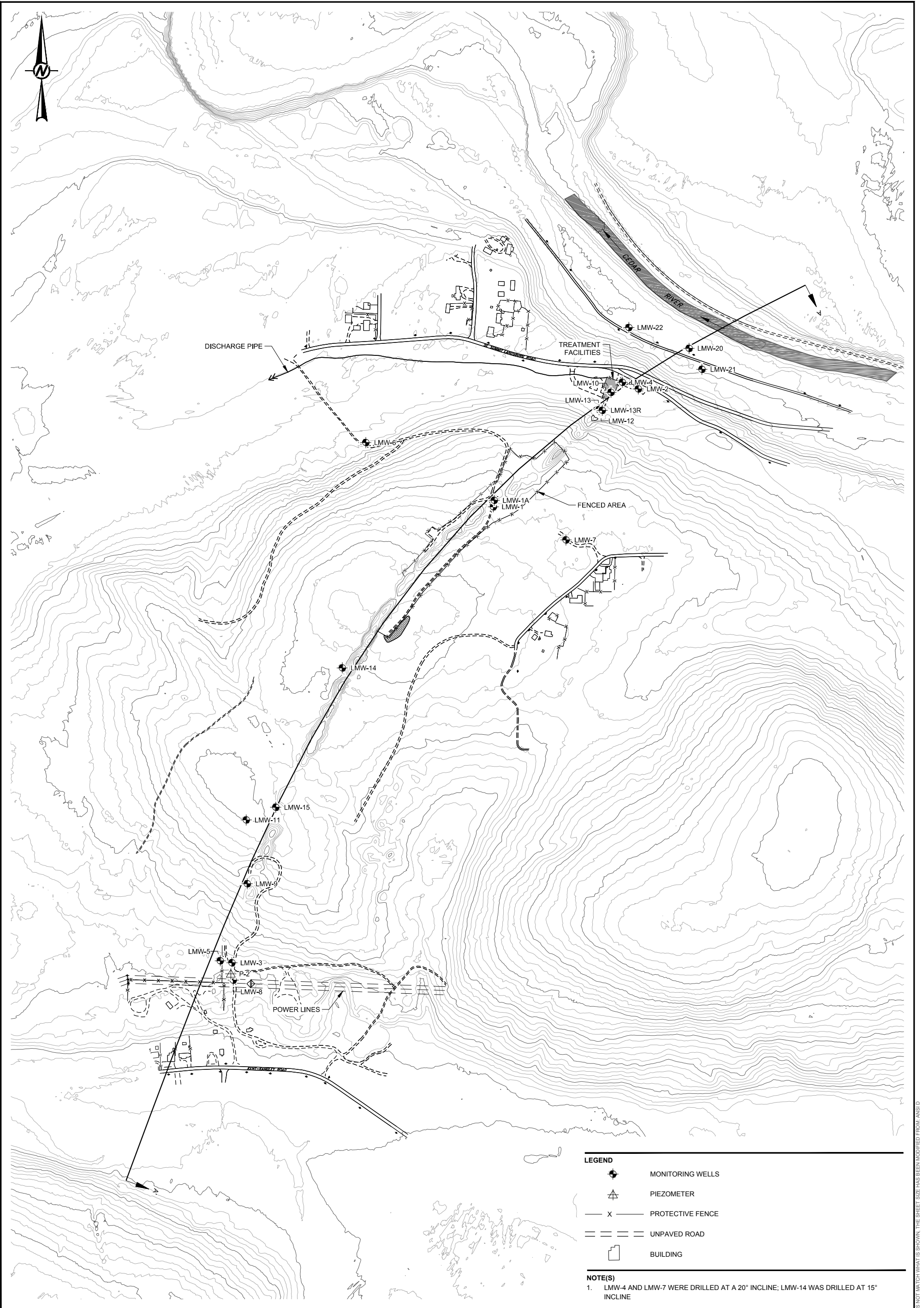
Table 2: June 2021 Groundwater Analytical Results Landsburg Mine Site

ANALYTE	UNITS	LMW-2	LMW-2 Duplicate	LMW-3	LMW-4	LMW-5	LMW-6	LMW-7	LMW-8	LMW-9	LMW-10	LMW-11	LMW-12	LMW-13R	LMW-14	LMW-15	LMW-20	LMW-21	LMW-22	Field Blank	Trip Blank 1	Trip Blank 2
1,3-Dichlorobenzene	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
1,4-Dichlorobenzene	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
Trans-1,4-Dichloro-2-butene	ug/L	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	NA	NA	NA	1 U	1 U	1 U
1,1-Dichloroethane	ug/L	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	0.2 U	0.2 U	0.27	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
1,2-Dichloroethane	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
1,1-Dichloroethene	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
Cis-1,2-Dichloroethene	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
Trans-1,2-Dichloroethene	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
1,2-Dichloropropane	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
1,3-Dichloropropane	ug/L	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	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.1 U
2,2-Dichloropropane	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
1,1-Dichloropropene	ug/L	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	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.1 U
Cis-1,3-Dichloropropene	ug/L	0.2 U	0.2 U	0.2 U	0.2 UJ	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	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
Trans-1,3-Dichloropropene	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
Ethylbenzene	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
Hexachlorobutadiene	ug/L	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	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	NA	0.5 U	0.5 U	0.5 U
2-Hexanone	ug/L	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	5 U	5 U	NA	NA	NA	5 U	5 U	5 U
Iodomethane	ug/L	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	NA	NA	NA	1 U	1 U	1 U
Cumene	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
p-Isopropyltoluene	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
Methylene Chloride	ug/L	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	NA	NA	NA	1 U	1 U	1 U
Methyl isobutyl ketone	ug/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	NA	NA	NA	2.5 U	2.5 U	2.5 U
Naphthalene	ug/L	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	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	NA	0.5 U	0.5 U	0.5 U
n-Propylbenzene	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
Styrene	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
1,2,3-Trichlorobenzene	ug/L	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	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	NA	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	ug/L	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	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	NA	0.5 U	0.5 U	0.5 U
1,1,1,2-Tetrachloroethane	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
1,1,2,2-Tetrachloroethane	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
Tetrachloroethene	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
Toluene	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
1,1,1-Trichloroethane	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
1,1,2-Trichloroethane	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
Trichloroethene	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
CFC-113	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
1,2,3-Trichloropropane	ug/L	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	NA	NA	NA	0.25 U	0.25 U	0.25 U
1,2,4-Trimethylbenzene	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
1,3,5-Trimethylbenzene	ug/L	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
Vinyl Acetate	ug/L	0.2 U	0.2 U	0.2 U	0.2 UJ	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	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
Vinyl Chloride	ug/L	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	0.1 U	0.1 U	0.1 U	0.1 U	NA	NA	NA	0.1 U	0.1 U	0.1 U
m, p-Xylene	ug/L	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	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	NA	NA	NA	0.4 U	0.4 U	0.4 U
o-Xylene	ug/L	0.2 U	0.2 U	0.2 U	0.2 UJ	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	0.2 U	0.2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U
Total Xylenes	ug/L	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	NA	NA	NA	0.6 U	0.6 U	0.6 U
Semi-Volatile Organic Compounds (SVOCs)																						
1,4-Dioxane	ug/L	1.5	1.7	NA	1.8	NA	NA	NA	NA	NA	0.4 U	NA	0.4 U	0.4 U	NA	NA	0.4 U	0.4 U	0.4 U	0.4 U	NA	NA
Hydrocarbon Identification																						
Diesel Range	mg/L	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	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	NA	0.5 U	NA	NA
Gas Range	mg/L	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	NA	NA	NA	0.25 U	NA	NA
Lube Oil Range	mg/L	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	NA	NA	NA	1 U	NA	NA

Notes:  
U - Analyte was not detected above the Reporting Limit (RL).  
J - Analyte was detected above the Method Detection Limit (MDL) but below the RL.  
R - Analytical result is unusable because certain data quality criteria were not met.



## Figures



**LEGEND**

- MONITORING WELLS
- PIEZOMETER
- PROTECTIVE FENCE
- UNPAVED ROAD
- BUILDING

**NOTE(S)**

1. LMW-4 AND LMW-7 WERE DRILLED AT A 20° INCLINE; LMW-14 WAS DRILLED AT 15° INCLINE

CLIENT  
LANDSBURG MINE SITE PLP GROUP

PROJECT  
LANDSBURG MINE SITE  
MTCA REMEDIAL ACTION

CONSULTANT	YYYY-MM-DD	2019-04-25
	DESIGNED	XXX
	PREPARED	XXX
	REVIEWED	XXX
	APPROVED	XXX

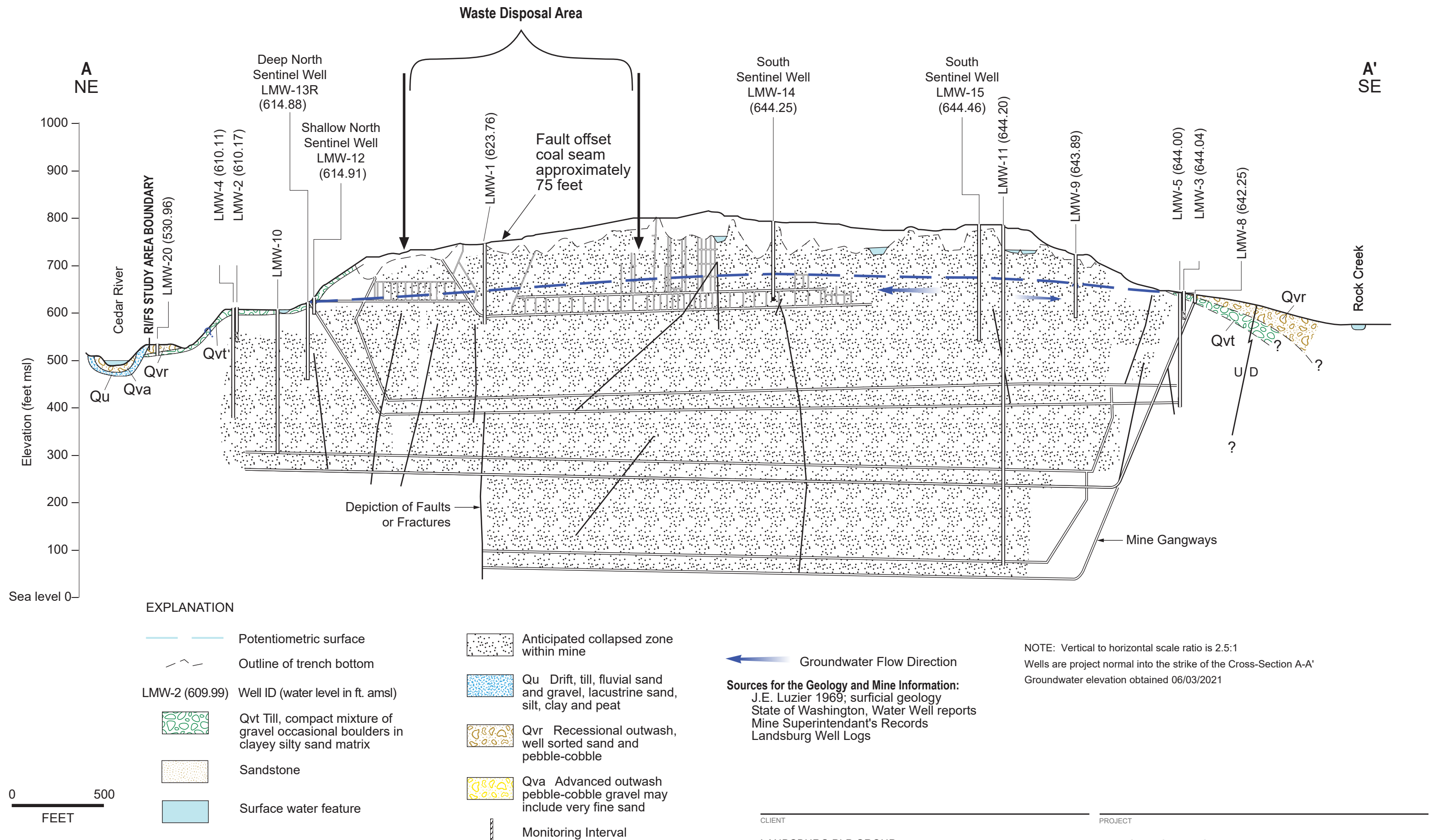


TITLE			
SITE MAP			
PROJECT NO.	PHASE	REV.	SHEET
9231000005	1200	A	1



IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI D

G:\PalmerCokingCoal\LandsburgMine\VA99\_PROJECTS\9231000002\_Phi Remediation\15A02\_PRODUCTION\INDD\9231000\_002\_R154\_003.indd



CLIENT			PROJECT		
LANDSBURG PLP GROUP			LANDSBURG MINE SITE		
CONSULTANT			TITLE		
 <b>GOLDER</b> MEMBER OF WSP			<b>CROSS-SECTION ALONG STRIKE AT COAL SEAM JUNE 3, 2021</b>		
			<b>CROSS-SECTION A-A'</b>		
			PROJECT No. 923-1000-007		
			PHASE 2021		
YYYY-MM-DD 2020-08-17			FIGURE 2		
PREPARED REDMOND					
DESIGN					
REVIEW					
APPROVED					

**APPENDIX A**

**Laboratory Analytical Report Data Validation  
and Quality Assurance / Quality Control Review  
Memorandum**

## TECHNICAL MEMORANDUM

**DATE** August 13, 2021

**Project No.** 923-1000-007.2021

**TO** Bill Kombol,  
Palmer Coking Coal Company

**FROM** Joseph Xi (Golder Associates)

**EMAIL** [jxi@golder.com](mailto:jxi@golder.com)

### **LANDSBURG MINE SITE JUNE 2021 DATA VALIDATION & QUALITY ASSURANCE / QUALITY CONTROL REVIEW**

This Data Usability Summary Report (DUSR) presents the findings of the data quality assessment performed on the analyses of water samples collected on June 2 to 4, 2021 at the Landsburg Mine Site in Washington (Site) as part of the Landsburg Groundwater sampling project. Samples in the laboratory sample delivery group (SDG) as indicated in Table 1 was reviewed in this DUSR to identify quality issues which could affect the use of the sample data for decision making purposes.

Seventeen water samples, one field duplicate sample, one field blank, and two trip blanks were collected by Golder Associates, Inc. (Golder). Samples were analyzed by Analytical Resources Inc. of Tukwila, Washington for the following parameters:

- Volatile Organic Compounds (VOCs) following United States Environmental Protection Agency (USEPA) USEPA SW-846<sup>1</sup> Method 8260D, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)
- 1,4-Dioxane following USEPA SW-846 Method 8270E, Semivolatile Organic Compounds by GC/MS
- Northwest Total Petroleum Hydrocarbons – Hydrocarbon Identification Scan by NWTPH-HCID
- Total Metals by USEPA SW-846 Method 200.8 and SW-846 6010D
- Total Mercury by USEPA SW-846 Method 7470A

Quality assurance / quality control (QA/QC) reviews of laboratory data were performed in the laboratory in accordance with the laboratory quality assurance program plan (QAPP). The data validation QA/QC review focused primarily on laboratory results and quality control data to ensure that work plan data quality objectives were met for the project.

Data validation was conducted in accordance with the criteria outlined in the National Functional Guidelines for Organic Review (USEPA 2020a<sup>2</sup>) and Inorganic Review (USEPA 2020b<sup>3</sup>), modified to include method specific

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<sup>1</sup> USEPA. 2020. Test methods for evaluating solid waste, physical/chemical methods (SW-846): 3rd edition, and subsequent updates, Environmental Protection Agency, accessed at URL <https://www.epa.gov/hw-sw846>

<sup>2</sup> United States Environmental Protection Agency (USEPA). 2020a. National Functional Guidelines for Organic Superfund Methods Data Review. OLEM 9240.0-51. EPA-540-R-20-005, November.

<sup>3</sup> USEPA. 2020b. National Functional Guidelines for Inorganic Superfund Methods Data Review. OLEM 9240.0-66. EPA-542-R-20-006, November.



requirements of the laboratory, and laboratory standard operating procedures. Where there was a discrepancy between the QC criteria in the Guidelines and the QC criterion established in the analytic methodology, method-specific criteria, the QAPP, or professional judgment was used.

In general, chemical results for the samples collected at the Site were evaluated based on laboratory preservation, hold times, laboratory and field blank contamination, outlying precision or accuracy parameters, or based on professional judgment. The following definitions provide brief explanations of the qualifiers which may have been assigned to data during the data validation process.

### Data Qualifier Definitions

- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The result is an estimated quantity, but the result may be biased high.
- J- The result is an estimated quantity, but the result may be biased low.
- UJ The analyte was analyzed for but was not detected. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- U The analyte was analyzed for but was not detected.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

The validation level for the data is Tier 2A, and included the following:

- Data package completeness assessment
- Verification of required deliverables
- Evaluation of holding times
- Laboratory narrative evaluation
- Evaluation and qualification of QC elements for surrogates, matrix spike samples, laboratory control samples, blanks (method, equipment, and trip blank) laboratory duplicate samples and field duplicate samples
- Evaluation of detection limits

Raw data and calibration elements, including GC instrument tuning and performance check, initial and continuing calibration, internal standard performance, and analyte identification, were not provided by the lab. Data review and validation was performed by an experienced QA personnel independent of the analytical laboratory and not directly involved in the project. Data qualifiers that were applied by the laboratory have been removed from the data summary report sheets, when applicable, and superseded by data validation qualifiers.

Overall, the data review showed that data are acceptable for use, except for 2-chloroethyl vinyl ether for LMW-4-0621. The MS/MSD results were non-detect and the calculated percent recovery of the associated MS/MSD did not recover. Following Guidelines and using professional judgment, the result for 2-chloroethyl vinyl ether for LMW-4-0621 was rejected (R). 2-chloroethyl vinyl ether was not detected during the June 2021 sampling round

and has never been detected at the Site. Other minor data qualifiers related to sample preservation, holding time exceedance, and MS/MSD recoveries below QC criteria were also reported.

Total mercury for samples from SDG 21F0095 (LMW-3-0621, LMW-5-0621, LMW-6-0621, LMW-7-0621, LMW-8-0621, LMW-9-0621, LMW-11-0621, and LMW-15-0621) was digested and analyzed outside of the hold time due to analyst error. The non-detect result was qualified as estimated (UJ). Historical results for this analyte have been non-detect, which matches the non-detect result in the SDG. It is recommended that sample results for mercury are appropriate for data use.

The laboratory analyzed analytes 2-chloroethyl vinyl ether, acrolein, and acrylonitrile from the preserved volatile organic analysis (VOA) vials. Due to the acid-labile nature of analytes 2-chloroethyl vinyl ether, acrolein and acrylonitrile, when samples were collected in acid-preserved vials but all associated LCS/LCSDs were within or above QC criteria, the associated non-detect results for these three analytes were qualified as estimated (UJ) due to possible acid degradation. 2-chloroethyl vinyl ether, acrolein, and acrylonitrile were not detected during the June 2021 sampling round and have never been detected at the Site. Qualifier Summary Table (Table 2) is included with the qualifiers applied. For details about the data validation, refer to the data validation checklist in Attachment A. The following bulleted items highlight comments and/or qualifications to specific parameters:

- A data completeness of 99.9% was achieved, which exceeds the QAPP stipulated completeness goal of 90%.

## Attachments

- Attachment A    Tables  
                    Table 1 – Sample Collection and Analysis Summary Landsburg Mine Water Sampling Investigation June 2021  
                    Table 2 – Qualifier Summary Table Landsburg Mine Water Sampling Investigation June 2021
- Attachment B    Level 2A Data Validation Checklist

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## APPENDIX A

# Tables



Table 1: Sample Collection and Analysis Summary Landsburg Mine Water Sampling Investigation - June 2021

SDG	Field Identification	Collection Date	Lab Identification	Matrix	QC Samples	Analyses/Parameters			
						VOCs (8260D)	1,4-Dioxane (8270E)	Total Metals (EPA 200.8/6010D/7470A)	TPH HCID
21F0068	LMW-2-0621	6/2/2021	21F0068-01	WG	-	X	X	X	X
21F0068	LMW-2-0621-D	6/2/2021	21F0068-02	WG	FD	X	X	X	X
21F0068	LMW-4-0621	6/2/2021	21F0068-03	WG	MS/MSD	X	X	X	X
21F0068	LMW-10-0621	6/2/2021	21F0068-04	WG	-	X	X	X	X
21F0068	LMW-20-0621	6/2/2021	21F0068-05	WG	-	X	X	X	X
21F0068	LMW-21-0621	6/2/2021	21F0068-06	WG	-	X	X	X	X
21F0068	LMW-22-0621	6/2/2021	21F0068-07	WG	-	X	X	X	X
21F0068	LMW-12-0621	6/3/2021	21F0068-08	WG	-	X	X	X	X
21F0068	LMW-FB-0621	6/3/2021	21F0068-09	WQ	FB	X	X	X	X
21F0068	LMW-13R-0621	6/3/2021	21F0068-10	WG	-	X	X	X	X
21F0068	LMW-14-0621	6/3/2021	21F0068-11	WG	-	X	X	X	X
21F0068	Trip Blank	6/2/2021	21F0068-13	WQ	TB	X	X	X	X
21F0095	LMW-15-0621	6/3/2021	21F0095-01	WG	-	X	-	X	X
21F0095	LMW-11-0621	6/3/2021	21F0095-03	WG	-	X	-	X	X
21F0095	LMW-6-0621	6/3/2021	21F0095-05	WG	-	X	-	X	X
21F0095	LMW-7-0621	6/3/2021	21F0095-07	WG	-	X	-	X	X
21F0095	LMW-8-0621	6/4/2021	21F0095-09	WG	-	X	-	X	X
21F0095	LMW-5-0621	6/4/2021	21F0095-11	WG	-	X	-	X	X
21F0095	LMW-3-0621	6/4/2021	21F0095-13	WG	-	X	-	X	X
21F0095	LMW-9-0621	6/4/2021	21F0095-15	WG	-	X	-	X	X
21F0095	Trip Blank	6/3/2021	21F0095-17	WQ	TB	X	-	X	X

**Notes:**

All analyses performed by Analytical Resources, Incorporated (ARI), Tukwila WA.

**Abbreviations:**

QC - Quality Control

SDG - Sample Delivery Group

FD - Duplicate

TB - Trip Blank

FB - Field Blank

VOCs - Volatile Organic Compounds

TPH HCID - Total Petroleum Hydrocarbons Hydrocarbon Identification

WG - Groundwater

WQ - Water Quality

**Table 2: Qualifier Summary Table Landsburg Mine Water Sampling Investigation - June 2021**

SDG	Sample Name	Constituent	New Result	New MDL	New RL	Qualifier	Reason
21F0068 21F0095	All Samples	Acrolein	--	--	--	UJ	Sample Preservation
21F0068 21F0095	All Samples	Acrylonitrile	--	--	--	UJ	Sample Preservation
21F0068 21F0095	All samples except LMW-4-0621	2-Chloroethyl vinyl ether	--	--	--	UJ	Sample Preservation
21F0095	All Samples	Mercury	--	--	--	UJ	Holding time exceedance
21F0095	LMW-4-0621	2-Chloroethyl vinyl ether	--	--	--	R	MS/MSD did not recover
21F0095	LMW-4-0621	Vinyl Acetate	--	--	--	UJ	MS/MSD below acceptance criteria
21F0095	LMW-4-0621	cis-1,3-Dichloropropene	--	--	--	UJ	MS/MSD below acceptance criteria
21F0095	LMW-4-0621	o-Xylene	--	--	--	UJ	MS/MSD below acceptance criteria
--	All Samples	All Results	--	--	--	--	Laboratory applied U-qualifiers or J-qualifiers are retained unless other qualifications are indicated in this table. All other laboratory qualifiers are removed.

**Abbreviations**

MDL - Method Detection Limit

MS - Matrix Spike

MSD - Matrix Spike Duplicate

QC - Quality Control

RL - Reporting Limit

SDG - Sample Delivery Group

**Qualifier Definitions**

UJ - Non-Detect Result, RL is estimated

R - Rejected Result

J - Estimated Result

**APPENDIX B**

**Level 2A Data Validation  
Checklist**

## QA LEVEL 2A - DATA VERIFICATION/DATA VALIDATION CHECKLIST

**Project Name:** Landsburg Groundwater

**Project Number/Phase/Task:** 9231000007 p2021

**Reviewing Company:** Golder Associates

**Project Manager:** Gary Zimmerman

**Data Evaluator:** Jeannie Quenneville

**Data Evaluation Date:** July 21, 2021

**Checked by:** Michael Shadle

**Review Date:** July 22, 2021

**Laboratory:** Analytical Resources, Inc., Tukwila, WA

**Lab SDG #:** 21F0068 & 21F0095

**Matrix:** ☒ Aqueous ☐ Soil ☐ Sediment ☐ Waste ☐ Air ☐ Other:

**Analytical Methods:** See Table 1.

**Sample Information:** See Table 1.

**Work Plan or QAPP:** Compliance Monitoring Plan and QAPP for Landsburg Mine Site (Exhibit D, to the Consent Decree, 2017).

**Data Validation Guidance:** National Functional Guidelines for Organic Superfund Methods Data Review, EPA-540-R-20-005, November 2020 and National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA-EPA-542-R-20-006, November 2020

COC and Sample Receipt	YES	NO	NA	COMMENT
a) COC complete and correct?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
b) COC documents release of custody (signed and dated)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
c) Field QC types provided (note types)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	FB, TB; See Table 1
d) Did the cooler contents match the COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
e) Were samples received in good condition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		See Note 1
f) Were cooler temperatures within control limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Data Package Information	YES	NO	NA	COMMENT
a) Laboratory name and location documented?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
b) All samples on COC reported in data package?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
c) Requested analytical methods used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
d) Requested sample preparation methods used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
e) Requested analyte list reported?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
f) Requested units reported?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
g) Did the laboratory define the qualifiers used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
h) Data package contains all information necessary to complete the data quality review?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		All Information for a 2A Scope
Analytical Assessment	YES	NO	NA	COMMENT
a) Solid samples reported on a dry-weight basis?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Were solid samples percent moisture criteria acceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c) Were sample dilutions noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
d) Were detected concentrations less than the QL qualified by the laboratory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		No Results Less than QL
e) Were detected concentrations above the calibration range reported by the laboratory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

<b>Analytical Assessment</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENT</b>
f) Did the laboratory satisfy the requested sensitivity requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Results were only reported to the RL.
<b>Laboratory Case Narrative</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENT</b>
a) Do the laboratory narrative or laboratory qualifiers indicate deficiencies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Notes Below
b) Were all deficiencies noted in the laboratory qualifiers or narrative?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Sample Preservation and Holding Time</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENT</b>
a) Were samples properly preserved?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		See Note 2
b) Were holding times met for sample preparation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Note 3
c) Were holding times met for sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<b>Blanks</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Were blanks analyzed at the appropriate frequency?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
b) Were any analytes detected in the associated preparation/method blank?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
c) Were any analytes detected in the associated trip blanks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
d) Were any analytes detected in the associated field or equipment/rinsate blanks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
e) Were any analytes detected in the associated storage blanks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>Surrogates or Deuterated Monitoring Compounds</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Were the correct surrogate compounds added to each sample?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Were surrogate recoveries within control limits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Note 4
c) If not, were samples analyzed at dilution factors of 20x or greater?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>LCS/LCSD</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Were LCS/LCSD reported at the appropriate frequency?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
b) Were proper analytes included in the LCS/LCSD?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
c) Were LCS/LCSD recoveries within control limits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		See Note 5
d) Were RPD values within control limits (if LCSD was analyzed)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>MS/MSDs</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Were project-specific MS (and MSD) reported?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		LMW-4-0621
b) Were proper analytes reported in the MS/MSD?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Were project-specific MS/MSD recoveries within control limits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Note 6

MS/MSDs	YES	NO	NA	COMMENTS
d) If not, were sample concentrations greater than 4x the spiking concentration?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
e) Was the RPD or absolute difference within control limits (if project-specific MSD analyzed)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
f) Were project-specific post-digestion spikes analyzed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
g) Were project-specific post-digestion spike recoveries within control limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>Duplicates</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Were project-specific laboratory duplicates reported?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Was laboratory duplicate RPD or absolute difference criteria acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Were field duplicates reported?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LMW-2-0621/ LMW-2-0621-D
d) Was field duplicate RPD or absolute difference criteria acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>ICP Serial Dilution (SD)</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Was project-specific ICP SD data provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Were project-specific ICP SD within acceptable criteria?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>Overall Evaluation</b>	<b>YES</b>	<b>NO</b>	<b>NA</b>	<b>COMMENTS</b>
a) Were there any other technical problems not previously addressed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
b) Were data acceptable and usable, except where noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

**Comments/Notes:**

1. In lab SDG 21F0095, the Cooler Receipt Form indicated that a VOA vial for LMW-6-0621 was received with a label but was not filled. There is no other action but to note.

In lab SDG 21F0095, the Cooler Receipt Form indicated that a VOA vial for LMW-5-0621 contained a bubble larger than 2 cm but size was not documented. There was no indication that this vial was used for analysis so no other action but to note.

In lab SDG 21F0068, the Cooler Receipt Form the 500 mL AG bottle for LMW-10-0621 was broken during storage of the samples. There is no other action but to note.

2. All VOC samples were preserved with HCl in accordance with the method requirement to a pH value less than 2. The laboratory analyzed analytes 2-chloroethyl vinyl ether, acrolein, and acrylonitrile from the preserved VOA vials. Due to the acid-labile nature of 2-chloroethyl vinyl ether, acrolein and acrylonitrile, it is recommended that those analytes are collected in and analyzed from unpreserved vials. Based on professional judgment, when samples were outside of method and preservation requirements but all associated LCS/LCSDs were within or above QC criteria, the associated non-detect results for these three analytes were qualified as estimated (UJ) due to possible acid degradation.
3. In SDG 21F0095, mercury was digested and analyzed outside of the hold time due to analyst error. The non-detect result was qualified as estimated (UJ). Historical results for this analyte have been non-detect, which matches the non-detect result in the SDG. It is recommended that sample results for mercury are appropriate

for data use. In SDG 21F0068 mercury samples were analyzed outside of hold time by several hours. Due to the short hold time exceedance, no further action is required but to note.

4. Surrogate recoveries were outside of acceptance criteria for select samples, as noted in the table below. The surrogate recovered greater than the upper acceptance limit and the associated sample was non-detect, therefore no qualifications were required.

Sample Name	Parameter	Dilution Factor	Surrogate	Recovery (%)	QC Limits (%)
LMW-7-0621	EPA 8260D	1	1,2-Dichloroethane-d4	131	80 - 129
LMW-5-0621	EPA 8260D	1	1,2-Dichloroethane-d4	135	80 – 129
LMW-3-0621	EPA 8260D	1	1,2-Dichloroethane-d4	130	80 – 129
LMW-9-0621	EPA 8260D	1	1,2-Dichloroethane-d4	132	80 – 129

5. LCS/LCSD recoveries were outside QC criteria, as shown in the table below for project-specific analytes. Data are qualified when more than one of the recoveries between the LCS and LCSD pair and/or the RPD value is outside the control limits. When only one of the three QC indicators (LCS or LCSD recovery or RPD value) are outside of control limits, no qualification is necessary. When the LCSD recovery is greater than the upper control limit and the RPD value is greater than the control limit, non-detect results are not qualified.

SDG	LCS Sample Name	Parameter	Analyte	LCS/LCSD Recovery (%)	RPD (%)	Recovery (%) / RPD Criteria
21F0068 21F0095	LCS (BJF0165-BS1)	8260D	Hexachloro-1,3-Butadiene	<b>176/142</b>	21.60	58-123/30
21F0068	LCS (BJF0563-BS1)	7470A	Mercury	<b>122/-</b>	-	80-120/-

6. MS/MSD recoveries were outside of acceptance criteria for select analytes, as summarized in the table below for project specific samples. Using professional judgment, when only one QC indicator (MS/MSD/RPD) did not meet QC criteria, qualification was not required. When the MS/MSD recoveries were below QC criteria, associated non-detect results were qualified as estimated (UJ) and associated detected results were qualified as estimated (J).

The MS/MSD results for 2-chloroethyl vinyl were non-detect and the lab did not calculate both the recoveries and RPD. Samples were collected in preserved VOA vials and the recovery was most likely lost due to the acid-labile nature of 2-chloroethyl vinyl ether. Following Guidelines and using professional judgment, when the MS/MSD results were ND and the calculated percent recovery of the associated MS/MSD did not recover (NR), the associated non-detect results were rejected (R).

Primary Sample Name	Parameter	Analyte	MS/MSD % Recovery	RPD	% Recovery / RPD Criteria
LMW-4-0621	8260D	Vinyl Acetate	<b>53.01/51.9</b>	2.38	55-138/30
LMW-4-0621	8260D	2-Chloroethyl vinyl ether	<b>NR/NR</b>	-	64-120/30
LMW-4-0621	8260D	cis-1,3-Dichloropropene	<b>72.6/75.3</b>	3.65	80-124/30
LMW-4-0621	8260D	o-Xylene	<b>79.0/79.4</b>	0.48	80-121/30
LMW-4-0621	6010D	Calcium	<b>73.4/107</b>	2.74	75-125
LMW-4-0621	6010D	Magnesium	<b>68.0/86.5</b>	2.43	75-125

Data qualification: See Table 2.

## Definitions:

%D:	Percent Difference / Drift	QAPP:	Quality Assurance Project Plan
%R:	Percent Recovery	QC:	Quality Control
CCB:	Continuing Calibration Blank	QL:	Quantitation Limit
CCV:	Continuing Calibration Verification	RB:	Rinsate Blank
COC:	Chain of Custody	RDL:	Reported Detection Limit
CRQL:	Contract Required Quantitation Limit	RL:	Reporting Limit
DMC:	Deuterated Monitoring Compound	RPD:	Relative Percent Deviation
DRO:	Diesel Range Organics	RRF:	Relative Response Factor
EB:	Equipment Blank	RSD:	Relative Standard Deviation
FB:	Field Blank	SD:	Serial Dilution
GRO:	Gasoline Range Organics	SDG:	Sample Delivery Group
HT:	Holding Time	SPLP:	Synthetic Precipitate Leachate Procedure
ICB:	Initial Calibration Blank	SVOC:	Semivolatile Organic Compound
ICV:	Initial Calibration Verification	TAL:	Target Analyte List
IS:	Internal Standard	TAT:	Turn Around Time
LCS:	Laboratory Control Sample	TB:	Trip Blank
LCSD:	Laboratory Control Sample Duplicate	TCL:	Target Compound List
MB:	Method Blank	TCLP:	Toxicity Characteristic Leachate Procedure
MDL:	Method Detection Limit	TDS:	Total Dissolved Solids
MS:	Matrix Spike	TOC:	Total Organic Carbon
MSD:	Matrix Spike Duplicate	TPH:	Total Petroleum Hydrocarbons
PCB:	Polychlorinated Biphenyl	TSS:	Total Suspended Solids
PQL:	Practical Quantitation Limit	VOC:	Volatile Organic Compound
		ZHE:	Zero Headspace Extraction



**APPENDIX B**

**June 2021 Laboratory  
Analytical Report**



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

13 July 2021

Gary Zimmerman  
Golder Associates  
18300 NE Union Hill Road Suite 200  
Redmond, WA 98052-3333

RE: Landsburg

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)  
21F0068

Associated SDG ID(s)  
N/A

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I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



# Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: <b>21F0068</b>		Turn-around Requested: <b>Standard</b>		Page: <b>1</b> of <b>2</b>																																																																																																				
ARI Client Company: <b>Golder</b>		Phone:		Date: <b>6/3/21</b>	Ice Present? <b>Yes</b>																																																																																																			
Client Contact: <b>Gery Zimmerman / Joseph Xi</b>				No. of Coolers: <b>4</b>	Cooler Temps: <b>See CCE</b>																																																																																																			
Client Project Name: <b>Landsburg GW</b>		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="8">Analysis Requested</th> <th>Notes/Comments</th> </tr> <tr> <th>VOCs (Client List)</th> <th>1,4-Dioxane</th> <th>8240E</th> <th>Total Metals (Client List)</th> <th>TPH - HCLD</th> <th>U-12 Followups</th> <th>Residual Metals (Hold)</th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td></td><td></td><td></td><td></td> </tr> <tr> <td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td></td><td></td><td></td><td></td> </tr> <tr> <td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td></td><td></td><td></td><td>Extra vol. for MS/MSD</td> </tr> <tr> <td colspan="9"><del>LMW-10-0621 JX</del></td> </tr> <tr> <td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td></td><td></td><td></td><td>JX</td> </tr> <tr> <td></td><td>X</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td><td>X</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td></td><td></td><td></td><td></td> </tr> <tr> <td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>				Analysis Requested								Notes/Comments	VOCs (Client List)	1,4-Dioxane	8240E	Total Metals (Client List)	TPH - HCLD	U-12 Followups	Residual Metals (Hold)			X	X	X	X	X					X	X	X	X	X					X	X	X	X	X				Extra vol. for MS/MSD	<del>LMW-10-0621 JX</del>									X	X	X	X	X				JX		X									X								X	X	X	X	X					X	X	X	X	X				
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Client Project #: <b>923100507-2021</b>		Samplers: <b>T. Duggan / J. Xi</b>																																																																																																						

Sample ID	Date	Time	Matrix	No. Containers
LMW-2-0621	6/2/21	0910	W	12
LMW-2-0621-D	6/2/21	0915	W	12
LMW-4-0621	6/2/21	1015	W	36
<del>LMW-10-0621 JX</del>				
LMW-10-0621	6/2/21	1140	W	12
LMW-20-0621	6/2/21	1445	W	2
LMW-21-0621	6/2/21	1335	W	2
LMW-22-0621	6/2/21	1555	W	2
LMW-12-0621	6/3/21	0840	W	12
LMW-FB-0621	6/3/21	0905	W	12

Comments/Special Instructions - Ecology EIM EDD - Client specific RLs/ Analyte list - Hold any dir. metals & TPH follow ups.	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: <b>Joseph Xi</b>	Printed Name: <b>Jacob Walther</b>	Printed Name:	Printed Name:
	Company: <b>Golder</b>	Company: <b>ARI</b>	Company:	Company:
	Date & Time: <b>6/24 1338</b>	Date & Time: <b>06/03/2021 1338</b>	Date & Time:	Date & Time:



**Analytical Resources, Incorporated**  
 Analytical Chemists and Consultants  
 4611 South 134th Place, Suite 100  
 Tukwila, WA 98168  
 206-695-6200 206-695-6201 (fax)  
 www.arilabs.com

**Limits of Liability:** ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.



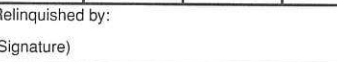

**Sample Retention Policy:** All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



ARI Assigned Number: <i>21F0068</i>	Turn-around Requested: <i>Standard</i>	Page: <i>2</i> of <i>2</i>
ARI Client Company: <i>Asider</i>	Phone:	Date: <i>6/3/21</i> Ice Present? <i>Yes</i>
Client Contact: <i>Gray Zimmerman / Joseph Xi</i>	No. of Coolers: <i>4</i>	Cooler Temps: <i>See CRF</i>



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants  
4611 South 134th Place, Suite 100  
Tukwila, WA 98168  
206-695-6200 206-695-6201 (fax)  
[www.arilabs.com](http://www.arilabs.com)

Client Project Name: <u>Landsburg GW</u>					Analysis Requested							Notes/Comments						
Client Project #: <u>925120007.2021</u>					Samplers: <u>T. Duggitt / J. Xi</u>					Vols (Client List)	114-Proxone 8260D	Total Metals (Client List)	TPH-HCID (Hold Follow Up)	Distilled Metals (Hold)				
Sample ID	Date	Time	Matrix	No. Containers														
LMW-13R-0621	6/3/21	1015	W	12	X	X	X	X										
LMW-14-0621	6/3/21	1225	W	11	X		X	X	X									
Trp Blank				3	X													
Comments/Special Instructions • Ecology ERM EDP - Client specific RGs / Analyte List - Hold any diss. metals & TPH follow ups.	Relinquished by: 			Received by: 			Relinquished by: 			Received by: 								
	Printed Name: <u>Joseph Xi</u>			Printed Name: <u>Joseph Xi</u>			Printed Name: <u>Joseph Xi</u>			Printed Name: <u>Joseph Xi</u>								
	Company: <u>Golden</u>			Company: <u>AR2</u>			Company: <u>AR2</u>			Company: <u>AR2</u>								
	Date & Time: <u>6/3/21 1338</u>			Date & Time: <u>06/03/2021 1338</u>			Date & Time: <u>06/03/2021 1338</u>			Date & Time: <u>06/03/2021 1338</u>								

**Limits of Liability:** ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

**Sample Retention Policy:** All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Golder Associates  
18300 NE Union Hill Road Suite 200  
Redmond WA, 98052-3333

Project: Landsburg  
Project Number: Landsburg  
Project Manager: Gary Zimmerman

**Reported:**  
13-Jul-2021 12:13

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LMW-2-0621	21F0068-01	Water	02-Jun-2021 09:15	03-Jun-2021 13:38
LMW-2-0621-D	21F0068-02	Water	02-Jun-2021 09:15	03-Jun-2021 13:38
LMW-4-0621	21F0068-03	Water	02-Jun-2021 10:15	03-Jun-2021 13:38
LMW-10-0621	21F0068-04	Water	02-Jun-2021 11:40	03-Jun-2021 13:38
LMW-20-0621	21F0068-05	Water	02-Jun-2021 14:45	03-Jun-2021 13:38
LMW-21-0621	21F0068-06	Water	02-Jun-2021 13:35	03-Jun-2021 13:38
LMW-22-0621	21F0068-07	Water	02-Jun-2021 15:55	03-Jun-2021 13:38
LMW-12-0621	21F0068-08	Water	03-Jun-2021 08:40	03-Jun-2021 13:38
LMW-FB-0621	21F0068-09	Water	03-Jun-2021 09:05	03-Jun-2021 13:38
LMW-13R-0621	21F0068-10	Water	03-Jun-2021 10:15	03-Jun-2021 13:38
LMW-14-0621	21F0068-11	Water	03-Jun-2021 12:25	03-Jun-2021 13:38
Trip Blank	21F0068-13	Water	02-Jun-2021 09:15	03-Jun-2021 13:38



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18300 NE Union Hill Road Suite 200  
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Project: Landsburg  
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Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 12:13

## Work Order Case Narrative

### Volatiles - EPA Method SW8260D

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits with the exception of analytes flagged on the associated forms.

The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control limits with the exception of analytes flagged on the associated forms.

### 1,4-Dioxane- EPA Method SW8270E

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

### Total Metals - EPA Method 200.8, 6010D and 7470A

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits with the exception of the spike for mercury which is out of control high. The associated samples were non-detect and no further action was required.



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Project: Landsburg

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13-Jul-2021 12:13

The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

#### **Hydrocarbon Identification (HCID) - WA-Ecology Method NW-HCID**

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.





WORK ORDER

21F0068

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

Preservation Confirmation

Container ID	Container Type	pH
21F0068-01 A	Glass NM, Amber, 500 mL	
21F0068-01 B	Glass NM, Amber, 500 mL	
21F0068-01 C	Glass NM, Amber, 500 mL	
21F0068-01 D	Glass NM, Amber, 500 mL	
21F0068-01 E	Glass NM, Amber, 500 mL	
21F0068-01 F	Glass NM, Amber, 500 mL	
21F0068-01 G	HDPE NM, 500 mL, 1:1 HNO3	7 Pass
21F0068-01 H	VOA Vial, Clear, 40 mL, HCL	
21F0068-01 I	VOA Vial, Clear, 40 mL, HCL	
21F0068-01 J	VOA Vial, Clear, 40 mL, HCL	
21F0068-01 K	VOA Vial, Clear, 40 mL, HCL	
21F0068-01 L	VOA Vial, Clear, 40 mL, HCL	
21F0068-02 A	Glass NM, Amber, 500 mL	
21F0068-02 B	Glass NM, Amber, 500 mL	
21F0068-02 C	Glass NM, Amber, 500 mL	
21F0068-02 D	Glass NM, Amber, 500 mL	
21F0068-02 E	Glass NM, Amber, 500 mL	
21F0068-02 F	Glass NM, Amber, 500 mL	
21F0068-02 G	HDPE NM, 500 mL, 1:1 HNO3	7 Pass
21F0068-02 H	VOA Vial, Clear, 40 mL, HCL	
21F0068-02 I	VOA Vial, Clear, 40 mL, HCL	
21F0068-02 J	VOA Vial, Clear, 40 mL, HCL	
21F0068-02 K	VOA Vial, Clear, 40 mL, HCL	
21F0068-02 L	VOA Vial, Clear, 40 mL, HCL	
21F0068-03 A	Glass NM, Amber, 500 mL	
21F0068-03 AA	VOA Vial, Clear, 40 mL, HCL	
21F0068-03 AB	VOA Vial, Clear, 40 mL, HCL	
21F0068-03 AC	VOA Vial, Clear, 40 mL, HCL	
21F0068-03 AD	VOA Vial, Clear, 40 mL, HCL	
21F0068-03 AE	VOA Vial, Clear, 40 mL, HCL	
21F0068-03 AF	VOA Vial, Clear, 40 mL, HCL	
21F0068-03 AG	VOA Vial, Clear, 40 mL, HCL	
21F0068-03 AH	VOA Vial, Clear, 40 mL, HCL	
21F0068-03 AI	VOA Vial, Clear, 40 mL, HCL	
21F0068-03 AJ	VOA Vial, Clear, 40 mL, HCL	





WORK ORDER

21F0068

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

21F0068-03 B	Glass NM, Amber, 500 mL		
21F0068-03 C	Glass NM, Amber, 500 mL		
21F0068-03 D	Glass NM, Amber, 500 mL		
21F0068-03 E	Glass NM, Amber, 500 mL		
21F0068-03 F	Glass NM, Amber, 500 mL		
21F0068-03 G	Glass NM, Amber, 500 mL		
21F0068-03 H	Glass NM, Amber, 500 mL		
21F0068-03 I	Glass NM, Amber, 500 mL		
21F0068-03 J	Glass NM, Amber, 500 mL		
21F0068-03 K	Glass NM, Amber, 500 mL		
21F0068-03 L	Glass NM, Amber, 500 mL		
21F0068-03 M	Glass NM, Amber, 500 mL		
21F0068-03 N	Glass NM, Amber, 500 mL		
21F0068-03 O	Glass NM, Amber, 500 mL		
21F0068-03 P	Glass NM, Amber, 500 mL		
21F0068-03 Q	Glass NM, Amber, 500 mL		
21F0068-03 R	Glass NM, Amber, 500 mL		
21F0068-03 S	HDPE NM, 500 mL, 1:1 HNO3	Ca	Pass
21F0068-03 T	HDPE NM, 500 mL, 1:1 HNO3	Ca	Pass
21F0068-03 U	HDPE NM, 500 mL, 1:1 HNO3	Ca	Pass
21F0068-03 V	VOA Vial, Clear, 40 mL, HCL		
21F0068-03 W	VOA Vial, Clear, 40 mL, HCL		
21F0068-03 X	VOA Vial, Clear, 40 mL, HCL		
21F0068-03 Y	VOA Vial, Clear, 40 mL, HCL		
21F0068-03 Z	VOA Vial, Clear, 40 mL, HCL		
21F0068-04 A	Glass NM, Amber, 500 mL		
21F0068-04 B	Glass NM, Amber, 500 mL		
21F0068-04 C	Glass NM, Amber, 500 mL		
21F0068-04 D	Glass NM, Amber, 500 mL		
21F0068-04 E	Glass NM, Amber, 500 mL		
21F0068-04 F	Glass NM, Amber, 500 mL		
21F0068-04 G	HDPE NM, 500 mL, 1:1 HNO3	Ca	Pass
21F0068-04 H	VOA Vial, Clear, 40 mL, HCL		
21F0068-04 I	VOA Vial, Clear, 40 mL, HCL		
21F0068-04 J	VOA Vial, Clear, 40 mL, HCL		
21F0068-04 K	VOA Vial, Clear, 40 mL, HCL		
21F0068-04 L	VOA Vial, Clear, 40 mL, HCL		



WORK ORDER

21F0068

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

21F0068-05 A	Glass NM, Amber, 500 mL		
21F0068-05 B	Glass NM, Amber, 500 mL		
21F0068-06 A	Glass NM, Amber, 500 mL		
21F0068-06 B	Glass NM, Amber, 500 mL		
21F0068-07 A	Glass NM, Amber, 500 mL		
21F0068-07 B	Glass NM, Amber, 500 mL		
21F0068-08 A	Glass NM, Amber, 500 mL		
21F0068-08 B	Glass NM, Amber, 500 mL		
21F0068-08 C	Glass NM, Amber, 500 mL		
21F0068-08 D	Glass NM, Amber, 500 mL		
21F0068-08 E	Glass NM, Amber, 500 mL		
21F0068-08 F	Glass NM, Amber, 500 mL		
21F0068-08 G	HDPE NM, 500 mL, 1:1 HNO <sub>3</sub>	52	Pass
21F0068-08 H	VOA Vial, Clear, 40 mL, HCL		
21F0068-08 I	VOA Vial, Clear, 40 mL, HCL		
21F0068-08 J	VOA Vial, Clear, 40 mL, HCL		
21F0068-08 K	VOA Vial, Clear, 40 mL, HCL		
21F0068-08 L	VOA Vial, Clear, 40 mL, HCL		
21F0068-09 A	Glass NM, Amber, 500 mL		
21F0068-09 B	Glass NM, Amber, 500 mL		
21F0068-09 C	Glass NM, Amber, 500 mL		
21F0068-09 D	Glass NM, Amber, 500 mL		
21F0068-09 E	Glass NM, Amber, 500 mL		
21F0068-09 F	Glass NM, Amber, 500 mL		
21F0068-09 G	HDPE NM, 500 mL, 1:1 HNO <sub>3</sub>	52	Pass
21F0068-09 H	VOA Vial, Clear, 40 mL, HCL		
21F0068-09 I	VOA Vial, Clear, 40 mL, HCL		
21F0068-09 J	VOA Vial, Clear, 40 mL, HCL		
21F0068-09 K	VOA Vial, Clear, 40 mL, HCL		
21F0068-09 L	VOA Vial, Clear, 40 mL, HCL		
21F0068-10 A	Glass NM, Amber, 500 mL		
21F0068-10 B	Glass NM, Amber, 500 mL		
21F0068-10 C	Glass NM, Amber, 500 mL		
21F0068-10 D	Glass NM, Amber, 500 mL		
21F0068-10 E	Glass NM, Amber, 500 mL		
21F0068-10 F	Glass NM, Amber, 500 mL		
21F0068-10 G	HDPE NM, 500 mL, 1:1 HNO <sub>3</sub>	52	Pass





WORK ORDER

21F0068

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

21F0068-10 H	VOA Vial, Clear, 40 mL, HCL		
21F0068-10 I	VOA Vial, Clear, 40 mL, HCL		
21F0068-10 J	VOA Vial, Clear, 40 mL, HCL		
21F0068-10 K	VOA Vial, Clear, 40 mL, HCL		
21F0068-10 L	VOA Vial, Clear, 40 mL, HCL		
21F0068-11 A	Glass NM, Amber, 500 mL		
21F0068-11 B	Glass NM, Amber, 500 mL		
21F0068-11 C	Glass NM, Amber, 500 mL		
21F0068-11 D	Glass NM, Amber, 500 mL		
21F0068-11 E	HDPE NM, 500 mL, 1:1 HNO3	Ca	Pass
21F0068-11 F	VOA Vial, Clear, 40 mL, HCL		
21F0068-11 G	VOA Vial, Clear, 40 mL, HCL		
21F0068-11 H	VOA Vial, Clear, 40 mL, HCL		
21F0068-11 I	VOA Vial, Clear, 40 mL, HCL		
21F0068-11 J	VOA Vial, Clear, 40 mL, HCL		
21F0068-12 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	Ca	Pass
21F0068-13 A	VOA Vial, Clear, 40 mL, HCL		
21F0068-13 B	VOA Vial, Clear, 40 mL, HCL		
21F0068-13 C	VOA Vial, Clear, 40 mL, HCL		

JS  
Preservation Confirmed By

06/04/2021  
Date



Analytical Resources, Incorporated  
Analytical Chemists and Consultants

# Cooler Receipt Form

ARI Client: Gold

Project Name: Landsburg GH

COC No(s): \_\_\_\_\_ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: 21F0068

Tracking No: \_\_\_\_\_ (NA)

## Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler? YES (NO)

Were custody papers included with the cooler? YES (NO)

Were custody papers properly filled out (ink, signed, etc.) YES (NO)

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1338 3.4 1.3 3.3 3.9

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO.5006

Cooler Accepted by: JS Date: 06/03/2001 Time: 1338

**Complete custody forms and attach all shipping documents**

## Log-In Phase:

Was a temperature blank included in the cooler? YES (NO)

What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: \_\_\_\_\_

Was sufficient ice used (if appropriate)? NA (YES) NO

How were bottles sealed in plastic bags? Individually (Grouped) Not

Did all bottles arrive in good condition (unbroken)? (YES) NO

Were all bottle labels complete and legible? (YES) NO

Did the number of containers listed on COC match with the number of containers received? (YES) NO

Did all bottle labels and tags agree with custody papers? (YES) NO

Were all bottles used correct for the requested analyses? (YES) NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ... NA (YES) NO

Were all VOC vials free of air bubbles? NA (YES) NO

Was sufficient amount of sample sent in each bottle? (YES) NO

Date VOC Trip Blank was made at ARI: NA 06/01/2001

Were the sample(s) split by ARI? (NA) YES Date/Time: \_\_\_\_\_ Equipment: \_\_\_\_\_ Split by: \_\_\_\_\_

Samples Logged by: JS Date: 06/04/2001 Time: 0921 Labels checked by: JS

**\*\* Notify Project Manager of discrepancies or concerns \*\***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

### Additional Notes, Discrepancies, & Resolutions:

★ 1-500ml AB bottle for Sample LMW-10-0621 was broken during storage of samples on 06/03/2001.

By: JS Date: 06/04/2001



Golder Associates  
18300 NE Union Hill Road Suite 200  
Redmond WA, 98052-3333

Project: Landsburg  
Project Number: Landsburg  
Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 12:13

**LMW-2-0621**  
**21F0068-01 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/02/2021 09:15

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 19:19

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21F0068-01 L

Preparation Batch: BJF0165

Sample Size: 10 mL

Prepared: 06/07/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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Project: Landsburg  
Project Number: Landsburg  
Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 12:13

**LMW-2-0621**  
**21F0068-01 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/02/2021 09:15

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 19:19

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U

Surrogate: 1,2-Dichloroethane-d4

80-129 % 118 %



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Project Number: Landsburg  
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Reported:  
13-Jul-2021 12:13

**LMW-2-0621**  
**21F0068-01 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/02/2021 09:15

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 19:19

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	95.3	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	89.8	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	105	%	



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Reported:  
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**LMW-2-0621**  
**21F0068-01 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM	Sampled: 06/02/2021 09:15	
Instrument: NT6 Analyst: JZ	Analyzed: 06/11/2021 16:51	
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)	Extract ID: 21F0068-01 A 01
	Preparation Batch: BJF0112	Sample Size: 500 mL
	Prepared: 06/09/2021	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	1.5	ug/L	
Surrogate: 1,4-Dioxane-d8			33.6-120 %	47.2	%	





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**LMW-2-0621**  
**21F0068-01 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-HCID  
Instrument: FID4 Analyst: CTO

Sampled: 06/02/2021 09:15

Analyzed: 06/08/2021 13:05

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BJF0113 Sample Size: 500 mL  
Prepared: 06/07/2021 Final Volume: 1 mL

Extract ID: 21F0068-01 C 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	88.1	%	
Surrogate: n-Triacontane			50-150 %	88.3	%	



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Reported:  
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**LMW-2-0621**  
**21F0068-01 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8

Sampled: 06/02/2021 09:15

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/23/2021 22:04

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0068-01 G 02

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	0.00300	ND	mg/L	U
Lead	7439-92-1	1	0.0100	ND	mg/L	U
Thallium	7440-28-0	1	0.00200	ND	mg/L	U



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**LMW-2-0621**  
**21F0068-01 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8 UCT-KED

Sampled: 06/02/2021 09:15

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/23/2021 22:04

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0068-01 G 02

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.00300	ND	mg/L	U
Selenium	7782-49-2	1	0.0250	ND	mg/L	U



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**LMW-2-0621**  
**21F0068-01 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D

Sampled: 06/02/2021 09:15

Instrument: ICP2 Analyst: MVP

Analyzed: 06/24/2021 14:22

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 21F0068-01 G

Preparation Batch: BJF0380

Sample Size: 25 mL

Prepared: 06/15/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1.00	ND	mg/L	U
Barium	7440-39-3	1	0.500	ND	mg/L	U
Beryllium	7440-41-7	1	0.0100	ND	mg/L	U
Cadmium	7440-43-9	1	0.0020	ND	mg/L	U
Calcium	7440-70-2	1	0.500	113	mg/L	
Chromium	7440-47-3	1	0.0100	ND	mg/L	U
Cobalt	7440-48-4	1	0.0100	ND	mg/L	U
Copper	7440-50-8	1	0.0030	ND	mg/L	U
Iron	7439-89-6	1	0.200	ND	mg/L	U
Magnesium	7439-95-4	1	0.500	71.3	mg/L	
Manganese	7439-96-5	1	0.0100	0.244	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	3.58	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	20.5	mg/L	
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U



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**LMW-2-0621**  
**21F0068-01 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Sampled: 06/02/2021 09:15
Instrument: HYDRA Analyst: CDE	Analyzed: 06/30/2021 21:16
Sample Preparation:	Preparation Method: TWM EPA 7470A
	Preparation Batch: BJF0563
	Prepared: 06/21/2021
	Sample Size: 20 mL
	Final Volume: 20 mL
	Extract ID: 21F0068-01 G

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00100	ND	mg/L	U



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Reported:  
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**LMW-2-0621-D**  
**21F0068-02 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/02/2021 09:15

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 19:40

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21F0068-02 J

Preparation Batch: BJF0165

Sample Size: 10 mL

Prepared: 06/07/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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**LMW-2-0621-D**  
**21F0068-02 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/02/2021 09:15

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 19:40

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U

Surrogate: 1,2-Dichloroethane-d4

80-129 % 120 %





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**LMW-2-0621-D**  
**21F0068-02 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/02/2021 09:15

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 19:40

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	94.4	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	89.3	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	105	%	



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Reported:  
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**LMW-2-0621-D**

**21F0068-02 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM

Sampled: 06/02/2021 09:15

Instrument: NT6 Analyst: JZ

Analyzed: 06/11/2021 17:16

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 21F0068-02 A 01

Preparation Batch: BJF0112

Sample Size: 500 mL

Prepared: 06/09/2021

Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	1.7	ug/L	
Surrogate: 1,4-Dioxane-d8			33.6-120 %	52.3	%	



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**LMW-2-0621-D**  
**21F0068-02 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-HCID  
Instrument: FID4 Analyst: CTO

Sampled: 06/02/2021 09:15

Analyzed: 06/08/2021 13:26

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BJF0113 Sample Size: 500 mL  
Prepared: 06/07/2021 Final Volume: 1 mL

Extract ID: 21F0068-02 C 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	81.4	%	
Surrogate: n-Triacontane			50-150 %	80.0	%	



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Reported:  
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**LMW-2-0621-D**  
**21F0068-02 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8

Sampled: 06/02/2021 09:15

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 00:00

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0068-02 G 02

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	0.00300	ND	mg/L	U
Lead	7439-92-1	1	0.0100	ND	mg/L	U
Thallium	7440-28-0	1	0.00200	ND	mg/L	U



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**LMW-2-0621-D**

**21F0068-02 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8 UCT-KED

Sampled: 06/02/2021 09:15

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 00:00

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0068-02 G 02

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.00300	ND	mg/L	U
Selenium	7782-49-2	1	0.0250	ND	mg/L	U



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**LMW-2-0621-D**  
**21F0068-02 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D

Sampled: 06/02/2021 09:15

Instrument: ICP2 Analyst: MVP

Analyzed: 06/24/2021 14:25

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 21F0068-02 G

Preparation Batch: BJF0380

Sample Size: 25 mL

Prepared: 06/15/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1.00	ND	mg/L	U
Barium	7440-39-3	1	0.500	ND	mg/L	U
Beryllium	7440-41-7	1	0.0100	ND	mg/L	U
Cadmium	7440-43-9	1	0.0020	ND	mg/L	U
Calcium	7440-70-2	1	0.500	116	mg/L	
Chromium	7440-47-3	1	0.0100	ND	mg/L	U
Cobalt	7440-48-4	1	0.0100	ND	mg/L	U
Copper	7440-50-8	1	0.0030	ND	mg/L	U
Iron	7439-89-6	1	0.200	ND	mg/L	U
Magnesium	7439-95-4	1	0.500	70.4	mg/L	
Manganese	7439-96-5	1	0.0100	0.239	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	3.50	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	20.3	mg/L	
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U



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**LMW-2-0621-D**  
**21F0068-02 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Sampled: 06/02/2021 09:15
Instrument: HYDRA Analyst: CDE	Analyzed: 06/30/2021 21:23
Sample Preparation:	Preparation Method: TWM EPA 7470A
	Preparation Batch: BJF0563
	Prepared: 06/21/2021
	Sample Size: 20 mL
	Final Volume: 20 mL
	Extract ID: 21F0068-02 G

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00100	ND	mg/L	U





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Reported:  
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**LMW-4-0621**  
**21F0068-03 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/02/2021 10:15

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 20:01

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21F0068-03 V

Preparation Batch: BJF0165

Sample Size: 10 mL

Prepared: 06/07/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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Project: Landsburg  
Project Number: Landsburg  
Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 12:13

**LMW-4-0621**  
**21F0068-03 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/02/2021 10:15

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 20:01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U

Surrogate: 1,2-Dichloroethane-d4

80-129 % 120 %



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**LMW-4-0621**  
**21F0068-03 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/02/2021 10:15

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 20:01

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	96.0	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	88.2	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	102	%	



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Reported:  
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**LMW-4-0621**  
**21F0068-03 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM	Sampled: 06/02/2021 10:15	
Instrument: NT6 Analyst: JZ	Analyzed: 06/11/2021 17:41	
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)	Extract ID: 21F0068-03 A 01
	Preparation Batch: BJF0112	Sample Size: 500 mL
	Prepared: 06/09/2021	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	1.8	ug/L	
Surrogate: 1,4-Dioxane-d8			33.6-120 %	51.7	%	



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Reported:  
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**LMW-4-0621**  
**21F0068-03 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-HCID  
Instrument: FID4 Analyst: CTO

Sampled: 06/02/2021 10:15

Analyzed: 06/08/2021 13:47

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BJF0113 Sample Size: 500 mL  
Prepared: 06/07/2021 Final Volume: 1 mL

Extract ID: 21F0068-03 D 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	84.4	%	
Surrogate: n-Triacontane			50-150 %	83.4	%	



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Reported:  
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**LMW-4-0621**  
**21F0068-03 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8

Sampled: 06/02/2021 10:15

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/23/2021 23:00

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0068-03 U 02

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	0.00300	ND	mg/L	U
Lead	7439-92-1	1	0.0100	ND	mg/L	U
Thallium	7440-28-0	1	0.00200	ND	mg/L	U



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Reported:  
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**LMW-4-0621**  
**21F0068-03 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8 UCT-KED

Sampled: 06/02/2021 10:15

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/23/2021 23:00

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0068-03 U 02

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.00300	ND	mg/L	U
Selenium	7782-49-2	1	0.0250	ND	mg/L	U





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**LMW-4-0621**  
**21F0068-03 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D

Sampled: 06/02/2021 10:15

Instrument: ICP2 Analyst: MVP

Analyzed: 06/24/2021 14:31

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 21F0068-03 U

Preparation Batch: BJF0380

Sample Size: 25 mL

Prepared: 06/15/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1.00	ND	mg/L	U
Barium	7440-39-3	1	0.500	ND	mg/L	U
Beryllium	7440-41-7	1	0.0100	ND	mg/L	U
Cadmium	7440-43-9	1	0.0020	ND	mg/L	U
Calcium	7440-70-2	1	0.500	114	mg/L	
Chromium	7440-47-3	1	0.0100	ND	mg/L	U
Cobalt	7440-48-4	1	0.0100	ND	mg/L	U
Copper	7440-50-8	1	0.0030	ND	mg/L	U
Iron	7439-89-6	1	0.200	ND	mg/L	U
Magnesium	7439-95-4	1	0.500	68.5	mg/L	
Manganese	7439-96-5	1	0.0100	0.194	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	3.60	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	23.9	mg/L	
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U



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**LMW-4-0621**  
**21F0068-03 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Sampled: 06/02/2021 10:15
Instrument: HYDRA Analyst: CDE	Analyzed: 06/30/2021 21:26
Sample Preparation:	Preparation Method: TWM EPA 7470A
	Preparation Batch: BJF0563
	Prepared: 06/21/2021
	Sample Size: 20 mL
	Final Volume: 20 mL
	Extract ID: 21F0068-03 T

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00100	ND	mg/L	U



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Reported:  
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**LMW-10-0621**  
**21F0068-04 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/02/2021 11:40

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 20:21

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21F0068-04 I

Preparation Batch: BJF0165

Sample Size: 10 mL

Prepared: 06/07/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	0.21	ug/L	
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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**LMW-10-0621**  
**21F0068-04 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/02/2021 11:40

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 20:21

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U

Surrogate: 1,2-Dichloroethane-d4

80-129 % 117 %



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**LMW-10-0621**  
**21F0068-04 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/02/2021 11:40

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 20:21

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	94.4	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	85.7	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	105	%	



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**LMW-10-0621**  
**21F0068-04 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM	Sampled: 06/02/2021 11:40
Instrument: NT6 Analyst: JZ	Analyzed: 06/11/2021 18:56
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)
	Preparation Batch: BJF0112
	Prepared: 06/09/2021
	Sample Size: 500 mL
	Final Volume: 1 mL
	Extract ID: 21F0068-04 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	ND	ug/L	U
Surrogate: 1,4-Dioxane-d8			33.6-120 %	49.0	%	



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Project Manager: Gary Zimmerman

Reported:  
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**LMW-10-0621**  
**21F0068-04 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-HCID

Sampled: 06/02/2021 11:40

Instrument: FID4 Analyst: CTO

Analyzed: 06/08/2021 14:09

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 21F0068-04 C 01

Preparation Batch: BJF0113

Sample Size: 500 mL

Prepared: 06/07/2021

Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	88.8	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	85.2	%	



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Project Number: Landsburg  
Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 12:13

**LMW-10-0621**  
**21F0068-04 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8

Sampled: 06/02/2021 11:40

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 00:04

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0068-04 G 02

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	0.00300	ND	mg/L	U
Lead	7439-92-1	1	0.0100	ND	mg/L	U
Thallium	7440-28-0	1	0.00200	ND	mg/L	U





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Reported:  
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**LMW-10-0621**  
**21F0068-04 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8 UCT-KED

Sampled: 06/02/2021 11:40

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 00:04

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0068-04 G 02

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.00300	ND	mg/L	U
Selenium	7782-49-2	1	0.0250	ND	mg/L	U



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Project Manager: Gary Zimmerman

Reported:  
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**LMW-10-0621**  
**21F0068-04 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D

Sampled: 06/02/2021 11:40

Instrument: ICP2 Analyst: MVP

Analyzed: 06/24/2021 14:43

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 21F0068-04 G

Preparation Batch: BJF0380

Sample Size: 25 mL

Prepared: 06/15/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1.00	ND	mg/L	U
Barium	7440-39-3	1	0.500	ND	mg/L	U
Beryllium	7440-41-7	1	0.0100	ND	mg/L	U
Cadmium	7440-43-9	1	0.0020	ND	mg/L	U
Calcium	7440-70-2	1	0.500	6.71	mg/L	
Chromium	7440-47-3	1	0.0100	ND	mg/L	U
Cobalt	7440-48-4	1	0.0100	ND	mg/L	U
Copper	7440-50-8	1	0.0030	ND	mg/L	U
Iron	7439-89-6	1	0.200	ND	mg/L	U
Magnesium	7439-95-4	1	0.500	3.16	mg/L	
Manganese	7439-96-5	1	0.0100	ND	mg/L	U
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	1.30	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	5	2.50	67.1	mg/L	D
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U



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**Reported:**  
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**LMW-10-0621**  
**21F0068-04 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Sampled: 06/02/2021 11:40
Instrument: HYDRA Analyst: CDE	Analyzed: 06/30/2021 21:35
Sample Preparation:	Preparation Method: TWM EPA 7470A
	Preparation Batch: BJF0563
	Prepared: 06/21/2021
	Sample Size: 20 mL
	Final Volume: 20 mL
	Extract ID: 21F0068-04 G

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00100	ND	mg/L	U



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Reported:  
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**LMW-20-0621**  
**21F0068-05 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM	Sampled: 06/02/2021 14:45
Instrument: NT6 Analyst: JZ	Analyzed: 06/11/2021 19:21
Sample Preparation:	Extract ID: 21F0068-05 A 01
Preparation Method: EPA 3520C (Liq Liq)	
Preparation Batch: BJF0112	Sample Size: 500 mL
Prepared: 06/09/2021	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	ND	ug/L	U
Surrogate: 1,4-Dioxane-d8			33.6-120 %	50.8	%	



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**LMW-21-0621**  
**21F0068-06 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM	Sampled: 06/02/2021 13:35	
Instrument: NT6 Analyst: JZ	Analyzed: 06/11/2021 19:47	
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)	Extract ID: 21F0068-06 A 01
	Preparation Batch: BJF0112	Sample Size: 500 mL
	Prepared: 06/09/2021	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	ND	ug/L	U
Surrogate: 1,4-Dioxane-d8			33.6-120 %	51.2	%	



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Reported:  
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**LMW-22-0621**  
**21F0068-07 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM	Sampled: 06/02/2021 15:55
Instrument: NT6 Analyst: JZ	Analyzed: 06/11/2021 20:12
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)
	Preparation Batch: BJF0112
	Prepared: 06/09/2021
	Sample Size: 500 mL
	Final Volume: 1 mL
	Extract ID: 21F0068-07 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	ND	ug/L	U
Surrogate: 1,4-Dioxane-d8			33.6-120 %	50.7	%	



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Reported:  
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**LMW-12-0621**  
**21F0068-08 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D  
Instrument: NT2 Analyst: PKC

Sampled: 06/03/2021 08:40

Analyzed: 06/07/2021 20:42

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BJF0165 Sample Size: 10 mL  
Prepared: 06/07/2021 Final Volume: 10 mL

Extract ID: 21F0068-08 H

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	0.25	ug/L	
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	0.27	ug/L	
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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**LMW-12-0621**  
**21F0068-08 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/03/2021 08:40

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 20:42

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U

Surrogate: 1,2-Dichloroethane-d4

80-129 % 120 %





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**LMW-12-0621**  
**21F0068-08 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/03/2021 08:40

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 20:42

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	94.9	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	87.1	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	106	%	



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**LMW-12-0621**  
**21F0068-08 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM	Sampled: 06/03/2021 08:40
Instrument: NT6 Analyst: JZ	Analyzed: 06/11/2021 20:38
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)
	Preparation Batch: BJF0112
	Prepared: 06/09/2021
	Sample Size: 500 mL
	Final Volume: 1 mL
	Extract ID: 21F0068-08 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	ND	ug/L	U
Surrogate: 1,4-Dioxane-d8			33.6-120 %	52.8	%	



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**LMW-12-0621**  
**21F0068-08 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-HCID  
Instrument: FID4 Analyst: CTO

Sampled: 06/03/2021 08:40

Analyzed: 06/08/2021 14:30

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BJF0113  
Prepared: 06/07/2021

Sample Size: 500 mL  
Final Volume: 1 mL

Extract ID: 21F0068-08 C 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	90.1	%	
Surrogate: n-Triacontane			50-150 %	89.4	%	



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Reported:  
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**LMW-12-0621**  
**21F0068-08 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8

Sampled: 06/03/2021 08:40

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 00:09

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0068-08 G 02

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	0.00300	ND	mg/L	U
Lead	7439-92-1	1	0.0100	ND	mg/L	U
Thallium	7440-28-0	1	0.00200	ND	mg/L	U



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**LMW-12-0621**  
**21F0068-08 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8 UCT-KED

Sampled: 06/03/2021 08:40

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 00:09

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0068-08 G 02

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.00300	ND	mg/L	U
Selenium	7782-49-2	1	0.0250	ND	mg/L	U



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**LMW-12-0621**  
**21F0068-08 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D

Sampled: 06/03/2021 08:40

Instrument: ICP2 Analyst: MVP

Analyzed: 06/24/2021 14:46

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 21F0068-08 G

Preparation Batch: BJF0380

Sample Size: 25 mL

Prepared: 06/15/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1.00	ND	mg/L	U
Barium	7440-39-3	1	0.500	ND	mg/L	U
Beryllium	7440-41-7	1	0.0100	ND	mg/L	U
Cadmium	7440-43-9	1	0.0020	ND	mg/L	U
Calcium	7440-70-2	1	0.500	61.0	mg/L	
Chromium	7440-47-3	1	0.0100	ND	mg/L	U
Cobalt	7440-48-4	1	0.0100	ND	mg/L	U
Copper	7440-50-8	1	0.0030	ND	mg/L	U
Iron	7439-89-6	1	0.200	10.8	mg/L	
Magnesium	7439-95-4	1	0.500	39.5	mg/L	
Manganese	7439-96-5	1	0.0100	0.575	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	3.05	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	9.44	mg/L	
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U



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Project Number: Landsburg  
Project Manager: Gary Zimmerman

Reported:  
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**LMW-12-0621**  
**21F0068-08 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Sampled: 06/03/2021 08:40
Instrument: HYDRA Analyst: CDE	Analyzed: 06/30/2021 21:37
Sample Preparation:	Preparation Method: TWM EPA 7470A
	Preparation Batch: BJF0563
	Prepared: 06/21/2021
	Sample Size: 20 mL
	Final Volume: 20 mL
	Extract ID: 21F0068-08 G

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00100	ND	mg/L	U



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Project: Landsburg  
Project Number: Landsburg  
Project Manager: Gary Zimmerman

Reported:  
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**LMW-FB-0621**  
**21F0068-09 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/03/2021 09:05

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 21:03

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21F0068-09 J

Preparation Batch: BJF0165

Sample Size: 10 mL

Prepared: 06/07/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U





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Project: Landsburg  
Project Number: Landsburg  
Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 12:13

**LMW-FB-0621**  
**21F0068-09 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/03/2021 09:05

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 21:03

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U

Surrogate: 1,2-Dichloroethane-d4

80-129 % 115 %



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**LMW-FB-0621**  
**21F0068-09 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/03/2021 09:05

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 21:03

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	95.4	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	86.6	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	103	%	



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Reported:  
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**LMW-FB-0621**  
**21F0068-09 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM	Sampled: 06/03/2021 09:05	
Instrument: NT6 Analyst: JZ	Analyzed: 06/11/2021 21:04	
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)	Extract ID: 21F0068-09 A 01
	Preparation Batch: BJF0112	Sample Size: 500 mL
	Prepared: 06/09/2021	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	ND	ug/L	U
Surrogate: 1,4-Dioxane-d8			33.6-120 %	43.5	%	



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Reported:  
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**LMW-FB-0621**  
**21F0068-09 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-HCID  
Instrument: FID4 Analyst: CTO

Sampled: 06/03/2021 09:05

Analyzed: 06/08/2021 14:52

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BJF0113  
Prepared: 06/07/2021

Sample Size: 500 mL  
Final Volume: 1 mL

Extract ID: 21F0068-09 C 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	99.4	%	
Surrogate: n-Triacontane			50-150 %	98.6	%	



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Reported:  
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**LMW-FB-0621**  
**21F0068-09 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8

Sampled: 06/03/2021 09:05

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 00:14

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0068-09 G 02

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	0.00300	ND	mg/L	U
Lead	7439-92-1	1	0.0100	ND	mg/L	U
Thallium	7440-28-0	1	0.00200	ND	mg/L	U



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**LMW-FB-0621**  
**21F0068-09 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8 UCT-KED

Sampled: 06/03/2021 09:05

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 00:14

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0068-09 G 02

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.00300	ND	mg/L	U
Selenium	7782-49-2	1	0.0250	ND	mg/L	U



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**LMW-FB-0621**  
**21F0068-09 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D

Sampled: 06/03/2021 09:05

Instrument: ICP2 Analyst: MVP

Analyzed: 06/24/2021 15:05

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 21F0068-09 G

Preparation Batch: BJF0380

Sample Size: 25 mL

Prepared: 06/15/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1.00	ND	mg/L	U
Barium	7440-39-3	1	0.500	ND	mg/L	U
Beryllium	7440-41-7	1	0.0100	ND	mg/L	U
Cadmium	7440-43-9	1	0.0020	ND	mg/L	U
Calcium	7440-70-2	1	0.500	ND	mg/L	U
Chromium	7440-47-3	1	0.0100	ND	mg/L	U
Cobalt	7440-48-4	1	0.0100	ND	mg/L	U
Copper	7440-50-8	1	0.0030	ND	mg/L	U
Iron	7439-89-6	1	0.200	ND	mg/L	U
Magnesium	7439-95-4	1	0.500	ND	mg/L	U
Manganese	7439-96-5	1	0.0100	ND	mg/L	U
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	ND	mg/L	U
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	ND	mg/L	U
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U



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**LMW-FB-0621**  
**21F0068-09 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Sampled: 06/03/2021 09:05
Instrument: HYDRA Analyst: CDE	Analyzed: 06/30/2021 21:40
Sample Preparation:	Preparation Method: TWM EPA 7470A
	Preparation Batch: BJF0563
	Prepared: 06/21/2021
	Sample Size: 20 mL
	Final Volume: 20 mL
	Extract ID: 21F0068-09 G

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00100	ND	mg/L	U





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**LMW-13R-0621**  
**21F0068-10 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/03/2021 10:15

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 21:24

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21F0068-10 I

Preparation Batch: BJF0165

Sample Size: 10 mL

Prepared: 06/07/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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**LMW-13R-0621**  
**21F0068-10 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/03/2021 10:15

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 21:24

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U

Surrogate: 1,2-Dichloroethane-d4

80-129 % 114 %



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**LMW-13R-0621**  
**21F0068-10 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/03/2021 10:15

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 21:24

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	93.8	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	88.2	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	106	%	



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**LMW-13R-0621**  
**21F0068-10 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM	Sampled: 06/03/2021 10:15
Instrument: NT6 Analyst: JZ	Analyzed: 06/11/2021 21:29
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)
	Preparation Batch: BJF0112
	Prepared: 06/09/2021
	Sample Size: 500 mL
	Final Volume: 1 mL
	Extract ID: 21F0068-10 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	ND	ug/L	U
Surrogate: 1,4-Dioxane-d8			33.6-120 %	39.2	%	



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Reported:  
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**LMW-13R-0621**

**21F0068-10 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-HCID

Sampled: 06/03/2021 10:15

Instrument: FID4 Analyst: CTO

Analyzed: 06/08/2021 15:13

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 21F0068-10 C 01

Preparation Batch: BJF0113

Sample Size: 500 mL

Prepared: 06/07/2021

Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	93.3	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	89.4	%	



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Project Number: Landsburg  
Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 12:13

**LMW-13R-0621**  
**21F0068-10 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8

Sampled: 06/03/2021 10:15

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 00:18

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0068-10 G 02

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	0.00300	ND	mg/L	U
Lead	7439-92-1	1	0.0100	ND	mg/L	U
Thallium	7440-28-0	1	0.00200	ND	mg/L	U



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Project Manager: Gary Zimmerman

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**LMW-13R-0621**  
**21F0068-10 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8 UCT-KED

Sampled: 06/03/2021 10:15

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 00:18

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0068-10 G 02

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.00300	ND	mg/L	U
Selenium	7782-49-2	1	0.0250	ND	mg/L	U



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Reported:  
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**LMW-13R-0621**  
**21F0068-10 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D

Sampled: 06/03/2021 10:15

Instrument: ICP2 Analyst: MVP

Analyzed: 06/24/2021 15:08

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 21F0068-10 G

Preparation Batch: BJF0380

Sample Size: 25 mL

Prepared: 06/15/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1.00	ND	mg/L	U
Barium	7440-39-3	1	0.500	ND	mg/L	U
Beryllium	7440-41-7	1	0.0100	ND	mg/L	U
Cadmium	7440-43-9	1	0.0020	ND	mg/L	U
Calcium	7440-70-2	1	0.500	86.2	mg/L	
Chromium	7440-47-3	1	0.0100	ND	mg/L	U
Cobalt	7440-48-4	1	0.0100	ND	mg/L	U
Copper	7440-50-8	1	0.0030	ND	mg/L	U
Iron	7439-89-6	1	0.200	1.27	mg/L	
Magnesium	7439-95-4	1	0.500	39.4	mg/L	
Manganese	7439-96-5	1	0.0100	0.0405	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	3.16	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	5	2.50	54.8	mg/L	D
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U





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**LMW-13R-0621**  
**21F0068-10 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Sampled: 06/03/2021 10:15
Instrument: HYDRA Analyst: CDE	Analyzed: 06/30/2021 21:42
Sample Preparation:	Extract ID: 21F0068-10 G
Preparation Method: TWM EPA 7470A	
Preparation Batch: BJF0563	Sample Size: 20 mL
Prepared: 06/21/2021	Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00100	ND	mg/L	U



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**LMW-14-0621**  
**21F0068-11 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D  
Instrument: NT2 Analyst: PKC  
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BJF0165 Sample Size: 10 mL  
Prepared: 06/07/2021 Final Volume: 10 mL  
Extract ID: 21F0068-11 G

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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**LMW-14-0621**  
**21F0068-11 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/03/2021 12:25

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 21:45

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U

Surrogate: 1,2-Dichloroethane-d4

80-129 % 127 %



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**LMW-14-0621**  
**21F0068-11 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/03/2021 12:25

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 21:45

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	94.4	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	86.4	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	104	%	



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Reported:  
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**LMW-14-0621**  
**21F0068-11 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-HCID  
Instrument: FID4 Analyst: CTO

Sampled: 06/03/2021 12:25

Analyzed: 06/08/2021 15:34

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BJF0113 Sample Size: 500 mL  
Prepared: 06/07/2021 Final Volume: 1 mL

Extract ID: 21F0068-11 C 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	97.5	%	
Surrogate: n-Triacontane			50-150 %	96.4	%	



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**LMW-14-0621**  
**21F0068-11 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8

Sampled: 06/03/2021 12:25

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 00:23

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0068-11 E 02

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	0.00300	ND	mg/L	U
Lead	7439-92-1	1	0.0100	ND	mg/L	U
Thallium	7440-28-0	1	0.00200	ND	mg/L	U



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Reported:  
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**LMW-14-0621**  
**21F0068-11 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8 UCT-KED

Sampled: 06/03/2021 12:25

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 00:23

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0068-11 E 02

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.00300	ND	mg/L	U
Selenium	7782-49-2	1	0.0250	ND	mg/L	U



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**LMW-14-0621**  
**21F0068-11 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D  
Instrument: ICP2 Analyst: MVP

Sampled: 06/03/2021 12:25

Analyzed: 06/24/2021 15:11

Sample Preparation: Preparation Method: TWC EPA 3010A  
Preparation Batch: BJF0380 Sample Size: 25 mL  
Prepared: 06/15/2021 Final Volume: 25 mL

Extract ID: 21F0068-11 E

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1.00	ND	mg/L	U
Barium	7440-39-3	1	0.500	ND	mg/L	U
Beryllium	7440-41-7	1	0.0100	ND	mg/L	U
Cadmium	7440-43-9	1	0.0020	ND	mg/L	U
Calcium	7440-70-2	1	0.500	146	mg/L	
Chromium	7440-47-3	1	0.0100	ND	mg/L	U
Cobalt	7440-48-4	1	0.0100	0.0224	mg/L	
Copper	7440-50-8	1	0.0030	ND	mg/L	U
Iron	7439-89-6	1	0.200	11.2	mg/L	
Magnesium	7439-95-4	1	0.500	79.1	mg/L	
Manganese	7439-96-5	1	0.0100	0.568	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	3.95	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	15.1	mg/L	
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U





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**Reported:**  
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**LMW-14-0621**  
**21F0068-11 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Sampled: 06/03/2021 12:25
Instrument: HYDRA Analyst: CDE	Analyzed: 06/30/2021 21:44
Sample Preparation:	Preparation Method: TWM EPA 7470A
	Preparation Batch: BJF0563
	Prepared: 06/21/2021
	Sample Size: 20 mL
	Final Volume: 20 mL
	Extract ID: 21F0068-11 E

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00100	ND	mg/L	U



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Reported:  
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**Trip Blank**  
**21F0068-13 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D  
Instrument: NT2 Analyst: PKC  
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BJF0165 Sample Size: 10 mL  
Prepared: 06/07/2021 Final Volume: 10 mL  
Extract ID: 21F0068-13 C  
Sampled: 06/02/2021 09:15  
Analyzed: 06/07/2021 18:38

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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Project Manager: Gary Zimmerman

Reported:  
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**Trip Blank**  
**21F0068-13 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/02/2021 09:15

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 18:38

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4			80-129 %	105	%	



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**Trip Blank**  
**21F0068-13 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/02/2021 09:15

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 18:38

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	94.5	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	91.6	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	103	%	



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### Volatile Organic Compounds - Quality Control

#### Batch BJF0165 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BJF0165-BLK1)</b>		Prepared: 07-Jun-2021 Analyzed: 07-Jun-2021 18:17								
Chloromethane	ND	0.50	ug/L							U
Vinyl Chloride	ND	0.10	ug/L							U
Bromomethane	ND	1.00	ug/L							U
Chloroethane	ND	0.20	ug/L							U
Trichlorofluoromethane	ND	0.20	ug/L							U
Acrolein	ND	5.00	ug/L							U
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.20	ug/L							U
Acetone	ND	5.00	ug/L							U
1,1-Dichloroethene	ND	0.20	ug/L							U
Iodomethane	ND	1.00	ug/L							U
Methylene Chloride	ND	1.00	ug/L							U
Acrylonitrile	ND	1.00	ug/L							U
Carbon Disulfide	ND	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.20	ug/L							U
Vinyl Acetate	ND	0.20	ug/L							U
1,1-Dichloroethane	ND	0.20	ug/L							U
2-Butanone	ND	5.00	ug/L							U
2,2-Dichloropropane	ND	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Chloroform	ND	0.20	ug/L							U
Bromochloromethane	ND	0.20	ug/L							U
1,1,1-Trichloroethane	ND	0.20	ug/L							U
1,1-Dichloropropene	ND	0.10	ug/L							U
Carbon tetrachloride	ND	0.20	ug/L							U
1,2-Dichloroethane	ND	0.20	ug/L							U
Benzene	ND	0.20	ug/L							U
Trichloroethene	ND	0.20	ug/L							U
1,2-Dichloropropane	ND	0.20	ug/L							U
Bromodichloromethane	ND	0.20	ug/L							U
Dibromomethane	ND	0.20	ug/L							U
2-Chloroethyl vinyl ether	ND	1.00	ug/L							U
4-Methyl-2-Pentanone	ND	2.50	ug/L							U
cis-1,3-Dichloropropene	ND	0.20	ug/L							U
Toluene	ND	0.20	ug/L							U
trans-1,3-Dichloropropene	ND	0.20	ug/L							U



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### Volatile Organic Compounds - Quality Control

#### Batch BJJ0165 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BJJ0165-BLK1)</b>		Prepared: 07-Jun-2021 Analyzed: 07-Jun-2021 18:17								
2-Hexanone	ND	5.00	ug/L							U
1,1,2-Trichloroethane	ND	0.20	ug/L							U
1,3-Dichloropropane	ND	0.10	ug/L							U
Tetrachloroethene	ND	0.20	ug/L							U
Dibromochloromethane	ND	0.20	ug/L							U
1,2-Dibromoethane	ND	0.10	ug/L							U
Chlorobenzene	ND	0.20	ug/L							U
Ethylbenzene	ND	0.20	ug/L							U
1,1,1,2-Tetrachloroethane	ND	0.20	ug/L							U
m,p-Xylene	ND	0.40	ug/L							U
o-Xylene	ND	0.20	ug/L							U
Xylenes, total	ND	0.60	ug/L							U
Styrene	ND	0.20	ug/L							U
Bromoform	ND	0.20	ug/L							U
1,1,2,2-Tetrachloroethane	ND	0.20	ug/L							U
1,2,3-Trichloropropane	ND	0.25	ug/L							U
trans-1,4-Dichloro 2-Butene	ND	1.00	ug/L							U
n-Propylbenzene	ND	0.20	ug/L							U
Bromobenzene	ND	0.20	ug/L							U
Isopropyl Benzene	ND	0.20	ug/L							U
2-Chlorotoluene	ND	0.10	ug/L							U
4-Chlorotoluene	ND	0.20	ug/L							U
t-Butylbenzene	ND	0.20	ug/L							U
1,3,5-Trimethylbenzene	ND	0.20	ug/L							U
1,2,4-Trimethylbenzene	ND	0.20	ug/L							U
s-Butylbenzene	ND	0.20	ug/L							U
4-Isopropyl Toluene	ND	0.20	ug/L							U
1,3-Dichlorobenzene	ND	0.20	ug/L							U
1,4-Dichlorobenzene	ND	0.20	ug/L							U
n-Butylbenzene	ND	0.20	ug/L							U
1,2-Dichlorobenzene	ND	0.20	ug/L							U
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L							U
1,2,4-Trichlorobenzene	ND	0.50	ug/L							U
Hexachloro-1,3-Butadiene	ND	0.50	ug/L							U
Naphthalene	ND	0.50	ug/L							U



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### Volatile Organic Compounds - Quality Control

#### Batch BJF0165 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BJF0165-BLK1)</b>										
				Prepared: 07-Jun-2021		Analyzed: 07-Jun-2021 18:17				
1,2,3-Trichlorobenzene	ND	0.50	ug/L							U
Dichlorodifluoromethane	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.41		ug/L	5.00		108	80-129			
Surrogate: Toluene-d8	4.78		ug/L	5.00		95.6	80-120			
Surrogate: 4-Bromofluorobenzene	4.62		ug/L	5.00		92.4	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.14		ug/L	5.00		103	80-120			
<b>LCS (BJF0165-BS1)</b>										
				Prepared: 07-Jun-2021		Analyzed: 07-Jun-2021 17:14				
Chloromethane	4.31	0.50	ug/L	4.00		108	60-138			
Vinyl Chloride	4.69	0.10	ug/L	4.00		117	66-133			
Bromomethane	4.22	1.00	ug/L	4.00		105	72-131			
Chloroethane	4.41	0.20	ug/L	4.00		110	60-155			
Trichlorofluoromethane	5.28	0.20	ug/L	4.00		132	62-141			
Acrolein	20.5	5.00	ug/L	20.0		102	52-190			
1,1,2-Trichloro-1,2,2-Trifluoroethane	4.97	0.20	ug/L	4.00		124	76-129			
Acetone	21.1	5.00	ug/L	20.0		105	58-142			
1,1-Dichloroethene	4.65	0.20	ug/L	4.00		116	69-135			
Iodomethane	3.78	1.00	ug/L	4.00		94.5	56-147			
Methylene Chloride	4.20	1.00	ug/L	4.00		105	65-135			
Acrylonitrile	2.83	1.00	ug/L	4.00		70.9	64-134			
Carbon Disulfide	4.10	0.20	ug/L	4.00		102	78-125			
trans-1,2-Dichloroethene	4.26	0.20	ug/L	4.00		106	78-128			
Vinyl Acetate	3.19	0.20	ug/L	4.00		79.7	55-138			
1,1-Dichloroethane	4.16	0.20	ug/L	4.00		104	76-124			
2-Butanone	18.7	5.00	ug/L	20.0		93.5	61-140			
2,2-Dichloropropane	4.38	0.20	ug/L	4.00		110	66-147			
cis-1,2-Dichloroethene	4.20	0.20	ug/L	4.00		105	80-121			
Chloroform	4.14	0.20	ug/L	4.00		104	80-122			
Bromochloromethane	4.28	0.20	ug/L	4.00		107	80-121			
1,1,1-Trichloroethane	4.38	0.20	ug/L	4.00		110	79-123			
1,1-Dichloropropene	4.68	0.10	ug/L	4.00		117	80-127			
Carbon tetrachloride	4.62	0.20	ug/L	4.00		115	53-137			
1,2-Dichloroethane	4.30	0.20	ug/L	4.00		107	75-123			
Benzene	4.27	0.20	ug/L	4.00		107	80-120			
Trichloroethene	4.32	0.20	ug/L	4.00		108	80-120			



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### Volatile Organic Compounds - Quality Control

#### Batch BJF0165 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BJF0165-BS1)</b>		Prepared: 07-Jun-2021 Analyzed: 07-Jun-2021 17:14								
1,2-Dichloropropane	4.11	0.20	ug/L	4.00		103	80-120			
Bromodichloromethane	4.12	0.20	ug/L	4.00		103	80-121			
Dibromomethane	4.29	0.20	ug/L	4.00		107	80-120			
2-Chloroethyl vinyl ether	3.13	1.00	ug/L	4.00		78.2	64-120			
4-Methyl-2-Pentanone	18.8	2.50	ug/L	20.0		94.2	67-133			
cis-1,3-Dichloropropene	3.88	0.20	ug/L	4.00		97.1	80-124			
Toluene	4.28	0.20	ug/L	4.00		107	80-120			
trans-1,3-Dichloropropene	3.83	0.20	ug/L	4.00		95.7	71-127			
2-Hexanone	18.6	5.00	ug/L	20.0		92.9	69-133			
1,1,2-Trichloroethane	4.11	0.20	ug/L	4.00		103	80-121			
1,3-Dichloropropane	4.35	0.10	ug/L	4.00		109	80-120			
Tetrachloroethene	4.70	0.20	ug/L	4.00		118	80-120			
Dibromochloromethane	4.17	0.20	ug/L	4.00		104	65-135			
1,2-Dibromoethane	3.92	0.10	ug/L	4.00		98.0	80-121			
Chlorobenzene	4.37	0.20	ug/L	4.00		109	80-120			
Ethylbenzene	4.47	0.20	ug/L	4.00		112	80-120			
1,1,1,2-Tetrachloroethane	4.10	0.20	ug/L	4.00		103	80-120			
m,p-Xylene	9.16	0.40	ug/L	8.00		114	80-121			
o-Xylene	3.83	0.20	ug/L	4.00		95.8	80-121			
Xylenes, total	13.0	0.60	ug/L	12.0		108	76-127			
Styrene	3.78	0.20	ug/L	4.00		94.5	80-124			
Bromoform	3.71	0.20	ug/L	4.00		92.8	51-134			
1,1,2,2-Tetrachloroethane	4.15	0.20	ug/L	4.00		104	77-123			
1,2,3-Trichloropropane	4.35	0.25	ug/L	4.00		109	76-125			
trans-1,4-Dichloro 2-Butene	3.36	1.00	ug/L	4.00		83.9	55-129			
n-Propylbenzene	4.80	0.20	ug/L	4.00		120	78-130			
Bromobenzene	4.32	0.20	ug/L	4.00		108	80-120			
Isopropyl Benzene	4.62	0.20	ug/L	4.00		116	80-128			
2-Chlorotoluene	4.54	0.10	ug/L	4.00		113	78-122			
4-Chlorotoluene	4.13	0.20	ug/L	4.00		103	80-121			
t-Butylbenzene	4.81	0.20	ug/L	4.00		120	78-125			
1,3,5-Trimethylbenzene	4.80	0.20	ug/L	4.00		120	80-129			
1,2,4-Trimethylbenzene	4.59	0.20	ug/L	4.00		115	80-127			
s-Butylbenzene	5.10	0.20	ug/L	4.00		127	78-129			
4-Isopropyl Toluene	4.76	0.20	ug/L	4.00		119	79-130			





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### Volatile Organic Compounds - Quality Control

#### Batch BJF0165 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BJF0165-BS1)</b>										
					Prepared: 07-Jun-2021		Analyzed: 07-Jun-2021 17:14			
1,3-Dichlorobenzene	4.45	0.20	ug/L	4.00		111	80-120			
1,4-Dichlorobenzene	4.39	0.20	ug/L	4.00		110	80-120			
n-Butylbenzene	4.93	0.20	ug/L	4.00		123	74-129			
1,2-Dichlorobenzene	4.44	0.20	ug/L	4.00		111	80-120			
1,2-Dibromo-3-chloropropane	4.21	0.50	ug/L	4.00		105	62-123			
1,2,4-Trichlorobenzene	4.10	0.50	ug/L	4.00		103	64-124			
Hexachloro-1,3-Butadiene	7.05	0.50	ug/L	4.00		176	58-123			*
Naphthalene	3.10	0.50	ug/L	4.00		77.6	50-134			
1,2,3-Trichlorobenzene	4.05	0.50	ug/L	4.00		101	49-133			
Dichlorodifluoromethane	5.73	0.20	ug/L	4.00		143	48-147			
Surrogate: 1,2-Dichloroethane-d4	5.13		ug/L	5.00		103	80-129			
Surrogate: Toluene-d8	5.00		ug/L	5.00		100	80-120			
Surrogate: 4-Bromofluorobenzene	5.00		ug/L	5.00		100	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.07		ug/L	5.00		101	80-120			
<b>LCS Dup (BJF0165-BSD1)</b>										
					Prepared: 07-Jun-2021		Analyzed: 07-Jun-2021 17:35			
Chloromethane	4.24	0.50	ug/L	4.00		106	60-138	1.57	30	
Vinyl Chloride	4.61	0.10	ug/L	4.00		115	66-133	1.71	30	
Bromomethane	4.33	1.00	ug/L	4.00		108	72-131	2.74	30	
Chloroethane	4.52	0.20	ug/L	4.00		113	60-155	2.47	30	
Trichlorofluoromethane	4.40	0.20	ug/L	4.00		110	62-141	18.00	30	
Acrolein	20.1	5.00	ug/L	20.0		101	52-190	1.52	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	4.30	0.20	ug/L	4.00		108	76-129	14.30	30	
Acetone	21.3	5.00	ug/L	20.0		106	58-142	0.89	30	
1,1-Dichloroethene	4.41	0.20	ug/L	4.00		110	69-135	5.50	30	
Iodomethane	3.88	1.00	ug/L	4.00		96.9	56-147	2.49	30	
Methylene Chloride	4.29	1.00	ug/L	4.00		107	65-135	2.08	30	
Acrylonitrile	2.98	1.00	ug/L	4.00		74.4	64-134	4.88	30	
Carbon Disulfide	3.88	0.20	ug/L	4.00		97.0	78-125	5.44	30	
trans-1,2-Dichloroethene	4.27	0.20	ug/L	4.00		107	78-128	0.12	30	
Vinyl Acetate	3.31	0.20	ug/L	4.00		82.6	55-138	3.64	30	
1,1-Dichloroethane	4.30	0.20	ug/L	4.00		108	76-124	3.35	30	
2-Butanone	19.5	5.00	ug/L	20.0		97.3	61-140	3.99	30	
2,2-Dichloropropane	4.42	0.20	ug/L	4.00		111	66-147	0.93	30	
cis-1,2-Dichloroethene	4.28	0.20	ug/L	4.00		107	80-121	1.88	30	



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### Volatile Organic Compounds - Quality Control

#### Batch BJF0165 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BJF0165-BSD1)</b>		Prepared: 07-Jun-2021 Analyzed: 07-Jun-2021 17:35								
Chloroform	4.31	0.20	ug/L	4.00		108	80-122	3.92	30	
Bromochloromethane	4.46	0.20	ug/L	4.00		111	80-121	4.09	30	
1,1,1-Trichloroethane	4.32	0.20	ug/L	4.00		108	79-123	1.44	30	
1,1-Dichloropropene	4.50	0.10	ug/L	4.00		113	80-127	3.92	30	
Carbon tetrachloride	4.41	0.20	ug/L	4.00		110	53-137	4.47	30	
1,2-Dichloroethane	4.26	0.20	ug/L	4.00		107	75-123	0.82	30	
Benzene	4.46	0.20	ug/L	4.00		112	80-120	4.37	30	
Trichloroethene	4.38	0.20	ug/L	4.00		109	80-120	1.40	30	
1,2-Dichloropropane	4.29	0.20	ug/L	4.00		107	80-120	4.39	30	
Bromodichloromethane	4.28	0.20	ug/L	4.00		107	80-121	3.91	30	
Dibromomethane	4.47	0.20	ug/L	4.00		112	80-120	4.01	30	
2-Chloroethyl vinyl ether	3.23	1.00	ug/L	4.00		80.8	64-120	3.31	30	
4-Methyl-2-Pentanone	20.6	2.50	ug/L	20.0		103	67-133	9.04	30	
cis-1,3-Dichloropropene	4.05	0.20	ug/L	4.00		101	80-124	4.22	30	
Toluene	4.40	0.20	ug/L	4.00		110	80-120	2.60	30	
trans-1,3-Dichloropropene	4.03	0.20	ug/L	4.00		101	71-127	5.12	30	
2-Hexanone	19.4	5.00	ug/L	20.0		96.9	69-133	4.22	30	
1,1,2-Trichloroethane	4.32	0.20	ug/L	4.00		108	80-121	4.99	30	
1,3-Dichloropropane	4.54	0.10	ug/L	4.00		113	80-120	4.29	30	
Tetrachloroethene	4.53	0.20	ug/L	4.00		113	80-120	3.72	30	
Dibromochloromethane	4.36	0.20	ug/L	4.00		109	65-135	4.54	30	
1,2-Dibromoethane	4.01	0.10	ug/L	4.00		100	80-121	2.35	30	
Chlorobenzene	4.41	0.20	ug/L	4.00		110	80-120	0.81	30	
Ethylbenzene	4.50	0.20	ug/L	4.00		113	80-120	0.66	30	
1,1,1,2-Tetrachloroethane	4.38	0.20	ug/L	4.00		110	80-120	6.60	30	
m,p-Xylene	9.39	0.40	ug/L	8.00		117	80-121	2.45	30	
o-Xylene	4.03	0.20	ug/L	4.00		101	80-121	5.12	30	
Xylenes, total	13.4	0.60	ug/L	12.0		112	76-127	3.25	30	
Styrene	3.96	0.20	ug/L	4.00		99.0	80-124	4.58	30	
Bromoform	3.70	0.20	ug/L	4.00		92.5	51-134	0.31	30	
1,1,2,2-Tetrachloroethane	4.38	0.20	ug/L	4.00		110	77-123	5.39	30	
1,2,3-Trichloropropane	4.49	0.25	ug/L	4.00		112	76-125	3.22	30	
trans-1,4-Dichloro 2-Butene	3.35	1.00	ug/L	4.00		83.8	55-129	0.15	30	
n-Propylbenzene	4.79	0.20	ug/L	4.00		120	78-130	0.24	30	
Bromobenzene	4.37	0.20	ug/L	4.00		109	80-120	1.18	30	



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### Volatile Organic Compounds - Quality Control

#### Batch BJF0165 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BJF0165-BSD1)</b>		Prepared: 07-Jun-2021 Analyzed: 07-Jun-2021 17:35								
Isopropyl Benzene	4.63	0.20	ug/L	4.00		116	80-128	0.21	30	
2-Chlorotoluene	4.61	0.10	ug/L	4.00		115	78-122	1.56	30	
4-Chlorotoluene	4.13	0.20	ug/L	4.00		103	80-121	0.15	30	
t-Butylbenzene	4.65	0.20	ug/L	4.00		116	78-125	3.31	30	
1,3,5-Trimethylbenzene	4.81	0.20	ug/L	4.00		120	80-129	0.36	30	
1,2,4-Trimethylbenzene	4.66	0.20	ug/L	4.00		116	80-127	1.57	30	
s-Butylbenzene	4.84	0.20	ug/L	4.00		121	78-129	5.18	30	
4-Isopropyl Toluene	4.62	0.20	ug/L	4.00		115	79-130	2.92	30	
1,3-Dichlorobenzene	4.46	0.20	ug/L	4.00		111	80-120	0.09	30	
1,4-Dichlorobenzene	4.38	0.20	ug/L	4.00		109	80-120	0.31	30	
n-Butylbenzene	4.54	0.20	ug/L	4.00		113	74-129	8.28	30	
1,2-Dichlorobenzene	4.47	0.20	ug/L	4.00		112	80-120	0.59	30	
1,2-Dibromo-3-chloropropane	4.13	0.50	ug/L	4.00		103	62-123	1.92	30	
1,2,4-Trichlorobenzene	4.09	0.50	ug/L	4.00		102	64-124	0.31	30	
Hexachloro-1,3-Butadiene	5.68	0.50	ug/L	4.00		142	58-123	21.60	30	*
Naphthalene	3.17	0.50	ug/L	4.00		79.2	50-134	1.99	30	
1,2,3-Trichlorobenzene	4.06	0.50	ug/L	4.00		101	49-133	0.25	30	
Dichlorodifluoromethane	4.60	0.20	ug/L	4.00		115	48-147	22.00	30	
Surrogate: 1,2-Dichloroethane-d4	4.98		ug/L	5.00		99.5	80-129			
Surrogate: Toluene-d8	5.06		ug/L	5.00		101	80-120			
Surrogate: 4-Bromofluorobenzene	5.07		ug/L	5.00		101	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.04		ug/L	5.00		101	80-120			
<b>Matrix Spike (BJF0165-MS1)</b>		Source: 21F0068-03 Prepared: 07-Jun-2021 Analyzed: 08-Jun-2021 01:20								
Chloromethane	8.84	0.50	ug/L	10.0	ND	88.4	60-138			
Vinyl Chloride	9.48	0.10	ug/L	10.0	ND	94.8	66-133			
Bromomethane	8.75	1.00	ug/L	10.0	ND	87.5	72-131			
Chloroethane	10.9	0.20	ug/L	10.0	ND	109	60-155			
Trichlorofluoromethane	11.2	0.20	ug/L	10.0	ND	112	62-141			
Acrolein	47.4	5.00	ug/L	50.0	ND	94.8	52-190			
1,1,2-Trichloro-1,2,2-Trifluoroethane	10.4	0.20	ug/L	10.0	ND	104	76-129			
Acetone	60.7	5.00	ug/L	50.0	ND	121	58-142			
1,1-Dichloroethene	9.87	0.20	ug/L	10.0	ND	98.7	69-135			
Iodomethane	8.00	1.00	ug/L	10.0	ND	80.0	56-147			
Methylene Chloride	9.06	1.00	ug/L	10.0	ND	90.6	65-135			



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### Volatile Organic Compounds - Quality Control

#### Batch BJJ0165 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Matrix Spike (BJJ0165-MS1)</b>		<b>Source: 21F0068-03</b>		<b>Prepared: 07-Jun-2021</b>		<b>Analyzed: 08-Jun-2021 01:20</b>				
Acrylonitrile	8.75	1.00	ug/L	10.0	ND	87.5	64-134			
Carbon Disulfide	8.07	0.20	ug/L	10.0	ND	80.7	78-125			
trans-1,2-Dichloroethene	8.90	0.20	ug/L	10.0	ND	89.0	78-128			
Vinyl Acetate	5.31	0.20	ug/L	10.0	ND	53.1	55-138			*
1,1-Dichloroethane	8.85	0.20	ug/L	10.0	ND	88.5	76-124			
2-Butanone	57.8	5.00	ug/L	50.0	ND	116	61-140			
2,2-Dichloropropane	7.52	0.20	ug/L	10.0	ND	75.2	66-147			
cis-1,2-Dichloroethene	8.66	0.20	ug/L	10.0	ND	86.6	80-121			
Chloroform	9.10	0.20	ug/L	10.0	ND	91.0	80-122			
Bromochloromethane	9.52	0.20	ug/L	10.0	ND	95.2	80-121			
1,1,1-Trichloroethane	9.50	0.20	ug/L	10.0	ND	95.0	79-123			
1,1-Dichloropropene	9.04	0.10	ug/L	10.0	ND	90.4	80-127			
Carbon tetrachloride	9.63	0.20	ug/L	10.0	ND	96.3	53-137			
1,2-Dichloroethane	9.18	0.20	ug/L	10.0	ND	91.8	75-123			
Benzene	8.97	0.20	ug/L	10.0	ND	89.7	80-120			
Trichloroethene	8.33	0.20	ug/L	10.0	ND	83.3	80-120			
1,2-Dichloropropane	8.49	0.20	ug/L	10.0	ND	84.9	80-120			
Bromodichloromethane	8.77	0.20	ug/L	10.0	ND	87.7	80-121			
Dibromomethane	9.70	0.20	ug/L	10.0	ND	97.0	80-120			
2-Chloroethyl vinyl ether	ND	1.00	ug/L	10.0	ND		64-120			*, U
4-Methyl-2-Pentanone	53.7	2.50	ug/L	50.0	ND	107	67-133			
cis-1,3-Dichloropropene	7.26	0.20	ug/L	10.0	ND	72.6	80-124			*
Toluene	8.89	0.20	ug/L	10.0	ND	88.9	80-120			
trans-1,3-Dichloropropene	8.22	0.20	ug/L	10.0	ND	82.2	71-127			
2-Hexanone	53.1	5.00	ug/L	50.0	ND	106	69-133			
1,1,2-Trichloroethane	9.79	0.20	ug/L	10.0	ND	97.9	80-121			
1,3-Dichloropropane	9.76	0.10	ug/L	10.0	ND	97.6	80-120			
Tetrachloroethene	9.36	0.20	ug/L	10.0	ND	93.6	80-120			
Dibromochloromethane	9.14	0.20	ug/L	10.0	ND	91.4	65-135			
1,2-Dibromoethane	8.85	0.10	ug/L	10.0	ND	88.5	80-121			
Chlorobenzene	8.78	0.20	ug/L	10.0	ND	87.8	80-120			
Ethylbenzene	9.34	0.20	ug/L	10.0	ND	93.4	80-120			
1,1,1,2-Tetrachloroethane	8.98	0.20	ug/L	10.0	ND	89.8	80-120			
m,p-Xylene	18.8	0.40	ug/L	20.0	ND	94.0	80-121			
o-Xylene	7.90	0.20	ug/L	10.0	ND	79.0	80-121			*



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## Volatile Organic Compounds - Quality Control

### Batch BJJ0165 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Matrix Spike (BJJ0165-MS1)</b>		<b>Source: 21F0068-03</b>		Prepared: 07-Jun-2021		Analyzed: 08-Jun-2021 01:20				
Xylenes, total	26.7	0.60	ug/L	30.0	ND	89.0	76-127			
Styrene	8.14	0.20	ug/L	10.0	ND	81.4	80-124			
Bromoform	8.03	0.20	ug/L	10.0	ND	80.3	51-134			
1,1,2,2-Tetrachloroethane	10.3	0.20	ug/L	10.0	ND	103	77-123			
1,2,3-Trichloropropane	10.4	0.25	ug/L	10.0	ND	104	76-125			
trans-1,4-Dichloro 2-Butene	6.67	1.00	ug/L	10.0	ND	66.7	55-129			
n-Propylbenzene	9.25	0.20	ug/L	10.0	ND	92.5	78-130			
Bromobenzene	8.56	0.20	ug/L	10.0	ND	85.6	80-120			
Isopropyl Benzene	9.01	0.20	ug/L	10.0	ND	90.1	80-128			
2-Chlorotoluene	8.74	0.10	ug/L	10.0	ND	87.4	78-122			
4-Chlorotoluene	8.16	0.20	ug/L	10.0	ND	81.6	80-121			
t-Butylbenzene	9.12	0.20	ug/L	10.0	ND	91.2	78-125			
1,3,5-Trimethylbenzene	9.35	0.20	ug/L	10.0	ND	93.5	80-129			
1,2,4-Trimethylbenzene	8.91	0.20	ug/L	10.0	ND	89.1	80-127			
s-Butylbenzene	9.45	0.20	ug/L	10.0	ND	94.5	78-129			
4-Isopropyl Toluene	8.47	0.20	ug/L	10.0	ND	84.7	79-130			
1,3-Dichlorobenzene	8.49	0.20	ug/L	10.0	ND	84.9	80-120			
1,4-Dichlorobenzene	8.22	0.20	ug/L	10.0	ND	82.2	80-120			
n-Butylbenzene	8.03	0.20	ug/L	10.0	ND	80.3	74-129			
1,2-Dichlorobenzene	8.80	0.20	ug/L	10.0	ND	88.0	80-120			
1,2-Dibromo-3-chloropropane	10.6	0.50	ug/L	10.0	ND	106	62-123			
1,2,4-Trichlorobenzene	6.84	0.50	ug/L	10.0	ND	68.4	64-124			
Hexachloro-1,3-Butadiene	6.51	0.50	ug/L	10.0	ND	65.1	58-123			
Naphthalene	7.83	0.50	ug/L	10.0	ND	78.3	50-134			
1,2,3-Trichlorobenzene	7.61	0.50	ug/L	10.0	ND	76.1	49-133			
Dichlorodifluoromethane	11.7	0.20	ug/L	10.0	ND	117	48-147			
Surrogate: 1,2-Dichloroethane-d4	5.70		ug/L	5.00	5.98	114	80-129			
Surrogate: Toluene-d8	4.93		ug/L	5.00	4.80	98.6	80-120			
Surrogate: 4-Bromofluorobenzene	4.79		ug/L	5.00	4.41	95.8	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.08		ug/L	5.00	5.09	102	80-120			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

<b>Matrix Spike Dup (BJJ0165-MSD1)</b>		<b>Source: 21F0068-03</b>		Prepared: 07-Jun-2021		Analyzed: 08-Jun-2021 01:41				
Chloromethane	9.13	0.50	ug/L	10.0	ND	91.3	60-138	3.20	30	
Vinyl Chloride	9.75	0.10	ug/L	10.0	ND	97.5	66-133	2.79	30	



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### Volatile Organic Compounds - Quality Control

#### Batch BJF0165 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Matrix Spike Dup (BJF0165-MSD1)</b>		<b>Source: 21F0068-03</b>		<b>Prepared: 07-Jun-2021</b>		<b>Analyzed: 08-Jun-2021 01:41</b>				
Bromomethane	9.01	1.00	ug/L	10.0	ND	90.1	72-131	2.90	30	
Chloroethane	9.85	0.20	ug/L	10.0	ND	98.5	60-155	9.82	30	
Trichlorofluoromethane	11.2	0.20	ug/L	10.0	ND	112	62-141	0.02	30	
Acrolein	46.3	5.00	ug/L	50.0	ND	92.5	52-190	2.42	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	10.4	0.20	ug/L	10.0	ND	104	76-129	0.07	30	
Acetone	58.5	5.00	ug/L	50.0	ND	117	58-142	3.79	30	
1,1-Dichloroethene	9.95	0.20	ug/L	10.0	ND	99.5	69-135	0.84	30	
Iodomethane	7.94	1.00	ug/L	10.0	ND	79.4	56-147	0.75	30	
Methylene Chloride	9.02	1.00	ug/L	10.0	ND	90.2	65-135	0.35	30	
Acrylonitrile	8.81	1.00	ug/L	10.0	ND	88.1	64-134	0.72	30	
Carbon Disulfide	8.28	0.20	ug/L	10.0	ND	82.8	78-125	2.56	30	
trans-1,2-Dichloroethene	8.92	0.20	ug/L	10.0	ND	89.2	78-128	0.15	30	
Vinyl Acetate	5.19	0.20	ug/L	10.0	ND	51.9	55-138	2.38	30	*
1,1-Dichloroethane	8.95	0.20	ug/L	10.0	ND	89.5	76-124	1.10	30	
2-Butanone	56.0	5.00	ug/L	50.0	ND	112	61-140	3.07	30	
2,2-Dichloropropane	7.26	0.20	ug/L	10.0	ND	72.6	66-147	3.44	30	
cis-1,2-Dichloroethene	8.74	0.20	ug/L	10.0	ND	87.4	80-121	0.92	30	
Chloroform	9.01	0.20	ug/L	10.0	ND	90.1	80-122	0.98	30	
Bromochloromethane	9.51	0.20	ug/L	10.0	ND	95.1	80-121	0.06	30	
1,1,1-Trichloroethane	9.54	0.20	ug/L	10.0	ND	95.4	79-123	0.42	30	
1,1-Dichloropropene	9.36	0.10	ug/L	10.0	ND	93.6	80-127	3.51	30	
Carbon tetrachloride	9.67	0.20	ug/L	10.0	ND	96.7	53-137	0.46	30	
1,2-Dichloroethane	9.51	0.20	ug/L	10.0	ND	95.1	75-123	3.48	30	
Benzene	9.15	0.20	ug/L	10.0	ND	91.5	80-120	1.97	30	
Trichloroethene	8.59	0.20	ug/L	10.0	ND	85.9	80-120	3.17	30	
1,2-Dichloropropane	8.80	0.20	ug/L	10.0	ND	88.0	80-120	3.69	30	
Bromodichloromethane	9.09	0.20	ug/L	10.0	ND	90.9	80-121	3.65	30	
Dibromomethane	9.75	0.20	ug/L	10.0	ND	97.5	80-120	0.52	30	
2-Chloroethyl vinyl ether	ND	1.00	ug/L	10.0	ND		64-120			*, U
4-Methyl-2-Pentanone	53.7	2.50	ug/L	50.0	ND	107	67-133	0.12	30	
cis-1,3-Dichloropropene	7.53	0.20	ug/L	10.0	ND	75.3	80-124	3.65	30	*
Toluene	9.06	0.20	ug/L	10.0	ND	90.6	80-120	1.93	30	
trans-1,3-Dichloropropene	8.57	0.20	ug/L	10.0	ND	85.7	71-127	4.26	30	
2-Hexanone	54.1	5.00	ug/L	50.0	ND	108	69-133	1.72	30	
1,1,2-Trichloroethane	9.96	0.20	ug/L	10.0	ND	99.6	80-121	1.71	30	



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### Volatile Organic Compounds - Quality Control

#### Batch BJF0165 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Matrix Spike Dup (BJF0165-MSD1)</b>		<b>Source: 21F0068-03</b>		<b>Prepared: 07-Jun-2021</b>		<b>Analyzed: 08-Jun-2021 01:41</b>				
1,3-Dichloropropane	9.86	0.10	ug/L	10.0	ND	98.6	80-120	1.10	30	
Tetrachloroethene	9.14	0.20	ug/L	10.0	ND	91.4	80-120	2.38	30	
Dibromochloromethane	9.32	0.20	ug/L	10.0	ND	93.2	65-135	1.98	30	
1,2-Dibromoethane	9.06	0.10	ug/L	10.0	ND	90.6	80-121	2.33	30	
Chlorobenzene	8.97	0.20	ug/L	10.0	ND	89.7	80-120	2.12	30	
Ethylbenzene	9.36	0.20	ug/L	10.0	ND	93.6	80-120	0.27	30	
1,1,1,2-Tetrachloroethane	8.94	0.20	ug/L	10.0	ND	89.4	80-120	0.39	30	
m,p-Xylene	18.9	0.40	ug/L	20.0	ND	94.4	80-121	0.38	30	
o-Xylene	7.94	0.20	ug/L	10.0	ND	79.4	80-121	0.48	30	*
Xylenes, total	26.8	0.60	ug/L	30.0	ND	89.4	76-127	0.41	30	
Styrene	8.14	0.20	ug/L	10.0	ND	81.4	80-124	0.05	30	
Bromoform	8.30	0.20	ug/L	10.0	ND	83.0	51-134	3.34	30	
1,1,2,2-Tetrachloroethane	10.5	0.20	ug/L	10.0	ND	105	77-123	2.06	30	
1,2,3-Trichloropropane	10.4	0.25	ug/L	10.0	ND	104	76-125	0.10	30	
trans-1,4-Dichloro 2-Butene	6.83	1.00	ug/L	10.0	ND	68.3	55-129	2.44	30	
n-Propylbenzene	9.44	0.20	ug/L	10.0	ND	94.4	78-130	2.10	30	
Bromobenzene	8.65	0.20	ug/L	10.0	ND	86.5	80-120	1.03	30	
Isopropyl Benzene	9.34	0.20	ug/L	10.0	ND	93.4	80-128	3.63	30	
2-Chlorotoluene	8.96	0.10	ug/L	10.0	ND	89.6	78-122	2.42	30	
4-Chlorotoluene	8.16	0.20	ug/L	10.0	ND	81.6	80-121	0.04	30	
t-Butylbenzene	9.32	0.20	ug/L	10.0	ND	93.2	78-125	2.17	30	
1,3,5-Trimethylbenzene	9.47	0.20	ug/L	10.0	ND	94.7	80-129	1.35	30	
1,2,4-Trimethylbenzene	9.09	0.20	ug/L	10.0	ND	90.9	80-127	2.05	30	
s-Butylbenzene	9.57	0.20	ug/L	10.0	ND	95.7	78-129	1.17	30	
4-Isopropyl Toluene	8.74	0.20	ug/L	10.0	ND	87.4	79-130	3.14	30	
1,3-Dichlorobenzene	8.72	0.20	ug/L	10.0	ND	87.2	80-120	2.66	30	
1,4-Dichlorobenzene	8.40	0.20	ug/L	10.0	ND	84.0	80-120	2.14	30	
n-Butylbenzene	8.16	0.20	ug/L	10.0	ND	81.6	74-129	1.61	30	
1,2-Dichlorobenzene	8.80	0.20	ug/L	10.0	ND	88.0	80-120	0.01	30	
1,2-Dibromo-3-chloropropane	10.1	0.50	ug/L	10.0	ND	101	62-123	5.27	30	
1,2,4-Trichlorobenzene	6.91	0.50	ug/L	10.0	ND	69.1	64-124	1.07	30	
Hexachloro-1,3-Butadiene	7.14	0.50	ug/L	10.0	ND	71.4	58-123	9.18	30	
Naphthalene	7.75	0.50	ug/L	10.0	ND	77.5	50-134	1.06	30	
1,2,3-Trichlorobenzene	7.78	0.50	ug/L	10.0	ND	77.8	49-133	2.23	30	
Dichlorodifluoromethane	12.1	0.20	ug/L	10.0	ND	121	48-147	3.39	30	



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### Volatile Organic Compounds - Quality Control

#### Batch BJF0165 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Matrix Spike Dup (BJF0165-MSD1)</b>		<b>Source: 21F0068-03</b>		Prepared: 07-Jun-2021		Analyzed: 08-Jun-2021 01:41				
Surrogate: 1,2-Dichloroethane-d4	5.66		ug/L	5.00	5.98	113	80-129			
Surrogate: Toluene-d8	5.03		ug/L	5.00	4.80	101	80-120			
Surrogate: 4-Bromofluorobenzene	4.75		ug/L	5.00	4.41	95.0	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.01		ug/L	5.00	5.09	100	80-120			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.





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### Semivolatile Organic Compounds - SIM - Quality Control

#### Batch BJF0112 - EPA 3520C (Liq Liq)

Instrument: NT6 Analyst: JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BJF0112-BLK1)</b>				Prepared: 09-Jun-2021 Analyzed: 11-Jun-2021 13:30						
1,4-Dioxane	ND	0.4	ug/L							U
Surrogate: 1,4-Dioxane-d8	5.81		ug/L	10.0	58.1		33.6-120			
<b>LCS (BJF0112-BS1)</b>				Prepared: 09-Jun-2021 Analyzed: 11-Jun-2021 13:55						
1,4-Dioxane	4.8	0.4	ug/L	10.0	48.2		39.9-120			
Surrogate: 1,4-Dioxane-d8	5.75		ug/L	10.0	57.5		33.6-120			
<b>LCS Dup (BJF0112-BSD1)</b>				Prepared: 09-Jun-2021 Analyzed: 11-Jun-2021 14:21						
1,4-Dioxane	4.6	0.4	ug/L	10.0	45.6		39.9-120	5.69	30	
Surrogate: 1,4-Dioxane-d8	5.48		ug/L	10.0	54.8		33.6-120			
<b>Matrix Spike (BJF0112-MS1)</b>				Source: 21F0068-03 Prepared: 09-Jun-2021 Analyzed: 11-Jun-2021 18:06						
1,4-Dioxane	6.1	0.4	ug/L	10.0	1.8	43.2	35.1-120			
Surrogate: 1,4-Dioxane-d8	5.30		ug/L	10.0	5.17	53.0	33.6-120			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
<b>Matrix Spike Dup (BJF0112-MSD1)</b>				Source: 21F0068-03 Prepared: 09-Jun-2021 Analyzed: 11-Jun-2021 18:31						
1,4-Dioxane	5.9	0.4	ug/L	10.0	1.8	41.0	35.1-120	3.61	30	
Surrogate: 1,4-Dioxane-d8	5.05		ug/L	10.0	5.17	50.5	33.6-120			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										



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### Petroleum Hydrocarbons - Quality Control

#### Batch BJF0113 - EPA 3510C SepF

Instrument: FID4 Analyst: CTO

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BJF0113-BLK1)</b>		Prepared: 07-Jun-2021 Analyzed: 08-Jun-2021 12:43								
Gasoline Range Organics (Tol-C12)	ND	0.25	mg/L							U
Diesel Range Organics (C12-C24)	ND	0.50	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	1.00	mg/L							U
Surrogate: o-Terphenyl	0.223		mg/L	0.225		98.9	50-150			
Surrogate: n-Triacontane	0.213		mg/L	0.225		94.5	50-150			



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### Metals and Metallic Compounds - Quality Control

#### Batch BJF0380 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BJF0380-BLK1)</b> Prepared: 15-Jun-2021 Analyzed: 17-Jun-2021 16:44										
Barium	ND	0.500	mg/L							U
Beryllium	ND	0.0100	mg/L							U
Calcium	ND	0.500	mg/L							U
Chromium	ND	0.0100	mg/L							U
Copper	ND	0.0030	mg/L							U
Iron	ND	0.200	mg/L							U
Magnesium	ND	0.500	mg/L							U
Nickel	ND	0.0100	mg/L							U
Potassium	ND	0.500	mg/L							U
Sodium	ND	0.500	mg/L							U
Vanadium	ND	0.0030	mg/L							U
Zinc	ND	0.0200	mg/L							U
<b>Blank (BJF0380-BLK3)</b> Prepared: 15-Jun-2021 Analyzed: 24-Jun-2021 14:15										
Aluminum	ND	1.00	mg/L							U
Cobalt	ND	0.0100	mg/L							U
Manganese	ND	0.0100	mg/L							U
Silver	ND	0.0050	mg/L							U
<b>Blank (BJF0380-BLK5)</b> Prepared: 15-Jun-2021 Analyzed: 28-Jun-2021 14:05										
Cadmium	ND	0.0020	mg/L							U
<b>LCS (BJF0380-BS1)</b> Prepared: 15-Jun-2021 Analyzed: 17-Jun-2021 16:47										
Barium	2.16	0.500	mg/L	2.00		108	80-120			
Beryllium	0.533	0.0100	mg/L	0.500		107	80-120			
Calcium	9.98	0.500	mg/L	10.0		99.8	80-120			
Chromium	0.524	0.0100	mg/L	0.500		105	80-120			
Copper	0.509	0.0030	mg/L	0.500		102	80-120			
Iron	1.94	0.200	mg/L	2.00		96.9	80-120			
Magnesium	10.5	0.500	mg/L	10.0		105	80-120			
Nickel	0.529	0.0100	mg/L	0.500		106	80-120			
Potassium	10.1	0.500	mg/L	10.0		101	80-120			
Sodium	10.8	0.500	mg/L	10.0		108	80-120			
Vanadium	0.510	0.0030	mg/L	0.500		102	80-120			
Zinc	0.520	0.0200	mg/L	0.500		104	80-120			



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### Metals and Metallic Compounds - Quality Control

#### Batch BJF0380 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BJF0380-BS3)</b>		Prepared: 15-Jun-2021 Analyzed: 24-Jun-2021 14:18								
Aluminum	2.14	1.00	mg/L	2.00		107	80-120			
Cobalt	0.576	0.0100	mg/L	0.500		115	80-120			
Manganese	0.535	0.0100	mg/L	0.500		107	80-120			
Silver	0.533	0.0050	mg/L	0.500		107	80-120			
<b>LCS (BJF0380-BS5)</b>		Prepared: 15-Jun-2021 Analyzed: 28-Jun-2021 14:08								
Cadmium	0.571	0.0020	mg/L	0.500		114	80-120			
<b>Duplicate (BJF0380-DUP1)</b>		<b>Source: 21F0068-03</b>		Prepared: 15-Jun-2021 Analyzed: 17-Jun-2021 16:57						
Barium	ND	0.500	mg/L		ND					U
Beryllium	ND	0.0100	mg/L		ND					U
Calcium	112	0.500	mg/L		114			1.51	20	
Chromium	ND	0.0100	mg/L		ND					U
Copper	ND	0.0030	mg/L		ND					U
Iron	ND	0.200	mg/L		ND					U
Magnesium	68.9	0.500	mg/L		68.5			0.66	20	
Nickel	ND	0.0100	mg/L		ND					U
Potassium	3.66	0.500	mg/L		3.60			1.67	20	
Sodium	23.7	0.500	mg/L		23.9			0.87	20	
Vanadium	ND	0.0030	mg/L		ND					U
Zinc	ND	0.0200	mg/L		ND					U
<b>Duplicate (BJF0380-DUP3)</b>		<b>Source: 21F0068-03</b>		Prepared: 15-Jun-2021 Analyzed: 24-Jun-2021 14:28						
Aluminum	ND	1.00	mg/L		ND					U
Cobalt	ND	0.0100	mg/L		ND					U
Manganese	0.195	0.0100	mg/L		0.194			0.49	20	
Silver	ND	0.0050	mg/L		ND					U
<b>Duplicate (BJF0380-DUP5)</b>		<b>Source: 21F0068-03</b>		Prepared: 15-Jun-2021 Analyzed: 28-Jun-2021 14:19						
Cadmium	ND	0.0020	mg/L		ND					U
<b>Matrix Spike (BJF0380-MS1)</b>		<b>Source: 21F0068-03</b>		Prepared: 15-Jun-2021 Analyzed: 17-Jun-2021 17:03						
Barium	2.59	0.500	mg/L	2.00	ND	109	75-125			
Beryllium	0.533	0.0100	mg/L	0.500	ND	107	75-125			
Calcium	121	0.500	mg/L	10.0	114	73.4	75-125			HC
Chromium	0.531	0.0100	mg/L	0.500	ND	106	75-125			



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### Metals and Metallic Compounds - Quality Control

#### Batch BJF0380 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Matrix Spike (BJF0380-MS1)</b>		<b>Source: 21F0068-03</b>		Prepared: 15-Jun-2021		Analyzed: 17-Jun-2021 17:03				
Copper	0.502	0.0030	mg/L	0.500	ND	100	75-125			
Iron	2.00	0.200	mg/L	2.00	ND	96.4	75-125			
Magnesium	75.3	0.500	mg/L	10.0	68.5	68.0	75-125			HC
Nickel	0.519	0.0100	mg/L	0.500	ND	103	75-125			
Potassium	14.0	0.500	mg/L	10.0	3.60	104	75-125			
Sodium	35.1	0.500	mg/L	10.0	23.9	112	75-125			
Vanadium	0.507	0.0030	mg/L	0.500	ND	101	75-125			
Zinc	0.511	0.0200	mg/L	0.500	ND	102	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

<b>Matrix Spike (BJF0380-MS3)</b>		<b>Source: 21F0068-03</b>		Prepared: 15-Jun-2021		Analyzed: 24-Jun-2021 14:34				
Aluminum	2.18	1.00	mg/L	2.00	ND	109	75-125			
Cobalt	0.514	0.0100	mg/L	0.500	ND	103	75-125			
Manganese	0.729	0.0100	mg/L	0.500	0.194	107	75-125			
Silver	0.508	0.0050	mg/L	0.500	ND	102	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

<b>Matrix Spike (BJF0380-MS5)</b>		<b>Source: 21F0068-03</b>		Prepared: 15-Jun-2021		Analyzed: 28-Jun-2021 14:24				
Cadmium	0.569	0.0020	mg/L	0.500	ND	114	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

<b>Matrix Spike Dup (BJF0380-MSD1)</b>		<b>Source: 21F0068-03</b>		Prepared: 15-Jun-2021		Analyzed: 17-Jun-2021 17:08				
Barium	2.60	0.500	mg/L	2.00	ND	110	75-125	0.17	20	
Beryllium	0.527	0.0100	mg/L	0.500	ND	105	75-125	1.09	20	
Calcium	124	0.500	mg/L	10.0	114	107	75-125	2.74	20	
Chromium	0.531	0.0100	mg/L	0.500	ND	106	75-125	0.06	20	
Copper	0.501	0.0030	mg/L	0.500	ND	100	75-125	0.27	20	
Iron	2.00	0.200	mg/L	2.00	ND	96.3	75-125	0.05	20	
Magnesium	77.1	0.500	mg/L	10.0	68.5	86.5	75-125	2.43	20	
Nickel	0.514	0.0100	mg/L	0.500	ND	102	75-125	1.05	20	
Potassium	14.0	0.500	mg/L	10.0	3.60	104	75-125	0.41	20	
Sodium	35.7	0.500	mg/L	10.0	23.9	118	75-125	1.75	20	
Vanadium	0.504	0.0030	mg/L	0.500	ND	101	75-125	0.71	20	
Zinc	0.510	0.0200	mg/L	0.500	ND	102	75-125	0.15	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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### Metals and Metallic Compounds - Quality Control

#### Batch BJF0380 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Matrix Spike Dup (BJF0380-MSD3)</b>		<b>Source: 21F0068-03</b>		Prepared: 15-Jun-2021		Analyzed: 24-Jun-2021 14:38				
Aluminum	2.20	1.00	mg/L	2.00	ND	110	75-125	1.06	20	
Cobalt	0.508	0.0100	mg/L	0.500	ND	102	75-125	1.12	20	
Manganese	0.730	0.0100	mg/L	0.500	0.194	107	75-125	0.07	20	
Silver	0.516	0.0050	mg/L	0.500	ND	103	75-125	1.45	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

<b>Matrix Spike Dup (BJF0380-MSD5)</b>		<b>Source: 21F0068-03</b>		Prepared: 15-Jun-2021		Analyzed: 28-Jun-2021 14:29				
Cadmium	0.560	0.0020	mg/L	0.500	ND	112	75-125	1.59	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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### Metals and Metallic Compounds - Quality Control

#### Batch BJJ0485 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BJJ0485-BLK1)</b>			Prepared: 17-Jun-2021 Analyzed: 23-Jun-2021 17:01								
Antimony	121	ND	0.00300	mg/L							U
Antimony	123	ND	0.00300	mg/L							U
Lead	208	ND	0.0100	mg/L							U
Thallium	205	ND	0.00200	mg/L							U
Arsenic	75a	ND	0.00300	mg/L							U
Selenium	78	ND	0.0250	mg/L							U
<b>LCS (BJJ0485-BS1)</b>			Prepared: 17-Jun-2021 Analyzed: 23-Jun-2021 17:06								
Antimony	121	0.0236	0.00300	mg/L	0.0250		94.2	80-120			
Antimony	123	0.0239	0.00300	mg/L	0.0250		95.8	80-120			
Lead	208	0.0251	0.0100	mg/L	0.0250		100	80-120			
Thallium	205	0.0260	0.00200	mg/L	0.0250		104	80-120			
Arsenic	75a	0.0248	0.00300	mg/L	0.0250		99.2	80-120			
Selenium	78	0.0825	0.0250	mg/L	0.0800		103	80-120			
<b>Duplicate (BJJ0485-DUP1)</b>			<b>Source: 21F0068-03</b>		Prepared: 17-Jun-2021 Analyzed: 23-Jun-2021 23:05						
Antimony	121	ND	0.00300	mg/L		ND					L, U
Lead	208	ND	0.0100	mg/L		ND					U
Thallium	205	ND	0.00200	mg/L		ND					U
Arsenic	75a	ND	0.00300	mg/L		ND					U
Selenium	78	ND	0.0250	mg/L		ND					U
<b>Matrix Spike (BJJ0485-MS1)</b>			<b>Source: 21F0068-03</b>		Prepared: 17-Jun-2021 Analyzed: 23-Jun-2021 23:10						
Antimony	121	0.0225	0.00300	mg/L	0.0250	ND	89.9	75-125			
Lead	208	0.0207	0.0100	mg/L	0.0250	ND	82.8	75-125			
Thallium	205	0.0211	0.00200	mg/L	0.0250	ND	84.5	75-125			
Arsenic	75a	0.0245	0.00300	mg/L	0.0250	ND	97.9	75-125			
Selenium	78	0.0784	0.0250	mg/L	0.0800	ND	98.0	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike Dup (BJJ0485-MSD1)</b>			<b>Source: 21F0068-03</b>		Prepared: 17-Jun-2021 Analyzed: 23-Jun-2021 23:15						
Antimony	121	0.0227	0.00300	mg/L	0.0250	ND	90.6	75-125	0.78	20	
Lead	208	0.0211	0.0100	mg/L	0.0250	ND	84.3	75-125	1.86	20	
Thallium	205	0.0239	0.00200	mg/L	0.0250	ND	95.5	75-125	12.20	20	
Arsenic	75a	0.0255	0.00300	mg/L	0.0250	ND	102	75-125	4.08	20	
Selenium	78	0.0798	0.0250	mg/L	0.0800	ND	99.8	75-125	1.82	20	



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### Metals and Metallic Compounds - Quality Control

#### Batch BJF0485 - REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Matrix Spike Dup (BJF0485-MSD1)

Source: 21F0068-03

Prepared: 17-Jun-2021

Analyzed: 23-Jun-2021 23:15

Recovery limits for target analytes in MS/MSD QC samples are advisory only.





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### Metals and Metallic Compounds - Quality Control

#### Batch BJF0563 - TWM EPA 7470A

Instrument: HYDRA Analyst: CDE

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BJF0563-BLK1)</b>					Prepared: 21-Jun-2021 Analyzed: 30-Jun-2021 21:12					
Mercury	ND	0.00100	mg/L							U
<b>LCS (BJF0563-BS1)</b>					Prepared: 21-Jun-2021 Analyzed: 30-Jun-2021 21:14					
Mercury	0.00244	0.00100	mg/L	0.00200		122	80-120			*
<b>Duplicate (BJF0563-DUP1)</b>					Prepared: 21-Jun-2021 Analyzed: 30-Jun-2021 21:28					
Mercury	ND	0.00100	mg/L		ND					U
<b>Matrix Spike (BJF0563-MS1)</b>					Prepared: 21-Jun-2021 Analyzed: 30-Jun-2021 21:30					
Mercury	0.00121	0.00100	mg/L	0.00100	ND	115	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

<b>Matrix Spike Dup (BJF0563-MSD1)</b>					Prepared: 21-Jun-2021 Analyzed: 30-Jun-2021 21:33					
Mercury	0.00121	0.00100	mg/L	0.00100	ND	115	75-125	0.05	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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13-Jul-2021 12:13

## Certified Analyses included in this Report

Analyte	Certifications
<b>EPA 200.8 in Water</b>	
Lead-208	NELAP,WA-DW,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP
Antimony-121	NELAP,WA-DW,DoD-ELAP
Antimony-121	NELAP,WADOE,DoD-ELAP
Thallium-205	NELAP,WA-DW,DoD-ELAP
Thallium-205	NELAP,WADOE,DoD-ELAP
<b>EPA 200.8 UCT-KED in Water</b>	
Arsenic-75a	NELAP,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP
Selenium-78	NELAP,WA-DW,DoD-ELAP
Selenium-78	NELAP,WADOE,DoD-ELAP
<b>EPA 6010D in Water</b>	
Silver	NELAP,DoD-ELAP
Silver	WADOE,NELAP,DoD-ELAP
Aluminum	NELAP,DoD-ELAP
Aluminum	WADOE,NELAP,DoD-ELAP
Barium	NELAP,DoD-ELAP,ADEC
Barium	WADOE,NELAP,DoD-ELAP,ADEC
Beryllium	NELAP,DoD-ELAP
Beryllium	WADOE,NELAP,DoD-ELAP
Calcium	NELAP,DoD-ELAP
Calcium	WADOE,NELAP,DoD-ELAP
Cadmium	WADOE,NELAP,DoD-ELAP,ADEC
Cadmium	NELAP,DoD-ELAP,ADEC
Cobalt	WADOE,NELAP,DoD-ELAP
Cobalt	NELAP,DoD-ELAP
Chromium	WADOE,NELAP,DoD-ELAP,ADEC
Chromium	NELAP,DoD-ELAP,ADEC
Copper	WADOE,NELAP,DoD-ELAP
Copper	NELAP,DoD-ELAP
Iron	WADOE,NELAP,DoD-ELAP
Iron	NELAP,DoD-ELAP
Potassium	WADOE,NELAP,DoD-ELAP
Potassium	NELAP,DoD-ELAP



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Magnesium	NELAP,DoD-ELAP
Magnesium	WADOE,NELAP,DoD-ELAP
Manganese	WADOE,NELAP,DoD-ELAP
Manganese	NELAP,DoD-ELAP
Sodium	DoD-ELAP,WADOE,NELAP
Sodium	DoD-ELAP,NELAP
Sodium-1	DoD-ELAP
Sodium-1	DoD-ELAP
Nickel	NELAP,DoD-ELAP,ADEC
Nickel	WADOE,NELAP,DoD-ELAP,ADEC
Vanadium	NELAP,DoD-ELAP,ADEC
Vanadium	WADOE,NELAP,DoD-ELAP,ADEC
Zinc	NELAP,DoD-ELAP
Zinc	WADOE,NELAP,DoD-ELAP

**EPA 7470A in Water**

Mercury	WADOE,NELAP,DoD-ELAP
Mercury	NELAP,DoD-ELAP

**EPA 8260D in Water**

Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloromethane	DoD-ELAP,ADEC,NELAP
Vinyl Chloride	DoD-ELAP,ADEC,NELAP
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP
Chloroethane	DoD-ELAP,ADEC,NELAP
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP
Acrolein	DoD-ELAP,NELAP
Acrolein	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE



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Methylene Chloride	DoD-ELAP,ADEC,NELAP
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP
Benzene	DoD-ELAP,ADEC,NELAP
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP



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2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP
2-Hexanone	DoD-ELAP,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP
Chlorobenzene	DoD-ELAP,ADEC,NELAP
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP
m,p-Xylene	DoD-ELAP,ADEC,NELAP
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
Styrene	DoD-ELAP,NELAP
Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP



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1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP
Bromobenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP
Isopropyl Benzene	DoD-ELAP,NELAP
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP
t-Butylbenzene	DoD-ELAP,NELAP
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP



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1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP
n-Hexane	WADOE
n-Hexane	
2-Pentanone	WADOE
2-Pentanone	

**EPA 8270E-SIM in Water**

1,4-Dioxane	NELAP,DoD-ELAP
1,4-Dioxane	WADOE,NELAP,DoD-ELAP

**NWTPH-HCID in Water**

Gasoline Range Organics (Tol-C12)	NELAP,DoD-ELAP
Gasoline Range Organics (Tol-C12)	NELAP,DoD-ELAP,WADOE
Diesel Range Organics (C12-C24)	NELAP,DoD-ELAP
Diesel Range Organics (C12-C24)	NELAP,DoD-ELAP,WADOE
Motor Oil Range Organics (C24-C38)	NELAP,DoD-ELAP,WADOE
Motor Oil Range Organics (C24-C38)	NELAP,DoD-ELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022



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### Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
H	Hold time violation - Hold time was exceeded.
HC	The natural concentration of the spiked analyte is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
J	Estimated concentration value detected below the reporting limit.
L	Analyte concentration is $\leq 5$ times the reporting limit and the replicate control limit defaults to $\pm$ RL instead of 20% RPD
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
Y1	Raised reporting limit due to interference
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.





**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

13 July 2021

Gary Zimmerman  
Golder Associates  
18300 NE Union Hill Road Suite 200  
Redmond, WA 98052-3333

RE: Landsburg

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)  
21F0095

Associated SDG ID(s)  
N/A

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I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



# Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: <b>21F0095</b>		Turn-around Requested: <b>Standard</b>		Page: <b>1</b> of <b>1</b>	
ARI Client Company: <b>Golder</b>		Phone:		Date: <b>6/4/21</b>	Ice Present? <b>Yes</b>
Client Contact: <b>Gary Zimmerman / Joseph K.</b>		No. of Coolers: <b>3</b>		Cooler Temps: <b>5.3, 2.4, 1.0</b>	
Client Project Name: <b>Landsburg GW</b>		Analysis Requested			
Client Project #: <b>923100007, 2021</b>		Notes/Comments			
Samplers: <b>T. Doggett / J.K.</b>		<b>Analyze in accordance with MSA between Golder &amp; ARI</b>			

Sample ID	Date	Time	Matrix	No. Containers	Vols (Client List)	Vol/D	Total Metals (Client List)	TPH-H2O (H-LD Follow-up)	Dissolved Metals (H-LD)				
LMW-15-0621	6/3/21	1355	W	11	X	X	X	X					
LMW-11-0621	6/3/21	1505	W	11	X	X	X	X					
LMW-6-0621	6/3/21	1618	W	11	X	X	X	X					
LMW-7-0621	6/3/21	1750	W	11	X	X	X	X					
LMW-8-0621	6/4/21	0845	W	11	X	X	X	X					
LMW-5-0621	6/4/21	1000	W	11	X	X	X	X					
LMW-3-0621	6/4/21	1100	W	11	X	X	X	X					
LMW-9-0621	6/4/21	1215	W	11	X	X	X	X					
Trip Blank				3	X								

Comments/Special Instructions - Ecology Firm EPO - Client specific CUS/ Analyte List - Hold any diss. metals & TPH follow ups.	Relinquished by:	Received by:	Relinquished by:	Received by:
	(Signature) <i>Turner Doggett</i>	(Signature) <i>Kenny Dang</i>	(Signature)	(Signature)
	Printed Name: <b>Turner Doggett</b>	Printed Name: <b>Kenny Dang</b>	Printed Name:	Printed Name:
	Company: <b>Golder</b>	Company: <b>ARI</b>	Company:	Company:
	Date & Time: <b>6/4/2021 1350</b>	Date & Time: <b>6/4/21 1350</b>	Date & Time:	Date & Time:



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants  
4611 South 134th Place, Suite 100  
Tukwila, WA 98168  
206-695-6200 206-695-6201 (fax)  
www.arilabs.com

**Limits of Liability:** ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

**Sample Retention Policy:** All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



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Project: Landsburg  
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**Reported:**  
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**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LMW-15-0621	21F0095-01	Water	03-Jun-2021 13:55	04-Jun-2021 13:50
LMW-11-0621	21F0095-03	Water	03-Jun-2021 15:05	04-Jun-2021 13:50
LMW-6-0621	21F0095-05	Water	03-Jun-2021 16:18	04-Jun-2021 13:50
LMW-7-0621	21F0095-07	Water	03-Jun-2021 17:50	04-Jun-2021 13:50
LMW-8-0621	21F0095-09	Water	04-Jun-2021 08:45	04-Jun-2021 13:50
LMW-5-0621	21F0095-11	Water	04-Jun-2021 10:00	04-Jun-2021 13:50
LMW-3-0621	21F0095-13	Water	04-Jun-2021 11:00	04-Jun-2021 13:50
LMW-9-0621	21F0095-15	Water	04-Jun-2021 12:15	04-Jun-2021 13:50
Trip Blank	21F0095-17	Water	03-Jun-2021 13:55	04-Jun-2021 13:50



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## Work Order Case Narrative

### Volatiles - EPA Method SW8260D

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits with the exception of surrogates flagged on the associated forms.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits with the exception of analytes flagged on the associated forms.

### Total Metals - EPA Method 200.8, 6010D and 7470A

The sample(s) were digested and analyzed within the recommended holding times with the exception of mercury which was digested and analyzed outside of the holding time due to an analyst error. The associated samples have been flagged with a "H" qualifier.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

### Hydrocarbon Identification (HCID) - WA-Ecology Method NW-HCID

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.



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13-Jul-2021 15:03





WORK ORDER

21F0095

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

Preservation Confirmation

Container ID	Container Type	pH	
21F0095-01 A	Glass NM, Amber, 500 mL		
21F0095-01 B	Glass NM, Amber, 500 mL		
21F0095-01 C	Glass NM, Amber, 500 mL		
21F0095-01 D	Glass NM, Amber, 500 mL		
21F0095-01 E	HDPE NM, 500 mL, 1:1 HNO3	5.2	Pass
21F0095-01 F	VOA Vial, Clear, 40 mL, HCL		
21F0095-01 G	VOA Vial, Clear, 40 mL, HCL		
21F0095-01 H	VOA Vial, Clear, 40 mL, HCL		
21F0095-01 I	VOA Vial, Clear, 40 mL, HCL		
21F0095-01 J	VOA Vial, Clear, 40 mL, HCL		
21F0095-02 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	5.2	Pass
21F0095-03 A	Glass NM, Amber, 500 mL		
21F0095-03 B	Glass NM, Amber, 500 mL		
21F0095-03 C	Glass NM, Amber, 500 mL		
21F0095-03 D	Glass NM, Amber, 500 mL		
21F0095-03 E	HDPE NM, 500 mL, 1:1 HNO3	5.2	Pass
21F0095-03 F	VOA Vial, Clear, 40 mL, HCL		
21F0095-03 G	VOA Vial, Clear, 40 mL, HCL		
21F0095-03 H	VOA Vial, Clear, 40 mL, HCL		
21F0095-03 I	VOA Vial, Clear, 40 mL, HCL		
21F0095-03 J	VOA Vial, Clear, 40 mL, HCL		
21F0095-04 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	5.2	Pass
21F0095-05 A	Glass NM, Amber, 500 mL		
21F0095-05 B	Glass NM, Amber, 500 mL		
21F0095-05 C	Glass NM, Amber, 500 mL		
21F0095-05 D	Glass NM, Amber, 500 mL		
21F0095-05 E	HDPE NM, 500 mL, 1:1 HNO3	5.2	Pass
21F0095-05 F	VOA Vial, Clear, 40 mL, HCL	No volume in labeled container	
21F0095-05 G	VOA Vial, Clear, 40 mL, HCL		
21F0095-05 H	VOA Vial, Clear, 40 mL, HCL		
21F0095-05 I	VOA Vial, Clear, 40 mL, HCL		
21F0095-05 J	VOA Vial, Clear, 40 mL, HCL		
21F0095-06 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	5.2	Pass
21F0095-07 A	Glass NM, Amber, 500 mL		
21F0095-07 B	Glass NM, Amber, 500 mL		



WORK ORDER

21F0095

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

21F0095-07 C	Glass NM, Amber, 500 mL		
21F0095-07 D	Glass NM, Amber, 500 mL		
21F0095-07 E	HDPE NM, 500 mL, 1:1 HNO3	Ca	Pass
21F0095-07 F	VOA Vial, Clear, 40 mL, HCL		
21F0095-07 G	VOA Vial, Clear, 40 mL, HCL		
21F0095-07 H	VOA Vial, Clear, 40 mL, HCL		
21F0095-07 I	VOA Vial, Clear, 40 mL, HCL		
21F0095-07 J	VOA Vial, Clear, 40 mL, HCL		
21F0095-08 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	Ca	Pass
21F0095-09 A	Glass NM, Amber, 500 mL		
21F0095-09 B	Glass NM, Amber, 500 mL		
21F0095-09 C	Glass NM, Amber, 500 mL		
21F0095-09 D	Glass NM, Amber, 500 mL		
21F0095-09 E	HDPE NM, 500 mL, 1:1 HNO3	Ca	Pass
21F0095-09 F	VOA Vial, Clear, 40 mL, HCL		
21F0095-09 G	VOA Vial, Clear, 40 mL, HCL		
21F0095-09 H	VOA Vial, Clear, 40 mL, HCL		
21F0095-09 I	VOA Vial, Clear, 40 mL, HCL		
21F0095-09 J	VOA Vial, Clear, 40 mL, HCL		
21F0095-10 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	Ca	Pass
21F0095-11 A	Glass NM, Amber, 500 mL		
21F0095-11 B	Glass NM, Amber, 500 mL		
21F0095-11 C	Glass NM, Amber, 500 mL		
21F0095-11 D	Glass NM, Amber, 500 mL		
21F0095-11 E	HDPE NM, 500 mL, 1:1 HNO3	Ca	Pass
21F0095-11 F	VOA Vial, Clear, 40 mL, HCL	Bubble	
21F0095-11 G	VOA Vial, Clear, 40 mL, HCL		
21F0095-11 H	VOA Vial, Clear, 40 mL, HCL		
21F0095-11 I	VOA Vial, Clear, 40 mL, HCL		
21F0095-11 J	VOA Vial, Clear, 40 mL, HCL		
21F0095-12 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	Ca	Pass
21F0095-13 A	Glass NM, Amber, 500 mL		
21F0095-13 B	Glass NM, Amber, 500 mL		
21F0095-13 C	Glass NM, Amber, 500 mL		
21F0095-13 D	Glass NM, Amber, 500 mL		
21F0095-13 E	HDPE NM, 500 mL, 1:1 HNO3	Ca	Pass
21F0095-13 F	VOA Vial, Clear, 40 mL, HCL		





WORK ORDER

21F0095

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

21F0095-13 G	VOA Vial, Clear, 40 mL, HCL		
21F0095-13 H	VOA Vial, Clear, 40 mL, HCL		
21F0095-13 I	VOA Vial, Clear, 40 mL, HCL		
21F0095-13 J	VOA Vial, Clear, 40 mL, HCL		
21F0095-14 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	CA	PASS
21F0095-15 A	Glass NM, Amber, 500 mL		
21F0095-15 B	Glass NM, Amber, 500 mL		
21F0095-15 C	Glass NM, Amber, 500 mL		
21F0095-15 D	Glass NM, Amber, 500 mL		
21F0095-15 E	HDPE NM, 500 mL, 1:1 HNO3	CA	PASS
21F0095-15 F	VOA Vial, Clear, 40 mL, HCL		
21F0095-15 G	VOA Vial, Clear, 40 mL, HCL		
21F0095-15 H	VOA Vial, Clear, 40 mL, HCL		
21F0095-15 I	VOA Vial, Clear, 40 mL, HCL		
21F0095-15 J	VOA Vial, Clear, 40 mL, HCL		
21F0095-16 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	CA	PASS
21F0095-17 A	VOA Vial, Clear, 40 mL, HCL		
21F0095-17 B	VOA Vial, Clear, 40 mL, HCL		
21F0095-17 C	VOA Vial, Clear, 40 mL, HCL		

Preservation Confirmed By

Date





Analytical Resources, Incorporated  
Analytical Chemists and Consultants

# Cooler Receipt Form

ARI Client: Golden

Project Name: Landsburg

COC No(s): \_\_\_\_\_ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: 21F0095

Tracking No: \_\_\_\_\_ (NA)

## Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler? YES NO

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1350 5.3 2.4 1.0

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: DOO5206

Cooler Accepted by: KD Date: 6/4/21 Time: 1350

**Complete custody forms and attach all shipping documents**

## Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: \_\_\_\_\_

Was sufficient ice used (if appropriate)? NA YES NO

How were bottles sealed in plastic bags? Individually Grouped Not

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ... NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI: NA 06/01/2021

Were the sample(s) split by ARI? NA YES Date/Time: \_\_\_\_\_ Equipment: \_\_\_\_\_ Split by: \_\_\_\_\_

Samples Logged by: JS Date: 06/05/2021 Time: 0956 Labels checked by: JS

**\*\* Notify Project Manager of discrepancies or concerns \*\***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

### Additional Notes, Discrepancies, & Resolutions:

1 vial for sample LMW-6-0621 was received w/label, but was not filled. no visible cracks/deformities noted on glassware. vials w/a.v bubbles marked on preservation sheet, lab to determine sizes.

By: JS

Date: 06/05/2021



Golder Associates  
18300 NE Union Hill Road Suite 200  
Redmond WA, 98052-3333

Project: Landsburg  
Project Number: Landsburg  
Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 15:03

**LMW-15-0621**  
**21F0095-01 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/03/2021 13:55

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 22:06

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21F0095-01 H

Preparation Batch: BJF0165

Sample Size: 10 mL

Prepared: 06/07/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 15:03

**LMW-15-0621**  
**21F0095-01 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/03/2021 13:55

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 22:06

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U

Surrogate: 1,2-Dichloroethane-d4

80-129 %

117

%



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Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 15:03

**LMW-15-0621**  
**21F0095-01 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/03/2021 13:55

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 22:06

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	94.3	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	84.2	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	105	%	



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Reported:  
13-Jul-2021 15:03

**LMW-15-0621**  
**21F0095-01 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-HCID  
Instrument: FID4 Analyst: CTO

Sampled: 06/03/2021 13:55

Analyzed: 06/10/2021 18:50

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BJF0175  
Prepared: 06/08/2021

Sample Size: 500 mL  
Final Volume: 1 mL

Extract ID: 21F0095-01 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	88.4	%	
Surrogate: n-Triacontane			50-150 %	88.4	%	



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Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 15:03

**LMW-15-0621**  
**21F0095-01 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8

Sampled: 06/03/2021 13:55

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 01:29

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0095-01 E 01

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	0.00300	ND	mg/L	U
Lead	7439-92-1	1	0.0100	ND	mg/L	U
Thallium	7440-28-0	1	0.00200	ND	mg/L	U



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Reported:  
13-Jul-2021 15:03

**LMW-15-0621**  
**21F0095-01 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8 UCT-KED

Sampled: 06/03/2021 13:55

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 15:55

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0095-01 E 01

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.00300	ND	mg/L	U
Selenium	7782-49-2	1	0.0250	ND	mg/L	U



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Project: Landsburg  
Project Number: Landsburg  
Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 15:03

**LMW-15-0621**  
**21F0095-01 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D

Sampled: 06/03/2021 13:55

Instrument: ICP2 Analyst: MVP

Analyzed: 06/18/2021 17:58

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 21F0095-01 E

Preparation Batch: BJF0465

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1.00	ND	mg/L	U
Barium	7440-39-3	1	0.500	ND	mg/L	U
Beryllium	7440-41-7	1	0.0100	ND	mg/L	U
Cadmium	7440-43-9	1	0.0020	ND	mg/L	U
Calcium	7440-70-2	1	0.500	60.2	mg/L	
Chromium	7440-47-3	1	0.0100	ND	mg/L	U
Cobalt	7440-48-4	1	0.0100	ND	mg/L	U
Copper	7440-50-8	1	0.0030	ND	mg/L	U
Iron	7439-89-6	1	0.200	3.88	mg/L	
Magnesium	7439-95-4	1	0.500	26.6	mg/L	
Manganese	7439-96-5	1	0.0100	0.380	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	2.00	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	14.6	mg/L	
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U





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Project: Landsburg  
Project Number: Landsburg  
Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 15:03

**LMW-15-0621**  
**21F0095-01 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Sampled: 06/03/2021 13:55
Instrument: HYDRA Analyst: ML	Analyzed: 07/12/2021 15:01
Sample Preparation:	Preparation Method: TWM EPA 7470A
	Preparation Batch: BJF0564
	Prepared: 07/09/2021
	Sample Size: 20 mL
	Final Volume: 20 mL
	Extract ID: 21F0095-01 E

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00100	ND	mg/L	H, U



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Project: Landsburg  
Project Number: Landsburg  
Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 15:03

**LMW-11-0621**  
**21F0095-03 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D  
Instrument: NT2 Analyst: PKC

Sampled: 06/03/2021 15:05

Analyzed: 06/07/2021 22:28

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BJF0165 Sample Size: 10 mL  
Prepared: 06/07/2021 Final Volume: 10 mL

Extract ID: 21F0095-03 G

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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Project: Landsburg  
Project Number: Landsburg  
Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 15:03

**LMW-11-0621**  
**21F0095-03 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/03/2021 15:05

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 22:28

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U

Surrogate: 1,2-Dichloroethane-d4

80-129 % 125 %



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**LMW-11-0621**  
**21F0095-03 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/03/2021 15:05

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 22:28

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	94.3	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	82.9	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	105	%	



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Reported:  
13-Jul-2021 15:03

**LMW-11-0621**  
**21F0095-03 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-HCID  
Instrument: FID4 Analyst: CTO

Sampled: 06/03/2021 15:05

Analyzed: 06/10/2021 19:11

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BJF0175  
Prepared: 06/08/2021

Sample Size: 500 mL  
Final Volume: 1 mL

Extract ID: 21F0095-03 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	92.4	%	
Surrogate: n-Triacontane			50-150 %	93.2	%	



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Reported:  
13-Jul-2021 15:03

**LMW-11-0621**  
**21F0095-03 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8

Sampled: 06/03/2021 15:05

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 00:30

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0095-03 E 01

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	0.00300	ND	mg/L	U
Lead	7439-92-1	1	0.0100	ND	mg/L	U
Thallium	7440-28-0	1	0.00200	ND	mg/L	U



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Reported:  
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**LMW-11-0621**  
**21F0095-03 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8 UCT-KED

Sampled: 06/03/2021 15:05

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 00:30

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0095-03 E 01

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.00300	0.00972	mg/L	
Selenium	7782-49-2	1	0.0250	ND	mg/L	U



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Reported:  
13-Jul-2021 15:03

**LMW-11-0621**  
**21F0095-03 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D

Sampled: 06/03/2021 15:05

Instrument: ICP2 Analyst: MVP

Analyzed: 06/18/2021 18:10

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 21F0095-03 E

Preparation Batch: BJF0465

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1.00	ND	mg/L	U
Barium	7440-39-3	1	0.500	ND	mg/L	U
Beryllium	7440-41-7	1	0.0100	ND	mg/L	U
Cadmium	7440-43-9	1	0.0020	ND	mg/L	U
Calcium	7440-70-2	1	0.500	59.8	mg/L	
Chromium	7440-47-3	1	0.0100	ND	mg/L	U
Cobalt	7440-48-4	1	0.0100	ND	mg/L	U
Copper	7440-50-8	1	0.0030	ND	mg/L	U
Iron	7439-89-6	1	0.200	0.446	mg/L	
Magnesium	7439-95-4	1	0.500	27.6	mg/L	
Manganese	7439-96-5	1	0.0100	0.182	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	2.06	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	27.1	mg/L	
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U





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**Reported:**  
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**LMW-11-0621**  
**21F0095-03 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Sampled: 06/03/2021 15:05
Instrument: HYDRA Analyst: ML	Analyzed: 07/12/2021 15:38
Sample Preparation:	Extract ID: 21F0095-03 E
Preparation Method: TWM EPA 7470A	
Preparation Batch: BJF0564	Sample Size: 20 mL
Prepared: 07/09/2021	Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00100	ND	mg/L	H, U



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Reported:  
13-Jul-2021 15:03

**LMW-6-0621**  
**21F0095-05 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D  
Instrument: NT2 Analyst: PKC

Sampled: 06/03/2021 16:18

Analyzed: 06/07/2021 22:49

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BJF0165 Sample Size: 10 mL  
Prepared: 06/07/2021 Final Volume: 10 mL

Extract ID: 21F0095-05 G

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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Reported:  
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**LMW-6-0621**  
**21F0095-05 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/03/2021 16:18

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 22:49

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U

Surrogate: 1,2-Dichloroethane-d4

80-129 % 124 %



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Reported:  
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**LMW-6-0621**  
**21F0095-05 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/03/2021 16:18

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 22:49

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	94.4	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	85.3	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	106	%	



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Reported:  
13-Jul-2021 15:03

**LMW-6-0621**  
**21F0095-05 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-HCID  
Instrument: FID4 Analyst: CTO

Sampled: 06/03/2021 16:18

Analyzed: 06/10/2021 19:32

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BJF0175  
Prepared: 06/08/2021

Sample Size: 500 mL  
Final Volume: 1 mL

Extract ID: 21F0095-05 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	98.2	%	
Surrogate: n-Triacontane			50-150 %	93.3	%	



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Reported:  
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**LMW-6-0621**  
**21F0095-05 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8

Sampled: 06/03/2021 16:18

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 00:35

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0095-05 E 01

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	0.00300	ND	mg/L	U
Lead	7439-92-1	1	0.0100	ND	mg/L	U
Thallium	7440-28-0	1	0.00200	ND	mg/L	U



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Reported:  
13-Jul-2021 15:03

**LMW-6-0621**  
**21F0095-05 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8 UCT-KED

Sampled: 06/03/2021 16:18

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 00:35

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0095-05 E 01

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.00300	ND	mg/L	U
Selenium	7782-49-2	1	0.0250	ND	mg/L	U



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Reported:  
13-Jul-2021 15:03

**LMW-6-0621**  
**21F0095-05 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D

Sampled: 06/03/2021 16:18

Instrument: ICP2 Analyst: MVP

Analyzed: 06/18/2021 18:13

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 21F0095-05 E

Preparation Batch: BJF0465

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1.00	ND	mg/L	U
Barium	7440-39-3	1	0.500	ND	mg/L	U
Beryllium	7440-41-7	1	0.0100	ND	mg/L	U
Cadmium	7440-43-9	1	0.0020	ND	mg/L	U
Calcium	7440-70-2	1	0.500	26.5	mg/L	
Chromium	7440-47-3	1	0.0100	ND	mg/L	U
Cobalt	7440-48-4	1	0.0100	ND	mg/L	U
Copper	7440-50-8	1	0.0030	ND	mg/L	U
Iron	7439-89-6	1	0.200	2.34	mg/L	
Magnesium	7439-95-4	1	0.500	13.2	mg/L	
Manganese	7439-96-5	1	0.0100	0.0315	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	0.637	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	6.79	mg/L	
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U





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**LMW-6-0621**  
**21F0095-05 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Sampled: 06/03/2021 16:18
Instrument: HYDRA Analyst: ML	Analyzed: 07/12/2021 15:40
Sample Preparation:	Extract ID: 21F0095-05 E
Preparation Method: TWM EPA 7470A	
Preparation Batch: BJF0564	Sample Size: 20 mL
Prepared: 07/09/2021	Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00100	ND	mg/L	H, U



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**LMW-7-0621**  
**21F0095-07 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D  
Instrument: NT2 Analyst: PKC  
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BJF0165 Sample Size: 10 mL  
Prepared: 06/07/2021 Final Volume: 10 mL  
Extract ID: 21F0095-07 F  
Sampled: 06/03/2021 17:50  
Analyzed: 06/07/2021 23:10

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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**LMW-7-0621**  
**21F0095-07 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/03/2021 17:50

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 23:10

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U

Surrogate: 1,2-Dichloroethane-d4

80-129 %

131

%

\*



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**LMW-7-0621**  
**21F0095-07 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/03/2021 17:50

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 23:10

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	93.9	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	83.5	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	106	%	



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**LMW-7-0621**  
**21F0095-07 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-HCID  
Instrument: FID4 Analyst: CTO

Sampled: 06/03/2021 17:50

Analyzed: 06/10/2021 19:54

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BJF0175  
Prepared: 06/08/2021

Sample Size: 500 mL  
Final Volume: 1 mL

Extract ID: 21F0095-07 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	95.2	%	
Surrogate: n-Triacontane			50-150 %	93.0	%	



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**LMW-7-0621**  
**21F0095-07 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8

Sampled: 06/03/2021 17:50

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 00:40

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0095-07 E 01

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	0.00300	ND	mg/L	U
Lead	7439-92-1	1	0.0100	ND	mg/L	U
Thallium	7440-28-0	1	0.00200	ND	mg/L	U



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**LMW-7-0621**  
**21F0095-07 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8 UCT-KED

Sampled: 06/03/2021 17:50

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 00:40

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0095-07 E 01

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.00300	0.00367	mg/L	
Selenium	7782-49-2	1	0.0250	ND	mg/L	U



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**LMW-7-0621**  
**21F0095-07 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D

Sampled: 06/03/2021 17:50

Instrument: ICP2 Analyst: MVP

Analyzed: 06/18/2021 18:16

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 21F0095-07 E

Preparation Batch: BJF0465

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1.00	ND	mg/L	U
Barium	7440-39-3	1	0.500	ND	mg/L	U
Beryllium	7440-41-7	1	0.0100	ND	mg/L	U
Cadmium	7440-43-9	1	0.0020	ND	mg/L	U
Calcium	7440-70-2	1	0.500	34.3	mg/L	
Chromium	7440-47-3	1	0.0100	ND	mg/L	U
Cobalt	7440-48-4	1	0.0100	ND	mg/L	U
Copper	7440-50-8	1	0.0030	ND	mg/L	U
Iron	7439-89-6	1	0.200	0.780	mg/L	
Magnesium	7439-95-4	1	0.500	16.3	mg/L	
Manganese	7439-96-5	1	0.0100	0.0317	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	2.42	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	57.5	mg/L	E
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U





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**Reported:**  
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**LMW-7-0621**  
**21F0095-07 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Sampled: 06/03/2021 17:50
Instrument: HYDRA Analyst: ML	Analyzed: 07/12/2021 15:43
Sample Preparation:	Preparation Method: TWM EPA 7470A
	Preparation Batch: BJF0564
	Prepared: 07/09/2021
	Sample Size: 20 mL
	Final Volume: 20 mL
	Extract ID: 21F0095-07 E

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00100	ND	mg/L	H, U



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Reported:  
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**LMW-8-0621**  
**21F0095-09 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D  
Instrument: NT2 Analyst: PKC

Sampled: 06/04/2021 08:45

Analyzed: 06/07/2021 23:32

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BJF0165 Sample Size: 10 mL  
Prepared: 06/07/2021 Final Volume: 10 mL

Extract ID: 21F0095-09 G

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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Reported:  
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**LMW-8-0621**  
**21F0095-09 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/04/2021 08:45

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 23:32

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U

Surrogate: 1,2-Dichloroethane-d4

80-129 % 129 %



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Project Number: Landsburg  
Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 15:03

**LMW-8-0621**  
**21F0095-09 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/04/2021 08:45

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 23:32

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	93.7	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	82.9	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	105	%	



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Redmond WA, 98052-3333

Project: Landsburg  
Project Number: Landsburg  
Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 15:03

**LMW-8-0621**  
**21F0095-09 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-HCID  
Instrument: FID4 Analyst: CTO

Sampled: 06/04/2021 08:45

Analyzed: 06/10/2021 20:15

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BJF0175 Sample Size: 500 mL  
Prepared: 06/08/2021 Final Volume: 1 mL

Extract ID: 21F0095-09 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	94.0	%	
Surrogate: n-Triacontane			50-150 %	92.3	%	



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Reported:  
13-Jul-2021 15:03

**LMW-8-0621**  
**21F0095-09 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8

Sampled: 06/04/2021 08:45

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 01:10

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0095-09 E 01

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	0.00300	ND	mg/L	U
Lead	7439-92-1	1	0.0100	ND	mg/L	U
Thallium	7440-28-0	1	0.00200	ND	mg/L	U



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**LMW-8-0621**  
**21F0095-09 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8 UCT-KED

Sampled: 06/04/2021 08:45

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 01:10

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0095-09 E 01

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.00300	ND	mg/L	U
Selenium	7782-49-2	1	0.0250	ND	mg/L	U



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Reported:  
13-Jul-2021 15:03

**LMW-8-0621**  
**21F0095-09 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D

Sampled: 06/04/2021 08:45

Instrument: ICP2 Analyst: MVP

Analyzed: 06/18/2021 18:19

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 21F0095-09 E

Preparation Batch: BJF0465

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1.00	ND	mg/L	U
Barium	7440-39-3	1	0.500	ND	mg/L	U
Beryllium	7440-41-7	1	0.0100	ND	mg/L	U
Cadmium	7440-43-9	1	0.0020	ND	mg/L	U
Calcium	7440-70-2	1	0.500	67.1	mg/L	
Chromium	7440-47-3	1	0.0100	ND	mg/L	U
Cobalt	7440-48-4	1	0.0100	ND	mg/L	U
Copper	7440-50-8	1	0.0030	ND	mg/L	U
Iron	7439-89-6	1	0.200	12.5	mg/L	
Magnesium	7439-95-4	1	0.500	36.6	mg/L	
Manganese	7439-96-5	1	0.0100	0.461	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	1.89	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	11.6	mg/L	
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U





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**Reported:**  
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**LMW-8-0621**  
**21F0095-09 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Sampled: 06/04/2021 08:45
Instrument: HYDRA Analyst: ML	Analyzed: 07/12/2021 15:45
Sample Preparation:	Preparation Method: TWM EPA 7470A
	Preparation Batch: BJF0564
	Prepared: 07/09/2021
	Sample Size: 20 mL
	Final Volume: 20 mL
	Extract ID: 21F0095-09 E

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00100	ND	mg/L	H, U



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Reported:  
13-Jul-2021 15:03

**LMW-5-0621**  
**21F0095-11 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D  
Instrument: NT2 Analyst: PKC  
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BJF0165 Sample Size: 10 mL  
Prepared: 06/07/2021 Final Volume: 10 mL  
Extract ID: 21F0095-11 G

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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**LMW-5-0621**  
**21F0095-11 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/04/2021 10:00

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 23:53

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U

Surrogate: 1,2-Dichloroethane-d4

80-129 %

135

%

\*



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**LMW-5-0621**  
**21F0095-11 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/04/2021 10:00

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 23:53

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	94.6	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	84.0	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	109	%	



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**LMW-5-0621**  
**21F0095-11 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-HCID  
Instrument: FID4 Analyst: CTO

Sampled: 06/04/2021 10:00

Analyzed: 06/10/2021 20:36

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BJF0175 Sample Size: 500 mL  
Prepared: 06/08/2021 Final Volume: 1 mL

Extract ID: 21F0095-11 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	96.6	%	
Surrogate: n-Triacontane			50-150 %	94.4	%	



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13-Jul-2021 15:03

**LMW-5-0621**  
**21F0095-11 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8

Sampled: 06/04/2021 10:00

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 01:15

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0095-11 E 01

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	0.00300	ND	mg/L	U
Lead	7439-92-1	1	0.0100	ND	mg/L	U
Thallium	7440-28-0	1	0.00200	ND	mg/L	U



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**Reported:**  
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**LMW-5-0621**  
**21F0095-11 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8 UCT-KED

Sampled: 06/04/2021 10:00

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 01:15

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0095-11 E 01

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.00300	ND	mg/L	U
Selenium	7782-49-2	1	0.0250	ND	mg/L	U



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**LMW-5-0621**  
**21F0095-11 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D

Sampled: 06/04/2021 10:00

Instrument: ICP2 Analyst: MVP

Analyzed: 06/18/2021 18:21

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 21F0095-11 E

Preparation Batch: BJF0465

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1.00	ND	mg/L	U
Barium	7440-39-3	1	0.500	ND	mg/L	U
Beryllium	7440-41-7	1	0.0100	ND	mg/L	U
Cadmium	7440-43-9	1	0.0020	ND	mg/L	U
Calcium	7440-70-2	1	0.500	78.2	mg/L	
Chromium	7440-47-3	1	0.0100	ND	mg/L	U
Cobalt	7440-48-4	1	0.0100	ND	mg/L	U
Copper	7440-50-8	1	0.0030	ND	mg/L	U
Iron	7439-89-6	1	0.200	ND	mg/L	U
Magnesium	7439-95-4	1	0.500	44.3	mg/L	
Manganese	7439-96-5	1	0.0100	0.211	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	2.27	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	13.7	mg/L	
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U





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**Reported:**  
13-Jul-2021 15:03

**LMW-5-0621**  
**21F0095-11 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Sampled: 06/04/2021 10:00
Instrument: HYDRA Analyst: ML	Analyzed: 07/12/2021 15:47
Sample Preparation:	Preparation Method: TWM EPA 7470A
	Preparation Batch: BJF0564
	Prepared: 07/09/2021
	Sample Size: 20 mL
	Final Volume: 20 mL
	Extract ID: 21F0095-11 E

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00100	ND	mg/L	H, U



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Reported:  
13-Jul-2021 15:03

**LMW-3-0621**  
**21F0095-13 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/04/2021 11:00

Instrument: NT2 Analyst: PKC

Analyzed: 06/08/2021 00:14

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21F0095-13 F

Preparation Batch: BJF0165

Sample Size: 10 mL

Prepared: 06/07/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 15:03

**LMW-3-0621**  
**21F0095-13 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/04/2021 11:00

Instrument: NT2 Analyst: PKC

Analyzed: 06/08/2021 00:14

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U

Surrogate: 1,2-Dichloroethane-d4

80-129 %

130

%

\*



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18300 NE Union Hill Road Suite 200  
Redmond WA, 98052-3333

Project: Landsburg  
Project Number: Landsburg  
Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 15:03

**LMW-3-0621**  
**21F0095-13 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/04/2021 11:00

Instrument: NT2 Analyst: PKC

Analyzed: 06/08/2021 00:14

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	93.7	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	81.6	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	107	%	



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Reported:  
13-Jul-2021 15:03

**LMW-3-0621**  
**21F0095-13 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-HCID

Sampled: 06/04/2021 11:00

Instrument: FID4 Analyst: CTO

Analyzed: 06/10/2021 20:57

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 21F0095-13 A 01

Preparation Batch: BJF0175

Sample Size: 500 mL

Prepared: 06/08/2021

Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	99.4	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	96.1	%	



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Reported:  
13-Jul-2021 15:03

**LMW-3-0621**  
**21F0095-13 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8

Sampled: 06/04/2021 11:00

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 01:19

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0095-13 E 01

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	0.00300	ND	mg/L	U
Lead	7439-92-1	1	0.0100	ND	mg/L	U
Thallium	7440-28-0	1	0.00200	ND	mg/L	U



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Reported:  
13-Jul-2021 15:03

**LMW-3-0621**  
**21F0095-13 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8 UCT-KED

Sampled: 06/04/2021 11:00

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 01:19

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0095-13 E 01

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.00300	ND	mg/L	U
Selenium	7782-49-2	1	0.0250	ND	mg/L	U



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Reported:  
13-Jul-2021 15:03

**LMW-3-0621**  
**21F0095-13 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D

Sampled: 06/04/2021 11:00

Instrument: ICP2 Analyst: MVP

Analyzed: 06/24/2021 16:00

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 21F0095-13 E 02

Preparation Batch: BJF0465

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1.00	ND	mg/L	U
Barium	7440-39-3	1	0.500	ND	mg/L	U
Beryllium	7440-41-7	1	0.0100	ND	mg/L	U
Cadmium	7440-43-9	5	0.0100	ND	mg/L	U
Calcium	7440-70-2	1	0.500	38.0	mg/L	
Chromium	7440-47-3	1	0.0100	ND	mg/L	U
Cobalt	7440-48-4	1	0.0100	ND	mg/L	U
Copper	7440-50-8	1	0.0030	ND	mg/L	U
Iron	7439-89-6	1	0.200	ND	mg/L	U
Magnesium	7439-95-4	1	0.500	15.3	mg/L	
Manganese	7439-96-5	1	0.0100	0.0440	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	1.74	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	10.4	mg/L	
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U





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Project Number: Landsburg  
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**Reported:**  
13-Jul-2021 15:03

**LMW-3-0621**  
**21F0095-13 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Sampled: 06/04/2021 11:00
Instrument: HYDRA Analyst: ML	Analyzed: 07/12/2021 15:50
Sample Preparation:	Extract ID: 21F0095-13 E
Preparation Method: TWM EPA 7470A	
Preparation Batch: BJF0564	Sample Size: 20 mL
Prepared: 07/09/2021	Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00100	ND	mg/L	H, U



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Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 15:03

**LMW-9-0621**  
**21F0095-15 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/04/2021 12:15

Instrument: NT2 Analyst: PKC

Analyzed: 06/08/2021 00:36

Sample Preparation:

Preparation Method: EPA 5030C (Purge and Trap)

Extract ID: 21F0095-15 F

Preparation Batch: BJF0165

Sample Size: 10 mL

Prepared: 06/07/2021

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 15:03

**LMW-9-0621**  
**21F0095-15 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/04/2021 12:15

Instrument: NT2 Analyst: PKC

Analyzed: 06/08/2021 00:36

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U

Surrogate: 1,2-Dichloroethane-d4

80-129 %

132

%

\*



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Project: Landsburg  
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Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 15:03

**LMW-9-0621**  
**21F0095-15 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/04/2021 12:15

Instrument: NT2 Analyst: PKC

Analyzed: 06/08/2021 00:36

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	95.4	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	82.2	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	106	%	



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Reported:  
13-Jul-2021 15:03

**LMW-9-0621**  
**21F0095-15 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-HCID  
Instrument: FID4 Analyst: CTO

Sampled: 06/04/2021 12:15

Analyzed: 06/10/2021 21:19

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BJF0175 Sample Size: 500 mL  
Prepared: 06/08/2021 Final Volume: 1 mL

Extract ID: 21F0095-15 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-C12)	GRO	1	0.25	ND	mg/L	U
Diesel Range Organics (C12-C24)	DRO	1	0.50	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	1.00	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	96.5	%	
Surrogate: n-Triacontane			50-150 %	94.5	%	



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Reported:  
13-Jul-2021 15:03

**LMW-9-0621**  
**21F0095-15 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8

Sampled: 06/04/2021 12:15

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 01:24

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0095-15 E 01

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	0.00300	ND	mg/L	U
Lead	7439-92-1	1	0.0100	ND	mg/L	U
Thallium	7440-28-0	1	0.00200	ND	mg/L	U



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Reported:  
13-Jul-2021 15:03

**LMW-9-0621**  
**21F0095-15 (Water)**

**Metals and Metallic Compounds**

Method: EPA 200.8 UCT-KED

Sampled: 06/04/2021 12:15

Instrument: ICPMS1 Analyst: MCB

Analyzed: 06/24/2021 01:24

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Extract ID: 21F0095-15 E 01

Preparation Batch: BJF0485

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.00300	ND	mg/L	U
Selenium	7782-49-2	1	0.0250	ND	mg/L	U



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Project: Landsburg  
Project Number: Landsburg  
Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 15:03

**LMW-9-0621**  
**21F0095-15 (Water)**

**Metals and Metallic Compounds**

Method: EPA 6010D

Sampled: 06/04/2021 12:15

Instrument: ICP2 Analyst: MVP

Analyzed: 06/24/2021 16:03

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 21F0095-15 E

Preparation Batch: BJF0465

Sample Size: 25 mL

Prepared: 06/17/2021

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1.00	ND	mg/L	U
Barium	7440-39-3	1	0.500	ND	mg/L	U
Beryllium	7440-41-7	1	0.0100	ND	mg/L	U
Cadmium	7440-43-9	5	0.0100	ND	mg/L	U
Calcium	7440-70-2	1	0.500	80.6	mg/L	
Chromium	7440-47-3	1	0.0100	ND	mg/L	U
Cobalt	7440-48-4	1	0.0100	ND	mg/L	U
Copper	7440-50-8	1	0.0030	ND	mg/L	U
Iron	7439-89-6	1	0.200	1.41	mg/L	
Magnesium	7439-95-4	1	0.500	42.9	mg/L	
Manganese	7439-96-5	1	0.0100	0.182	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	2.46	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	14.1	mg/L	
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U





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Project: Landsburg  
Project Number: Landsburg  
Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 15:03

**LMW-9-0621**  
**21F0095-15 (Water)**

**Metals and Metallic Compounds**

Method: EPA 7470A	Sampled: 06/04/2021 12:15
Instrument: HYDRA Analyst: ML	Analyzed: 07/12/2021 15:52
Sample Preparation:	Extract ID: 21F0095-15 E
Preparation Method: TWM EPA 7470A	
Preparation Batch: BJF0564	Sample Size: 20 mL
Prepared: 07/09/2021	Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00100	ND	mg/L	H, U



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Redmond WA, 98052-3333

Project: Landsburg  
Project Number: Landsburg  
Project Manager: Gary Zimmerman

Reported:  
13-Jul-2021 15:03

**Trip Blank**  
**21F0095-17 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D  
Instrument: NT2 Analyst: PKC  
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BJF0165 Sample Size: 10 mL  
Prepared: 06/07/2021 Final Volume: 10 mL  
Extract ID: 21F0095-17 B

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.10	ND	ug/L	U
Bromomethane	74-83-9	1	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U



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**Trip Blank**  
**21F0095-17 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/03/2021 13:55

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 18:59

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U

Surrogate: 1,2-Dichloroethane-d4

80-129 % 107 %



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13-Jul-2021 15:03

**Trip Blank**  
**21F0095-17 (Water)**

**Volatile Organic Compounds**

Method: EPA 8260D

Sampled: 06/03/2021 13:55

Instrument: NT2 Analyst: PKC

Analyzed: 06/07/2021 18:59

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	94.0	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	91.1	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	102	%	



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### Volatile Organic Compounds - Quality Control

#### Batch BJF0165 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BJF0165-BLK1)</b>		Prepared: 07-Jun-2021 Analyzed: 07-Jun-2021 18:17								
Chloromethane	ND	0.50	ug/L							U
Vinyl Chloride	ND	0.10	ug/L							U
Bromomethane	ND	1.00	ug/L							U
Chloroethane	ND	0.20	ug/L							U
Trichlorofluoromethane	ND	0.20	ug/L							U
Acrolein	ND	5.00	ug/L							U
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.20	ug/L							U
Acetone	ND	5.00	ug/L							U
1,1-Dichloroethene	ND	0.20	ug/L							U
Iodomethane	ND	1.00	ug/L							U
Methylene Chloride	ND	1.00	ug/L							U
Acrylonitrile	ND	1.00	ug/L							U
Carbon Disulfide	ND	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.20	ug/L							U
Vinyl Acetate	ND	0.20	ug/L							U
1,1-Dichloroethane	ND	0.20	ug/L							U
2-Butanone	ND	5.00	ug/L							U
2,2-Dichloropropane	ND	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Chloroform	ND	0.20	ug/L							U
Bromochloromethane	ND	0.20	ug/L							U
1,1,1-Trichloroethane	ND	0.20	ug/L							U
1,1-Dichloropropene	ND	0.10	ug/L							U
Carbon tetrachloride	ND	0.20	ug/L							U
1,2-Dichloroethane	ND	0.20	ug/L							U
Benzene	ND	0.20	ug/L							U
Trichloroethene	ND	0.20	ug/L							U
1,2-Dichloropropane	ND	0.20	ug/L							U
Bromodichloromethane	ND	0.20	ug/L							U
Dibromomethane	ND	0.20	ug/L							U
2-Chloroethyl vinyl ether	ND	1.00	ug/L							U
4-Methyl-2-Pentanone	ND	2.50	ug/L							U
cis-1,3-Dichloropropene	ND	0.20	ug/L							U
Toluene	ND	0.20	ug/L							U
trans-1,3-Dichloropropene	ND	0.20	ug/L							U



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### Volatile Organic Compounds - Quality Control

#### Batch BJJ0165 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BJJ0165-BLK1)</b>		Prepared: 07-Jun-2021 Analyzed: 07-Jun-2021 18:17								
2-Hexanone	ND	5.00	ug/L							U
1,1,2-Trichloroethane	ND	0.20	ug/L							U
1,3-Dichloropropane	ND	0.10	ug/L							U
Tetrachloroethene	ND	0.20	ug/L							U
Dibromochloromethane	ND	0.20	ug/L							U
1,2-Dibromoethane	ND	0.10	ug/L							U
Chlorobenzene	ND	0.20	ug/L							U
Ethylbenzene	ND	0.20	ug/L							U
1,1,1,2-Tetrachloroethane	ND	0.20	ug/L							U
m,p-Xylene	ND	0.40	ug/L							U
o-Xylene	ND	0.20	ug/L							U
Xylenes, total	ND	0.60	ug/L							U
Styrene	ND	0.20	ug/L							U
Bromoform	ND	0.20	ug/L							U
1,1,2,2-Tetrachloroethane	ND	0.20	ug/L							U
1,2,3-Trichloropropane	ND	0.25	ug/L							U
trans-1,4-Dichloro 2-Butene	ND	1.00	ug/L							U
n-Propylbenzene	ND	0.20	ug/L							U
Bromobenzene	ND	0.20	ug/L							U
Isopropyl Benzene	ND	0.20	ug/L							U
2-Chlorotoluene	ND	0.10	ug/L							U
4-Chlorotoluene	ND	0.20	ug/L							U
t-Butylbenzene	ND	0.20	ug/L							U
1,3,5-Trimethylbenzene	ND	0.20	ug/L							U
1,2,4-Trimethylbenzene	ND	0.20	ug/L							U
s-Butylbenzene	ND	0.20	ug/L							U
4-Isopropyl Toluene	ND	0.20	ug/L							U
1,3-Dichlorobenzene	ND	0.20	ug/L							U
1,4-Dichlorobenzene	ND	0.20	ug/L							U
n-Butylbenzene	ND	0.20	ug/L							U
1,2-Dichlorobenzene	ND	0.20	ug/L							U
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L							U
1,2,4-Trichlorobenzene	ND	0.50	ug/L							U
Hexachloro-1,3-Butadiene	ND	0.50	ug/L							U
Naphthalene	ND	0.50	ug/L							U



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### Volatile Organic Compounds - Quality Control

#### Batch BJF0165 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BJF0165-BLK1)</b>		Prepared: 07-Jun-2021 Analyzed: 07-Jun-2021 18:17								
1,2,3-Trichlorobenzene	ND	0.50	ug/L							U
Dichlorodifluoromethane	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.41		ug/L	5.00		108	80-129			
Surrogate: Toluene-d8	4.78		ug/L	5.00		95.6	80-120			
Surrogate: 4-Bromofluorobenzene	4.62		ug/L	5.00		92.4	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.14		ug/L	5.00		103	80-120			
<b>LCS (BJF0165-BS1)</b>		Prepared: 07-Jun-2021 Analyzed: 07-Jun-2021 17:14								
Chloromethane	4.31	0.50	ug/L	4.00		108	60-138			
Vinyl Chloride	4.69	0.10	ug/L	4.00		117	66-133			
Bromomethane	4.22	1.00	ug/L	4.00		105	72-131			
Chloroethane	4.41	0.20	ug/L	4.00		110	60-155			
Trichlorofluoromethane	5.28	0.20	ug/L	4.00		132	62-141			
Acrolein	20.5	5.00	ug/L	20.0		102	52-190			
1,1,2-Trichloro-1,2,2-Trifluoroethane	4.97	0.20	ug/L	4.00		124	76-129			
Acetone	21.1	5.00	ug/L	20.0		105	58-142			
1,1-Dichloroethene	4.65	0.20	ug/L	4.00		116	69-135			
Iodomethane	3.78	1.00	ug/L	4.00		94.5	56-147			
Methylene Chloride	4.20	1.00	ug/L	4.00		105	65-135			
Acrylonitrile	2.83	1.00	ug/L	4.00		70.9	64-134			
Carbon Disulfide	4.10	0.20	ug/L	4.00		102	78-125			
trans-1,2-Dichloroethene	4.26	0.20	ug/L	4.00		106	78-128			
Vinyl Acetate	3.19	0.20	ug/L	4.00		79.7	55-138			
1,1-Dichloroethane	4.16	0.20	ug/L	4.00		104	76-124			
2-Butanone	18.7	5.00	ug/L	20.0		93.5	61-140			
2,2-Dichloropropane	4.38	0.20	ug/L	4.00		110	66-147			
cis-1,2-Dichloroethene	4.20	0.20	ug/L	4.00		105	80-121			
Chloroform	4.14	0.20	ug/L	4.00		104	80-122			
Bromochloromethane	4.28	0.20	ug/L	4.00		107	80-121			
1,1,1-Trichloroethane	4.38	0.20	ug/L	4.00		110	79-123			
1,1-Dichloropropene	4.68	0.10	ug/L	4.00		117	80-127			
Carbon tetrachloride	4.62	0.20	ug/L	4.00		115	53-137			
1,2-Dichloroethane	4.30	0.20	ug/L	4.00		107	75-123			
Benzene	4.27	0.20	ug/L	4.00		107	80-120			
Trichloroethene	4.32	0.20	ug/L	4.00		108	80-120			



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### Volatile Organic Compounds - Quality Control

#### Batch BJF0165 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BJF0165-BS1)</b>		Prepared: 07-Jun-2021 Analyzed: 07-Jun-2021 17:14								
1,2-Dichloropropane	4.11	0.20	ug/L	4.00		103	80-120			
Bromodichloromethane	4.12	0.20	ug/L	4.00		103	80-121			
Dibromomethane	4.29	0.20	ug/L	4.00		107	80-120			
2-Chloroethyl vinyl ether	3.13	1.00	ug/L	4.00		78.2	64-120			
4-Methyl-2-Pentanone	18.8	2.50	ug/L	20.0		94.2	67-133			
cis-1,3-Dichloropropene	3.88	0.20	ug/L	4.00		97.1	80-124			
Toluene	4.28	0.20	ug/L	4.00		107	80-120			
trans-1,3-Dichloropropene	3.83	0.20	ug/L	4.00		95.7	71-127			
2-Hexanone	18.6	5.00	ug/L	20.0		92.9	69-133			
1,1,2-Trichloroethane	4.11	0.20	ug/L	4.00		103	80-121			
1,3-Dichloropropane	4.35	0.10	ug/L	4.00		109	80-120			
Tetrachloroethene	4.70	0.20	ug/L	4.00		118	80-120			
Dibromochloromethane	4.17	0.20	ug/L	4.00		104	65-135			
1,2-Dibromoethane	3.92	0.10	ug/L	4.00		98.0	80-121			
Chlorobenzene	4.37	0.20	ug/L	4.00		109	80-120			
Ethylbenzene	4.47	0.20	ug/L	4.00		112	80-120			
1,1,1,2-Tetrachloroethane	4.10	0.20	ug/L	4.00		103	80-120			
m,p-Xylene	9.16	0.40	ug/L	8.00		114	80-121			
o-Xylene	3.83	0.20	ug/L	4.00		95.8	80-121			
Xylenes, total	13.0	0.60	ug/L	12.0		108	76-127			
Styrene	3.78	0.20	ug/L	4.00		94.5	80-124			
Bromoform	3.71	0.20	ug/L	4.00		92.8	51-134			
1,1,2,2-Tetrachloroethane	4.15	0.20	ug/L	4.00		104	77-123			
1,2,3-Trichloropropane	4.35	0.25	ug/L	4.00		109	76-125			
trans-1,4-Dichloro 2-Butene	3.36	1.00	ug/L	4.00		83.9	55-129			
n-Propylbenzene	4.80	0.20	ug/L	4.00		120	78-130			
Bromobenzene	4.32	0.20	ug/L	4.00		108	80-120			
Isopropyl Benzene	4.62	0.20	ug/L	4.00		116	80-128			
2-Chlorotoluene	4.54	0.10	ug/L	4.00		113	78-122			
4-Chlorotoluene	4.13	0.20	ug/L	4.00		103	80-121			
t-Butylbenzene	4.81	0.20	ug/L	4.00		120	78-125			
1,3,5-Trimethylbenzene	4.80	0.20	ug/L	4.00		120	80-129			
1,2,4-Trimethylbenzene	4.59	0.20	ug/L	4.00		115	80-127			
s-Butylbenzene	5.10	0.20	ug/L	4.00		127	78-129			
4-Isopropyl Toluene	4.76	0.20	ug/L	4.00		119	79-130			





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### Volatile Organic Compounds - Quality Control

#### Batch BJF0165 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BJF0165-BS1)</b>										
					Prepared: 07-Jun-2021		Analyzed: 07-Jun-2021 17:14			
1,3-Dichlorobenzene	4.45	0.20	ug/L	4.00		111	80-120			
1,4-Dichlorobenzene	4.39	0.20	ug/L	4.00		110	80-120			
n-Butylbenzene	4.93	0.20	ug/L	4.00		123	74-129			
1,2-Dichlorobenzene	4.44	0.20	ug/L	4.00		111	80-120			
1,2-Dibromo-3-chloropropane	4.21	0.50	ug/L	4.00		105	62-123			
1,2,4-Trichlorobenzene	4.10	0.50	ug/L	4.00		103	64-124			
Hexachloro-1,3-Butadiene	7.05	0.50	ug/L	4.00		176	58-123			*
Naphthalene	3.10	0.50	ug/L	4.00		77.6	50-134			
1,2,3-Trichlorobenzene	4.05	0.50	ug/L	4.00		101	49-133			
Dichlorodifluoromethane	5.73	0.20	ug/L	4.00		143	48-147			
Surrogate: 1,2-Dichloroethane-d4	5.13		ug/L	5.00		103	80-129			
Surrogate: Toluene-d8	5.00		ug/L	5.00		100	80-120			
Surrogate: 4-Bromofluorobenzene	5.00		ug/L	5.00		100	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.07		ug/L	5.00		101	80-120			
<b>LCS Dup (BJF0165-BSD1)</b>										
					Prepared: 07-Jun-2021		Analyzed: 07-Jun-2021 17:35			
Chloromethane	4.24	0.50	ug/L	4.00		106	60-138	1.57	30	
Vinyl Chloride	4.61	0.10	ug/L	4.00		115	66-133	1.71	30	
Bromomethane	4.33	1.00	ug/L	4.00		108	72-131	2.74	30	
Chloroethane	4.52	0.20	ug/L	4.00		113	60-155	2.47	30	
Trichlorofluoromethane	4.40	0.20	ug/L	4.00		110	62-141	18.00	30	
Acrolein	20.1	5.00	ug/L	20.0		101	52-190	1.52	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	4.30	0.20	ug/L	4.00		108	76-129	14.30	30	
Acetone	21.3	5.00	ug/L	20.0		106	58-142	0.89	30	
1,1-Dichloroethene	4.41	0.20	ug/L	4.00		110	69-135	5.50	30	
Iodomethane	3.88	1.00	ug/L	4.00		96.9	56-147	2.49	30	
Methylene Chloride	4.29	1.00	ug/L	4.00		107	65-135	2.08	30	
Acrylonitrile	2.98	1.00	ug/L	4.00		74.4	64-134	4.88	30	
Carbon Disulfide	3.88	0.20	ug/L	4.00		97.0	78-125	5.44	30	
trans-1,2-Dichloroethene	4.27	0.20	ug/L	4.00		107	78-128	0.12	30	
Vinyl Acetate	3.31	0.20	ug/L	4.00		82.6	55-138	3.64	30	
1,1-Dichloroethane	4.30	0.20	ug/L	4.00		108	76-124	3.35	30	
2-Butanone	19.5	5.00	ug/L	20.0		97.3	61-140	3.99	30	
2,2-Dichloropropane	4.42	0.20	ug/L	4.00		111	66-147	0.93	30	
cis-1,2-Dichloroethene	4.28	0.20	ug/L	4.00		107	80-121	1.88	30	



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### Volatile Organic Compounds - Quality Control

#### Batch BJF0165 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BJF0165-BSD1)</b>		Prepared: 07-Jun-2021 Analyzed: 07-Jun-2021 17:35								
Chloroform	4.31	0.20	ug/L	4.00		108	80-122	3.92	30	
Bromochloromethane	4.46	0.20	ug/L	4.00		111	80-121	4.09	30	
1,1,1-Trichloroethane	4.32	0.20	ug/L	4.00		108	79-123	1.44	30	
1,1-Dichloropropene	4.50	0.10	ug/L	4.00		113	80-127	3.92	30	
Carbon tetrachloride	4.41	0.20	ug/L	4.00		110	53-137	4.47	30	
1,2-Dichloroethane	4.26	0.20	ug/L	4.00		107	75-123	0.82	30	
Benzene	4.46	0.20	ug/L	4.00		112	80-120	4.37	30	
Trichloroethene	4.38	0.20	ug/L	4.00		109	80-120	1.40	30	
1,2-Dichloropropane	4.29	0.20	ug/L	4.00		107	80-120	4.39	30	
Bromodichloromethane	4.28	0.20	ug/L	4.00		107	80-121	3.91	30	
Dibromomethane	4.47	0.20	ug/L	4.00		112	80-120	4.01	30	
2-Chloroethyl vinyl ether	3.23	1.00	ug/L	4.00		80.8	64-120	3.31	30	
4-Methyl-2-Pentanone	20.6	2.50	ug/L	20.0		103	67-133	9.04	30	
cis-1,3-Dichloropropene	4.05	0.20	ug/L	4.00		101	80-124	4.22	30	
Toluene	4.40	0.20	ug/L	4.00		110	80-120	2.60	30	
trans-1,3-Dichloropropene	4.03	0.20	ug/L	4.00		101	71-127	5.12	30	
2-Hexanone	19.4	5.00	ug/L	20.0		96.9	69-133	4.22	30	
1,1,2-Trichloroethane	4.32	0.20	ug/L	4.00		108	80-121	4.99	30	
1,3-Dichloropropane	4.54	0.10	ug/L	4.00		113	80-120	4.29	30	
Tetrachloroethene	4.53	0.20	ug/L	4.00		113	80-120	3.72	30	
Dibromochloromethane	4.36	0.20	ug/L	4.00		109	65-135	4.54	30	
1,2-Dibromoethane	4.01	0.10	ug/L	4.00		100	80-121	2.35	30	
Chlorobenzene	4.41	0.20	ug/L	4.00		110	80-120	0.81	30	
Ethylbenzene	4.50	0.20	ug/L	4.00		113	80-120	0.66	30	
1,1,1,2-Tetrachloroethane	4.38	0.20	ug/L	4.00		110	80-120	6.60	30	
m,p-Xylene	9.39	0.40	ug/L	8.00		117	80-121	2.45	30	
o-Xylene	4.03	0.20	ug/L	4.00		101	80-121	5.12	30	
Xylenes, total	13.4	0.60	ug/L	12.0		112	76-127	3.25	30	
Styrene	3.96	0.20	ug/L	4.00		99.0	80-124	4.58	30	
Bromoform	3.70	0.20	ug/L	4.00		92.5	51-134	0.31	30	
1,1,2,2-Tetrachloroethane	4.38	0.20	ug/L	4.00		110	77-123	5.39	30	
1,2,3-Trichloropropane	4.49	0.25	ug/L	4.00		112	76-125	3.22	30	
trans-1,4-Dichloro 2-Butene	3.35	1.00	ug/L	4.00		83.8	55-129	0.15	30	
n-Propylbenzene	4.79	0.20	ug/L	4.00		120	78-130	0.24	30	
Bromobenzene	4.37	0.20	ug/L	4.00		109	80-120	1.18	30	



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### Volatile Organic Compounds - Quality Control

#### Batch BJF0165 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BJF0165-BSD1)</b>		Prepared: 07-Jun-2021 Analyzed: 07-Jun-2021 17:35								
Isopropyl Benzene	4.63	0.20	ug/L	4.00		116	80-128	0.21	30	
2-Chlorotoluene	4.61	0.10	ug/L	4.00		115	78-122	1.56	30	
4-Chlorotoluene	4.13	0.20	ug/L	4.00		103	80-121	0.15	30	
t-Butylbenzene	4.65	0.20	ug/L	4.00		116	78-125	3.31	30	
1,3,5-Trimethylbenzene	4.81	0.20	ug/L	4.00		120	80-129	0.36	30	
1,2,4-Trimethylbenzene	4.66	0.20	ug/L	4.00		116	80-127	1.57	30	
s-Butylbenzene	4.84	0.20	ug/L	4.00		121	78-129	5.18	30	
4-Isopropyl Toluene	4.62	0.20	ug/L	4.00		115	79-130	2.92	30	
1,3-Dichlorobenzene	4.46	0.20	ug/L	4.00		111	80-120	0.09	30	
1,4-Dichlorobenzene	4.38	0.20	ug/L	4.00		109	80-120	0.31	30	
n-Butylbenzene	4.54	0.20	ug/L	4.00		113	74-129	8.28	30	
1,2-Dichlorobenzene	4.47	0.20	ug/L	4.00		112	80-120	0.59	30	
1,2-Dibromo-3-chloropropane	4.13	0.50	ug/L	4.00		103	62-123	1.92	30	
1,2,4-Trichlorobenzene	4.09	0.50	ug/L	4.00		102	64-124	0.31	30	
Hexachloro-1,3-Butadiene	5.68	0.50	ug/L	4.00		142	58-123	21.60	30	*
Naphthalene	3.17	0.50	ug/L	4.00		79.2	50-134	1.99	30	
1,2,3-Trichlorobenzene	4.06	0.50	ug/L	4.00		101	49-133	0.25	30	
Dichlorodifluoromethane	4.60	0.20	ug/L	4.00		115	48-147	22.00	30	
Surrogate: 1,2-Dichloroethane-d4	4.98		ug/L	5.00		99.5	80-129			
Surrogate: Toluene-d8	5.06		ug/L	5.00		101	80-120			
Surrogate: 4-Bromofluorobenzene	5.07		ug/L	5.00		101	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.04		ug/L	5.00		101	80-120			



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### Petroleum Hydrocarbons - Quality Control

#### Batch BJF0175 - EPA 3510C SepF

Instrument: FID4 Analyst: CTO

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BJF0175-BLK1)</b>		Prepared: 08-Jun-2021 Analyzed: 10-Jun-2021 17:47							
Gasoline Range Organics (Tol-C12)	ND	0.25	mg/L						U
Diesel Range Organics (C12-C24)	ND	0.50	mg/L						U
Motor Oil Range Organics (C24-C38)	ND	1.00	mg/L						U
Surrogate: o-Terphenyl	0.238		mg/L	0.225	106	50-150			
Surrogate: n-Triacontane	0.232		mg/L	0.225	103	50-150			



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## Metals and Metallic Compounds - Quality Control

### Batch BJF0465 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BJF0465-BLK1)</b>		Prepared: 16-Jun-2021 Analyzed: 18-Jun-2021 17:05								
Aluminum	ND	1.00	mg/L							U
Barium	ND	0.500	mg/L							U
Beryllium	ND	0.0100	mg/L							U
Calcium	ND	0.500	mg/L							U
Chromium	ND	0.0100	mg/L							U
Cobalt	ND	0.0100	mg/L							U
Copper	ND	0.0030	mg/L							U
Iron	ND	0.200	mg/L							U
Magnesium	ND	0.500	mg/L							U
Manganese	ND	0.0100	mg/L							U
Nickel	ND	0.0100	mg/L							U
Potassium	ND	0.500	mg/L							U
Silver	ND	0.0050	mg/L							U
Sodium	ND	0.500	mg/L							U
Vanadium	ND	0.0030	mg/L							U
Zinc	ND	0.0200	mg/L							U
<b>Blank (BJF0465-BLK3)</b>		Prepared: 16-Jun-2021 Analyzed: 24-Jun-2021 14:58								
Manganese	ND	0.0100	mg/L							U
<b>Blank (BJF0465-BLK5)</b>		Prepared: 16-Jun-2021 Analyzed: 28-Jun-2021 14:53								
Cadmium	ND	0.0020	mg/L							U
<b>LCS (BJF0465-BS1)</b>		Prepared: 16-Jun-2021 Analyzed: 18-Jun-2021 17:08								
Aluminum	2.22	1.00	mg/L	2.00		111	80-120			
Barium	2.26	0.500	mg/L	2.00		113	80-120			
Beryllium	0.527	0.0100	mg/L	0.500		105	80-120			
Calcium	9.94	0.500	mg/L	10.0		99.4	80-120			
Chromium	0.531	0.0100	mg/L	0.500		106	80-120			
Cobalt	0.572	0.0100	mg/L	0.500		114	80-120			
Copper	0.495	0.0030	mg/L	0.500		99.0	80-120			
Iron	2.05	0.200	mg/L	2.00		103	80-120			
Magnesium	11.5	0.500	mg/L	10.0		115	80-120			
Manganese	0.550	0.0100	mg/L	0.500		110	80-120			
Nickel	0.537	0.0100	mg/L	0.500		107	80-120			
Potassium	10.1	0.500	mg/L	10.0		101	80-120			



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### Metals and Metallic Compounds - Quality Control

#### Batch BJF0465 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BJF0465-BS1)</b>		Prepared: 16-Jun-2021 Analyzed: 18-Jun-2021 17:08								
Silver	0.519	0.0050	mg/L	0.500		104	80-120			
Sodium	10.5	0.500	mg/L	10.0		105	80-120			
Vanadium	0.505	0.0030	mg/L	0.500		101	80-120			
Zinc	0.517	0.0200	mg/L	0.500		103	80-120			
<b>LCS (BJF0465-BS3)</b>		Prepared: 16-Jun-2021 Analyzed: 24-Jun-2021 15:00								
Manganese	0.532	0.0100	mg/L	0.500		106	80-120			
<b>LCS (BJF0465-BS5)</b>		Prepared: 16-Jun-2021 Analyzed: 28-Jun-2021 14:56								
Cadmium	0.567	0.0020	mg/L	0.500		113	80-120			
<b>Duplicate (BJF0465-DUP1)</b>		<b>Source: 21F0095-01</b>		Prepared: 16-Jun-2021 Analyzed: 18-Jun-2021 17:55						
Aluminum	ND	1.00	mg/L		ND					U
Barium	ND	0.500	mg/L		ND					U
Beryllium	ND	0.0100	mg/L		ND					U
Calcium	62.7	0.500	mg/L		60.2			4.18	20	
Chromium	ND	0.0100	mg/L		ND					U
Cobalt	ND	0.0100	mg/L		ND					L, U
Copper	ND	0.0030	mg/L		ND					U
Iron	4.05	0.200	mg/L		3.88			4.13	20	
Magnesium	27.7	0.500	mg/L		26.6			4.33	20	
Manganese	0.395	0.0100	mg/L		0.380			3.93	20	
Nickel	ND	0.0100	mg/L		ND					U
Potassium	2.11	0.500	mg/L		2.00			5.43	20	
Silver	ND	0.0050	mg/L		ND					U
Sodium	15.2	0.500	mg/L		14.6			3.72	20	
Vanadium	ND	0.0030	mg/L		ND					U
Zinc	ND	0.0200	mg/L		ND					U
<b>Duplicate (BJF0465-DUP3)</b>		<b>Source: 21F0095-01</b>		Prepared: 16-Jun-2021 Analyzed: 24-Jun-2021 15:14						
Manganese	0.413	0.0100	mg/L		0.380			8.34	20	
<b>Duplicate (BJF0465-DUP5)</b>		<b>Source: 21F0095-01</b>		Prepared: 16-Jun-2021 Analyzed: 28-Jun-2021 15:09						
Cadmium	ND	0.0020	mg/L		ND					U
<b>Matrix Spike (BJF0465-MS1)</b>		<b>Source: 21F0095-01</b>		Prepared: 16-Jun-2021 Analyzed: 18-Jun-2021 18:01						



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## Metals and Metallic Compounds - Quality Control

### Batch BJF0465 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Matrix Spike (BJF0465-MS1)</b>		<b>Source: 21F0095-01</b>		Prepared: 16-Jun-2021		Analyzed: 18-Jun-2021 18:01				
Aluminum	2.15	1.00	mg/L	2.00	ND	108	75-125			
Barium	2.29	0.500	mg/L	2.00	ND	106	75-125			
Beryllium	0.531	0.0100	mg/L	0.500	ND	106	75-125			
Calcium	69.9	0.500	mg/L	10.0	60.2	97.4	75-125			
Chromium	0.527	0.0100	mg/L	0.500	ND	105	75-125			
Cobalt	0.524	0.0100	mg/L	0.500	ND	104	75-125			
Copper	0.463	0.0030	mg/L	0.500	ND	92.7	75-125			
Iron	5.64	0.200	mg/L	2.00	3.88	87.7	75-125			
Magnesium	35.7	0.500	mg/L	10.0	26.6	90.9	75-125			
Manganese	0.940	0.0100	mg/L	0.500	0.380	112	75-125			
Nickel	0.516	0.0100	mg/L	0.500	ND	102	75-125			
Potassium	12.2	0.500	mg/L	10.0	2.00	102	75-125			
Silver	0.497	0.0050	mg/L	0.500	ND	99.5	75-125			
Sodium	25.0	0.500	mg/L	10.0	14.6	103	75-125			
Vanadium	0.491	0.0030	mg/L	0.500	ND	98.2	75-125			
Zinc	0.505	0.0200	mg/L	0.500	ND	101	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

<b>Matrix Spike (BJF0465-MS3)</b>		<b>Source: 21F0095-01</b>		Prepared: 16-Jun-2021		Analyzed: 24-Jun-2021 15:19				
Manganese	0.959	0.0100	mg/L	0.500	0.380	116	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

<b>Matrix Spike (BJF0465-MS5)</b>		<b>Source: 21F0095-01</b>		Prepared: 16-Jun-2021		Analyzed: 28-Jun-2021 15:14				
Cadmium	0.557	0.0020	mg/L	0.500	ND	111	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

<b>Matrix Spike Dup (BJF0465-MSD1)</b>		<b>Source: 21F0095-01</b>		Prepared: 16-Jun-2021		Analyzed: 18-Jun-2021 18:05				
Aluminum	2.16	1.00	mg/L	2.00	ND	108	75-125	0.57	20	
Barium	2.31	0.500	mg/L	2.00	ND	107	75-125	0.85	20	
Beryllium	0.540	0.0100	mg/L	0.500	ND	108	75-125	1.56	20	
Calcium	72.2	0.500	mg/L	10.0	60.2	120	75-125	3.22	20	
Chromium	0.531	0.0100	mg/L	0.500	ND	106	75-125	0.88	20	
Cobalt	0.531	0.0100	mg/L	0.500	ND	106	75-125	1.31	20	
Copper	0.472	0.0030	mg/L	0.500	ND	94.4	75-125	1.78	20	
Iron	5.74	0.200	mg/L	2.00	3.88	92.8	75-125	1.77	20	



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### Metals and Metallic Compounds - Quality Control

#### Batch BJF0465 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Matrix Spike Dup (BJF0465-MSD1)</b>		<b>Source: 21F0095-01</b>		Prepared: 16-Jun-2021		Analyzed: 18-Jun-2021 18:05				
Magnesium	36.5	0.500	mg/L	10.0	26.6	99.1	75-125	2.27	20	
Manganese	0.954	0.0100	mg/L	0.500	0.380	115	75-125	1.58	20	
Nickel	0.522	0.0100	mg/L	0.500	ND	103	75-125	1.00	20	
Potassium	12.4	0.500	mg/L	10.0	2.00	104	75-125	1.62	20	
Silver	0.506	0.0050	mg/L	0.500	ND	101	75-125	1.71	20	
Sodium	25.6	0.500	mg/L	10.0	14.6	109	75-125	2.45	20	
Vanadium	0.498	0.0030	mg/L	0.500	ND	99.7	75-125	1.53	20	
Zinc	0.510	0.0200	mg/L	0.500	ND	102	75-125	1.02	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

<b>Matrix Spike Dup (BJF0465-MSD3)</b>		<b>Source: 21F0095-01</b>		Prepared: 16-Jun-2021		Analyzed: 24-Jun-2021 15:24				
Manganese	0.980	0.0100	mg/L	0.500	0.380	120	75-125	2.14	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

<b>Matrix Spike Dup (BJF0465-MSD5)</b>		<b>Source: 21F0095-01</b>		Prepared: 16-Jun-2021		Analyzed: 28-Jun-2021 15:19				
Cadmium	0.572	0.0020	mg/L	0.500	ND	114	75-125	2.74	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.





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### Metals and Metallic Compounds - Quality Control

#### Batch BJJ0485 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BJJ0485-BLK1)</b>			Prepared: 17-Jun-2021 Analyzed: 23-Jun-2021 17:01								
Antimony	121	ND	0.00300	mg/L							U
Antimony	123	ND	0.00300	mg/L							U
Lead	208	ND	0.0100	mg/L							U
Thallium	205	ND	0.00200	mg/L							U
Arsenic	75a	ND	0.00300	mg/L							U
Selenium	78	ND	0.0250	mg/L							U
<b>LCS (BJJ0485-BS1)</b>			Prepared: 17-Jun-2021 Analyzed: 23-Jun-2021 17:06								
Antimony	121	0.0236	0.00300	mg/L	0.0250		94.2	80-120			
Antimony	123	0.0239	0.00300	mg/L	0.0250		95.8	80-120			
Lead	208	0.0251	0.0100	mg/L	0.0250		100	80-120			
Thallium	205	0.0260	0.00200	mg/L	0.0250		104	80-120			
Arsenic	75a	0.0248	0.00300	mg/L	0.0250		99.2	80-120			
Selenium	78	0.0825	0.0250	mg/L	0.0800		103	80-120			
<b>Duplicate (BJJ0485-DUP2)</b>			<b>Source: 21F0095-01</b>		Prepared: 17-Jun-2021 Analyzed: 24-Jun-2021 01:34						
Antimony	121	ND	0.00300	mg/L		ND					U
Lead	208	ND	0.0100	mg/L		ND					U
Thallium	205	ND	0.00200	mg/L		ND					U
Arsenic	75a	0.00308	0.00300	mg/L		ND			3.91	20	
Selenium	78	ND	0.0250	mg/L		ND					U
<b>Matrix Spike (BJJ0485-MS2)</b>			<b>Source: 21F0095-01</b>		Prepared: 17-Jun-2021 Analyzed: 24-Jun-2021 01:39						
Antimony	121	0.0237	0.00300	mg/L	0.0250	ND	94.7	75-125			
Lead	208	0.0226	0.0100	mg/L	0.0250	ND	89.9	75-125			
Thallium	205	0.0254	0.00200	mg/L	0.0250	ND	102	75-125			
Arsenic	75a	0.0290	0.00300	mg/L	0.0250	ND	104	75-125			
Selenium	78	0.0819	0.0250	mg/L	0.0800	ND	102	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
<b>Matrix Spike Dup (BJJ0485-MSD2)</b>			<b>Source: 21F0095-01</b>		Prepared: 17-Jun-2021 Analyzed: 24-Jun-2021 01:45						
Antimony	121	0.0245	0.00300	mg/L	0.0250	ND	98.1	75-125	3.56	20	
Lead	208	0.0221	0.0100	mg/L	0.0250	ND	87.9	75-125	2.26	20	
Thallium	205	0.0250	0.00200	mg/L	0.0250	ND	100	75-125	1.49	20	
Arsenic	75a	0.0283	0.00300	mg/L	0.0250	ND	101	75-125	2.57	20	
Selenium	78	0.0808	0.0250	mg/L	0.0800	ND	101	75-125	1.29	20	



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### Metals and Metallic Compounds - Quality Control

#### Batch BJF0485 - REN EPA 600/4-79-020 4.1.4 HNO<sub>3</sub> matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Matrix Spike Dup (BJF0485-MSD2)

Source: 21F0095-01

Prepared: 17-Jun-2021

Analyzed: 24-Jun-2021 01:45

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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### Metals and Metallic Compounds - Quality Control

#### Batch BJF0564 - TWM EPA 7470A

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BJF0564-BLK1)</b>		Prepared: 09-Jul-2021 Analyzed: 12-Jul-2021 14:56								
Mercury	ND	0.00100	mg/L							U
<b>LCS (BJF0564-BS1)</b>		Prepared: 09-Jul-2021 Analyzed: 12-Jul-2021 14:58								
Mercury	0.00190	0.00100	mg/L	0.00200		95.1	80-120			
<b>Duplicate (BJF0564-DUP1)</b>		<b>Source: 21F0095-01</b>		Prepared: 09-Jul-2021 Analyzed: 12-Jul-2021 15:08						
Mercury	ND	0.00100	mg/L		ND					H, U
<b>Matrix Spike (BJF0564-MS1)</b>		<b>Source: 21F0095-01</b>		Prepared: 09-Jul-2021 Analyzed: 12-Jul-2021 15:10						
Mercury	0.00101	0.00100	mg/L	0.00100	ND	101	75-125			H
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
<b>Matrix Spike Dup (BJF0564-MSD1)</b>		<b>Source: 21F0095-01</b>		Prepared: 09-Jul-2021 Analyzed: 12-Jul-2021 15:12						
Mercury	0.00104	0.00100	mg/L	0.00100	ND	104	75-125	2.91	20	H

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



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## Certified Analyses included in this Report

Analyte	Certifications
<b>EPA 200.8 in Water</b>	
Lead-208	NELAP,WA-DW,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP
Antimony-121	NELAP,WA-DW,DoD-ELAP
Antimony-121	NELAP,WADOE,DoD-ELAP
Thallium-205	NELAP,WA-DW,DoD-ELAP
Thallium-205	NELAP,WADOE,DoD-ELAP
<b>EPA 200.8 UCT-KED in Water</b>	
Arsenic-75a	NELAP,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP
Selenium-78	NELAP,WA-DW,DoD-ELAP
Selenium-78	NELAP,WADOE,DoD-ELAP
<b>EPA 6010D in Water</b>	
Silver	NELAP,DoD-ELAP
Silver	WADOE,NELAP,DoD-ELAP
Aluminum	NELAP,DoD-ELAP
Aluminum	WADOE,NELAP,DoD-ELAP
Barium	WADOE,NELAP,DoD-ELAP,ADEC
Barium	NELAP,DoD-ELAP,ADEC
Beryllium	WADOE,NELAP,DoD-ELAP
Beryllium	NELAP,DoD-ELAP
Calcium	NELAP,DoD-ELAP
Calcium	WADOE,NELAP,DoD-ELAP
Cadmium	WADOE,NELAP,DoD-ELAP,ADEC
Cadmium	NELAP,DoD-ELAP,ADEC
Cobalt	WADOE,NELAP,DoD-ELAP
Cobalt	NELAP,DoD-ELAP
Chromium	WADOE,NELAP,DoD-ELAP,ADEC
Chromium	NELAP,DoD-ELAP,ADEC
Copper	WADOE,NELAP,DoD-ELAP
Copper	NELAP,DoD-ELAP
Iron	WADOE,NELAP,DoD-ELAP
Iron	NELAP,DoD-ELAP
Potassium	WADOE,NELAP,DoD-ELAP
Potassium	NELAP,DoD-ELAP



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Magnesium	NELAP,DoD-ELAP
Magnesium	WADOE,NELAP,DoD-ELAP
Manganese	WADOE,NELAP,DoD-ELAP
Manganese	NELAP,DoD-ELAP
Sodium	DoD-ELAP,NELAP
Sodium	DoD-ELAP,WADOE,NELAP
Sodium-1	DoD-ELAP
Sodium-1	DoD-ELAP
Nickel	NELAP,DoD-ELAP,ADEC
Nickel	WADOE,NELAP,DoD-ELAP,ADEC
Vanadium	NELAP,DoD-ELAP,ADEC
Vanadium	WADOE,NELAP,DoD-ELAP,ADEC
Zinc	NELAP,DoD-ELAP
Zinc	WADOE,NELAP,DoD-ELAP

**EPA 7470A in Water**

Mercury	WADOE,NELAP,DoD-ELAP
Mercury	NELAP,DoD-ELAP

**EPA 8260D in Water**

Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloromethane	DoD-ELAP,ADEC,NELAP
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP
Chloroethane	DoD-ELAP,ADEC,NELAP
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP
Iodomethane	DoD-ELAP,NELAP
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP



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Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP
Carbon Disulfide	DoD-ELAP,NELAP
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP
Vinyl Acetate	DoD-ELAP,NELAP
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP
Trichloroethene	DoD-ELAP,ADEC,NELAP
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP



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2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP
Tetrachloroethene	DoD-ELAP,ADEC,NELAP
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP
Styrene	DoD-ELAP,NELAP
Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE



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1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP
Naphthalene	DoD-ELAP,ADEC,NELAP
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE





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1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
n-Hexane	WADOE
n-Hexane	
2-Pentanone	
2-Pentanone	WADOE

**NWTPH-HCID in Water**

Gasoline Range Organics (Tol-C12)	NELAP,DoD-ELAP
Gasoline Range Organics (Tol-C12)	NELAP,DoD-ELAP,WADOE
Diesel Range Organics (C12-C24)	NELAP,DoD-ELAP
Diesel Range Organics (C12-C24)	NELAP,DoD-ELAP,WADOE
Motor Oil Range Organics (C24-C38)	NELAP,DoD-ELAP,WADOE
Motor Oil Range Organics (C24-C38)	NELAP,DoD-ELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022



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### Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
H	Hold time violation - Hold time was exceeded.
J	Estimated concentration value detected below the reporting limit.
L	Analyte concentration is $\leq 5$ times the reporting limit and the replicate control limit defaults to $\pm$ RL instead of 20% RPD
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
Y1	Raised reporting limit due to interference
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

**APPENDIX C**

**Sample Integrity Data Sheets (SIDS)**

## SAMPLE INTEGRITY DATA SHEET

**Plant/Site** Landsburg Mine Site **Project No.** 923-1000-007.2021

**Site Location** Ravensdale, WA **Sample ID** LMW-9-0621

**Sampling Location** Groundwater Monitoring Well - end dedicated sampling tube

**Technical Procedure Reference(s)** Landsburg Mine Site Compliance Monitoring Plan (2017)

**Type of Sampler** Dedicated QED Bladder

**Date** June 4, 2021 **Time** 12:15

**Media** Water **Station** LMW-9

**Sample Type:** grab time composite space composite

**Sample Acquisition Measurements** (depth, volume of static well water and purged water, etc.)

Static Water Level: 100.15 ft BTOC

Screened Interval: 149' - 159' BGS

Sand Pack Interval: 143.5' - 159' BGS

Packer Depth: N/A

**Sample Description** Clear, no sheen, no odor

**Field Measurements on Sample** (pH, conductivity, etc.) SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
3-40 mL	VOA	VOA vial	HCl
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl

## SAMPLE INTEGRITY DATA SHEET

Well ID LMW-9

Date 06/04/2021

Time Begin Purge 11:45

Time Collect Sample 12:15

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
100.15	11:50	7.03	501	10.8	1.73	-51.5	1.59
100.15	11:55	6.97	501	10.8	1.2	-69.9	0.51
100.15	12:00	6.97	500	10.8	1.03	-74.8	1.26
100.15	12:05	6.97	500	10.8	0.94	-77.3	1.07
100.15	12:10	6.97	499.9	10.8	0.91	-78.5	0.78

**Comments:**

Clear, no sheen, no odor.

Grundfos: N/A

Packer: N/A

Tank: 130

Throttle: 95


CPM: 2

CID: 51

Flow Rate: 500 mL/min

Sampler 

Date June 4, 2021

Supervisor 

Date June 6, 2021

## SAMPLE INTEGRITY DATA SHEET

**Plant/Site** Landsburg Mine Site **Project No.** 923-1000-007.2021

**Site Location** Ravensdale, WA **Sample ID** LMW-3-0621

**Sampling Location** Groundwater Monitoring Well - end dedicated sampling tube

**Technical Procedure Reference(s)** Landsburg Mine Site Compliance Monitoring Plan (2017)

**Type of Sampler** Dedicated Pump Grundfos

**Date** June 4, 2021 **Time** 11:00

**Media** Water **Station** LMW-3

**Sample Type:** grab time composite space composite

**Sample Acquisition Measurements** (depth, volume of static well water and purged water, etc.)

Static Water Level: 12.27 ft BTOC

Screened Interval: 49.8' - 64.8' BGS

Sand Pack Interval: 47.1' - 64.8' BGS

Packer Depth: 39.33' BGS

**Sample Description** Clear, no sheen, no odor

**Field Measurements on Sample** (pH, conductivity, etc.) SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3-40 mL	VOA	VOA vial	HCl
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
2-40 mL	VOA	VOA vial	HCl

## SAMPLE INTEGRITY DATA SHEET

Well ID LMW-3

Date 06/04/2021

Time Begin Purge 10:30

Time Collect Sample 11:00

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
12.24	10:35	7.75	240.8	11.5	0.96	14.5	1.08
12.24	10:40	7.75	241.2	11.6	0.8	-39.8	0.55
12.24	10:45	7.74	241.1	11.6	0.76	-65.1	0.90
12.24	10:50	7.73	242.1	11.5	0.74	-75.8	0.58
12.24	10:55	7.72	242.7	11.5	0.73	-80.9	0.64

Comments:

Clear, no sheen, no odor.

Grundfos: ~135 Hz

Packer: 130 psi

Tank: N/A

Throttle: N/A

CPM: N/A

CID: N/A

Flow Rate: 3000 mL/min

Sampler 

Date June 4, 2021

Supervisor 

Date June 6, 2021

## SAMPLE INTEGRITY DATA SHEET

**Plant/Site** Landsburg Mine Site **Project No.** 923-1000-007.2021

**Site Location** Ravensdale, WA **Sample ID** LMW-5-0621

**Sampling Location** Groundwater Monitoring Well - end dedicated sampling tube

**Technical Procedure Reference(s)** Landsburg Mine Site Compliance Monitoring Plan (2017)

**Type of Sampler** Dedicated Pump Grundfos

**Date** June 4, 2021 **Time** 10:00

**Media** Water **Station** LMW-5

**Sample Type:** grab time composite space composite

**Sample Acquisition Measurements** (depth, volume of static well water and purged water, etc.)

Static Water Level: 14.31 ft BTOC

Screened Interval: 231.8' - 241.8' BGS

Sand Pack Interval: 231.8' - 241.8' BGS

Packer Depth: 222.11' BGS

**Sample Description** Clear, no sheen, no odor

**Field Measurements on Sample** (pH, conductivity, etc.) SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
3-40 mL	VOA	VOA vial	HCl
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl



## SAMPLE INTEGRITY DATA SHEET

Well ID LMW-5

Date 06/04/2021

Time Begin Purge 09:30

Time Collect Sample 10:00

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
14.3	09:35	6.96	522	10.7	1.22	-53.1	4.20
14.3	09:40	6.96	525	11.1	0.9	-61.2	4.28
14.3	09:45	6.97	526	11.1	0.8	-63.1	2.19
14.3	09:50	6.97	527	11.2	0.77	-65.8	4.07
14.3	09:55	6.97	527	11.2	0.76	-66.4	3.83

**Comments:**

Clear, no sheen, slight sulfur odor.

Grundfos: ~135 Hz

Packer: 110 psi

Tank: N/A

Throttle: N/A

CPM: N/A

CID: N/A

Flow Rate: 3600 mL/min

Sampler 

Date June 4, 2021

Supervisor 

Date June 6, 2021

## SAMPLE INTEGRITY DATA SHEET

**Plant/Site** Landsburg Mine Site **Project No.** 923-1000-007.2021

**Site Location** Ravensdale, WA **Sample ID** LMW-8-0621

**Sampling Location** Groundwater Monitoring Well - end dedicated sampling tube

**Technical Procedure Reference(s)** Landsburg Mine Site Compliance Monitoring Plan (2017)

**Type of Sampler** New Tubing and Peristaltic Pump

**Date** June 4, 2021 **Time** 08:45

**Media** Water **Station** LMW-8

**Sample Type:** grab time composite space composite

**Sample Acquisition Measurements** (depth, volume of static well water and purged water, etc.)

Static Water Level: 4.8 ft BTOC

Screened Interval: 8' - 13' BGS

Sand Pack Interval: 6' - 13' BGS

Packer Depth: N/A

**Sample Description** Clear, no sheen, no odor

**Field Measurements on Sample** (pH, conductivity, etc.) SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
3-40 mL	VOA	VOA vial	HCl
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl

## SAMPLE INTEGRITY DATA SHEET

Well ID LMW-8

Date 06/04/2021

Time Begin Purge 08:10

Time Collect Sample 08:45

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
6.02	08:15	6.54	386.4	11.8	1.2	-80.9	3.84
6.6	08:20	6.55	420.5	11.8	0.9	-91.9	3.43
7.1	08:25	6.6	450	11.7	0.82	-97.8	2.56
7.37	08:30	6.63	460.2	11.8	0.78	-100.9	2.31
7.47	08:35	6.65	468	11.9	0.76	-101.8	1.48

Comments:

Clear, no sheen, no odor.

Grundfos: N/A

Packer: N/A

Tank: N/A

Throttle: N/A

CPM: N/A

CID: N/A

Flow Rate: 150 mL/min

Sampler 

Date June 4, 2021

Supervisor 

Date June 6, 2021

## SAMPLE INTEGRITY DATA SHEET

**Plant/Site** Landsburg Mine Site **Project No.** 923-1000-007.2021

**Site Location** Ravensdale, WA **Sample ID** LMW-7-0621

**Sampling Location** Groundwater Monitoring Well - end dedicated sampling tube

**Technical Procedure Reference(s)** Landsburg Mine Site Compliance Monitoring Plan (2017)

**Type of Sampler** Dedicated Pump Grundfos

**Date** June 3, 2021 **Time** 17:50

**Media** Water **Station** LMW-7

**Sample Type:** grab time composite space composite

**Sample Acquisition Measurements** (depth, volume of static well water and purged water, etc.)

Static Water Level: 226.36 ft BTOC

Screened Interval: 239.6' - 253.7' BGS

Sand Pack Interval: N/A

Packer Depth: N/A

**Sample Description** Clear, no sheen, no odor

**Field Measurements on Sample** (pH, conductivity, etc.) SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
3-40 mL	VOA	VOA vial	HCl
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl

## SAMPLE INTEGRITY DATA SHEET

Well ID LMW-7

Date 06/03/2021

Time Begin Purge 17:10

Time Collect Sample 17:50

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
226.4	17:15	7.3	366.1	11	1.24	74.0	30.1
226.4	17:20	7.33	373.9	11.7	1.32	36.6	9.44
226.4	17:25	7.33	395.5	13.7	1.27	20.2	6.88
226.4	17:30	7.33	403.9	14.5	1.12	3.8	5.27
226.4	17:35	7.33	408.2	14.9	1.05	-7.9	3.61
226.4	17:40	7.34	410	15.1	1.1	-35.5	2.26
226.4	17:43	7.33	410.7	15.1	0.94	-43.7	2.19
226.4	17:46	7.33	410.9	15.1	0.93	-47.4	4.09

**Comments:**

Clear, no sheen, no odor.

Grundfos: 330 Hz

Packer: N/A

Tank: N/A

Throttle: N/A

CPM: N/A

CID: N/A

Flow Rate: 1200 mL/min

Sampler 

Date June 3, 2021

Supervisor 

Date June 6, 2021

## SAMPLE INTEGRITY DATA SHEET

**Plant/Site** Landsburg Mine Site **Project No.** 923-1000-007.2021

**Site Location** Ravensdale, WA **Sample ID** LMW-12-0621

**Sampling Location** Groundwater Monitoring Well - end dedicated sampling tube

**Technical Procedure Reference(s)** Landsburg Mine Site Compliance Monitoring Plan (2017)

**Type of Sampler** Dedicated QED Bladder

**Date** June 3, 2021 **Time** 08:40

**Media** Water **Station** LMW-12

**Sample Type:** grab time composite space composite

**Sample Acquisition Measurements** (depth, volume of static well water and purged water, etc.)

Static Water Level: 10.44 ft BTOC

Screened Interval: 15' - 25' BGS

Sand Pack Interval: 11' - 25' BGS

Packer Depth: N/A

**Sample Description** Clear, no sheen, no odor

**Field Measurements on Sample** (pH, conductivity, etc.) SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
1-500 mL	Total Metals	HDPE	HNO3
2-500 mL	1,4-dioxane	500 mL amber bottles	None
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl
3-40 mL	VOA	VOA vial	HCl

## SAMPLE INTEGRITY DATA SHEET

Well ID LMW-12

Date 06/03/2021

Time Begin Purge 08:05

Time Collect Sample 08:40

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
10.44	08:10	6.55	422.4	10.8	0.94	-23.5	5.08
10.45	08:15	6.58	415.1	10.8	0.83	-41.1	4.44
10.45	08:20	6.58	414.5	10.7	0.81	-44	4.56
10.45	08:25	6.59	413.8	10.8	0.77	-50.8	3.74
10.45	08:30	6.59	413.3	10.8	0.76	-51.6	3.68
10.45	08:35	6.6	412.2	10.7	0.75	-53.9	3.61

Comments:

Clear, no sheen, no odor.

Grundfos: N/A

Packer: N/A

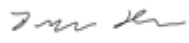
Tank: 110

Throttle: 20

CPM: 2

CID: 47

Flow Rate: 230 mL/min

Sampler 

Date June 3, 2021

Supervisor 

Date June 6, 2021

## SAMPLE INTEGRITY DATA SHEET

**Plant/Site** Landsburg Mine Site **Project No.** 923-1000-007.2021

**Site Location** Ravensdale, WA **Sample ID** LMW-6-0621

**Sampling Location** Groundwater Monitoring Well - end dedicated sampling tube

**Technical Procedure Reference(s)** Landsburg Mine Site Compliance Monitoring Plan (2017)

**Type of Sampler** Dedicated Pump Grundfos

**Date** June 3, 2021 **Time** 16:18

**Media** Water **Station** LMW-6

**Sample Type:** grab time composite space composite

**Sample Acquisition Measurements** (depth, volume of static well water and purged water, etc.)

Static Water Level: 31.35 ft BTOC

Screened Interval: 90.9' - 105.9' BGS

Sand Pack Interval: 82.5' - 105.9' BGS

Packer Depth: 81.22' BGS

**Sample Description** Clear, no sheen, no odor

**Field Measurements on Sample** (pH, conductivity, etc.) SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
3-40 mL	VOA	VOA vial	HCl
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl



## SAMPLE INTEGRITY DATA SHEET

Well ID LMW-6

Date 06/03/2021

Time Begin Purge 15:53

Time Collect Sample 16:18

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
31.35	15:58	6.97	187	10.1	0.97	-37.9	2.81
31.35	16:03	6.91	188.7	10.4	0.85	-47.6	2.25
31.35	16:08	6.89	189.4	10.5	0.8	-51.6	1.28
31.35	16:13	6.88	189.7	10.5	0.78	-53.8	1.18

Comments:

Clear, no sheen, no odor.

Grundfos: 180 Hz

Packer: 110 psi

Tank: N/A

Throttle: N/A

CPM: N/A

CID: N/A

Flow Rate: 2700 mL/min

Sampler 

Date June 3, 2021

Supervisor 

Date June 6, 2021

## SAMPLE INTEGRITY DATA SHEET

**Plant/Site** Landsburg Mine Site **Project No.** 923-1000-007.2021

**Site Location** Ravensdale, WA **Sample ID** LMW-11-0621

**Sampling Location** Groundwater Monitoring Well - end dedicated sampling tube

**Technical Procedure Reference(s)** Landsburg Mine Site Compliance Monitoring Plan (2017)

**Type of Sampler** Dedicated QED Bladder

**Date** June 3, 2021 **Time** 15:05

**Media** Water **Station** LMW-11

**Sample Type:** grab time composite space composite

**Sample Acquisition Measurements** (depth, volume of static well water and purged water, etc.)

Static Water Level: 157.9 ft BTOC

Screened Interval: 696' - 707' BGS

Sand Pack Interval: 688' - 707' BGS

Packer Depth: N/A

**Sample Description** Clear, no sheen, no odor

**Field Measurements on Sample** (pH, conductivity, etc.) SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
3-40 mL	VOA	VOA vial	HCl
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None

## SAMPLE INTEGRITY DATA SHEET

Well ID LMW-11

Date 06/03/2021

Time Begin Purge 14:35

Time Collect Sample 15:05

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
157.9	14:40	7.42	405.3	10.8	3.48	-21.4	0.87
157.9	14:45	7.27	404	10.8	1.67	-55.6	0.64
157.9	14:50	7.26	404.7	10.8	1.27	-65.9	0.72
157.9	14:55	7.26	405.6	10.6	1.15	-70.4	0.35
157.9	15:00	7.27	406.5	10.6	1.09	-73.6	0.47

Comments:

Clear, no sheen, no odor.

Grundfos: N/A

Packer: N/A

Tank: 130

Throttle: 110

CPM: 1

CID: 15

Flow Rate: 400 mL/min

Sampler 

Date June 3, 2021

Supervisor 

Date June 6, 2021

## SAMPLE INTEGRITY DATA SHEET

**Plant/Site** Landsburg Mine Site **Project No.** 923-1000-007.2021

**Site Location** Ravensdale, WA **Sample ID** LMW-15-0621

**Sampling Location** Groundwater Monitoring Well - end dedicated sampling tube

**Technical Procedure Reference(s)** Landsburg Mine Site Compliance Monitoring Plan (2017)

**Type of Sampler** Dedicated QED Bladder

**Date** June 3, 2021 **Time** 13:55

**Media** Water **Station** LMW-15

**Sample Type:** grab time composite space composite

**Sample Acquisition Measurements** (depth, volume of static well water and purged water, etc.)

Static Water Level: ft BTOC

Screened Interval: 235' - 245' BGS

Sand Pack Interval: 231' - 245' BGS

Packer Depth: N/A

**Sample Description** Clear, no sheen, no odor

**Field Measurements on Sample** (pH, conductivity, etc.) SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
3-40 mL	VOA	VOA vial	HCl
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl

## SAMPLE INTEGRITY DATA SHEET

Well ID LMW-15

Date 06/03/2021

Time Begin Purge 13:15

Time Collect Sample 13:55

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
152.15	13:20	7.44	384	11.9	8.66	94.1	6.79
152.15	13:25	7.27	380.4	12	3.7	-52.0	2.84
152.15	13:30	7.28	373.6	11.5	2.04	-94.3	4.33
152.15	13:35	7.33	374.4	11.3	1.47	-115.7	2.42
152.15	13:40	7.36	375.3	11	1.31	-121.6	2.50
152.17	13:45	7.38	376.5	11	1.2	-125.1	1.63
152.18	13:50	7.38	376.4	11	1.16	-127.3	1.15

**Comments:**

Clear, no odor, no sheen.

Grundfos: N/A

Packer: N/A

Tank: 130

Throttle: 95

CPM: 2

CID: 53

Flow Rate: 250 mL/min

Sampler 

Date June 3, 2021

Supervisor 

Date June 6, 2021

## SAMPLE INTEGRITY DATA SHEET

**Plant/Site** Landsburg Mine Site **Project No.** 923-1000-007.2021

**Site Location** Ravensdale, WA **Sample ID** LMW-14-0621

**Sampling Location** Groundwater Monitoring Well - end dedicated sampling tube

**Technical Procedure Reference(s)** Landsburg Mine Site Compliance Monitoring Plan (2017)

**Type of Sampler** Dedicated QED Bladder

**Date** June 3, 2021 **Time** 00:25

**Media** Water **Station** LMW-14

**Sample Type:** grab time composite space composite

**Sample Acquisition Measurements** (depth, volume of static well water and purged water, etc.)

Static Water Level: 166.55 ft BTOC

Screened Interval: 156.5' - 172.3' BGS

Sand Pack Interval: 152.5' - 175.8' BGS

Packer Depth: N/A

**Sample Description** Clear, no sheen, no odor

**Field Measurements on Sample** (pH, conductivity, etc.) SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3-40 mL	VOA	VOA vial	HCl
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl

## SAMPLE INTEGRITY DATA SHEET

Well ID LMW-14

Date 06/03/2021

Time Begin Purge 11:50

Time Collect Sample 00:25

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
166.66	11:55	6.85	1,121	14	4.66	144	0.58
166.66	12:00	6.62	1,005	12.7	1.22	-5.8	5.06
166.66	12:05	6.63	958	12.4	0.89	-37.1	6.75
166.66	12:10	6.62	922	12.5	0.8	-45.3	3.42
166.66	12:15	6.62	912	12.3	0.79	-46.8	3.12
166.66	12:20	6.62	904	12.4	0.77	-47.5	2.63

**Comments:**

Clear, no sheen, no odor.

Grundfos: N/A

Packer: N/A

Tank: 140

Throttle: 115

CPM: 2

CID: 49

Flow Rate: 300 mL/min

Sampler 

Date June 3, 2021

Supervisor 

Date June 6, 2021

## SAMPLE INTEGRITY DATA SHEET

**Plant/Site** Landsburg Mine Site **Project No.** 923-1000-007.2021

**Site Location** Ravensdale, WA **Sample ID** LMW-13R-0621

**Sampling Location** Groundwater Monitoring Well - end dedicated sampling tube

**Technical Procedure Reference(s)** Landsburg Mine Site Compliance Monitoring Plan (2017)

**Type of Sampler** Dedicated QED Bladder

**Date** June 3, 2021 **Time** 10:15

**Media** Water **Station** LMW-13R

**Sample Type:** grab time composite space composite

**Sample Acquisition Measurements** (depth, volume of static well water and purged water, etc.)

Static Water Level: 10.98 ft BTOC

Screened Interval: 115' - 140' BGS

Sand Pack Interval: 110' - 150' BGS

Packer Depth: N/A

**Sample Description** Clear, no sheen, no odor

**Field Measurements on Sample** (pH, conductivity, etc.) SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
1-500 mL	Total Metals	HDPE	HNO3
2-500 mL	1,4-dioxane	500 mL amber bottles	None
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl
3-40 mL	VOA	VOA vial	HCl



## SAMPLE INTEGRITY DATA SHEET

Well ID LMW-13R

Date 06/03/2021

Time Begin Purge 09:30

Time Collect Sample 10:15

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
11.17	09:35	7.27	691	10.9	2.47	-68.2	0.98
11.13	09:40	7.28	692	11	1.98	-79.2	0.92
11.15	09:45	7.3	692	10.9	1.5	-92.4	0.61
11.18	09:50	7.31	693	11	1.32	-99.2	0.44
11.17	09:55	7.32	694	11	1.15	-105.7	0.53
11.18	10:00	7.33	694	11	1.01	-112.2	0.39
11.19	10:05	7.34	694	11	0.94	-116.3	0.46
11.19	10:10	7.34	694	11	0.85	-119.3	0.38

**Comments:**

Clear, no sheen, no odor.

Grundfos: N/A

Packer: N/A

Tank: 110

Throttle: 35

CPM: 2

CID: 48

Flow Rate: 350 mL/min

Sampler 

Date June 3, 2021

Supervisor 

Date June 6, 2021

## SAMPLE INTEGRITY DATA SHEET

**Plant/Site** Landsburg Mine Site **Project No.** 923-1000-007.2021

**Site Location** Ravensdale, WA **Sample ID** LMW-FB-0621

**Sampling Location** Direct pour/end of dedicated sampling tube

**Technical Procedure Reference(s)** Landsburg Mine Site Compliance Monitoring Plan (2017)

**Type of Sampler** Direct Pour/Peristaltic Pump with New Tubing

**Date** June 3, 2021 **Time** 09:05

**Media** Water **Station** LMW-12

**Sample Type:** grab time composite space composite

**Sample Acquisition Measurements** (depth, volume of static well water and purged water, etc.)

Static Water Level: ft BTOC

Screened Interval: N/A

Sand Pack Interval: N/A

Packer Depth: N/A

**Sample Description** Clear, no sheen, no odor

**Field Measurements on Sample** (pH, conductivity, etc.) SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
2-500 mL	1,4-dioxane	500 mL amber bottles	None
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl
3-40 mL	VOA	VOA vial	HCl
1-500 mL	Total Metals	HDPE	HNO3

## SAMPLE INTEGRITY DATA SHEET

Well ID LMW-FB

Date 06/03/2021

Time Begin Purge 09:21

Time Collect Sample 09:05

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
N/A							

Comments:

Field Blank, direct pour..

Grundfos: N/A

Packer: N/A

Tank: N/A

Throttle: N/A

CPM: N/A

CID: N/A

Flow Rate: mL/min

Sampler 

Date June 3, 2021

Supervisor 

Date June 6, 2021

## SAMPLE INTEGRITY DATA SHEET

**Plant/Site** Landsburg Mine Site **Project No.** 923-1000-007.2021

**Site Location** Ravensdale, WA **Sample ID** LMW-22-0621

**Sampling Location** Groundwater Monitoring Well - end dedicated sampling tube

**Technical Procedure Reference(s)** Landsburg Mine Site Compliance Monitoring Plan (2017)

**Type of Sampler** New Tubing and Peristaltic Pump

**Date** June 2, 2021 **Time** 15:55

**Media** Water **Station** LMW-22

**Sample Type:** grab time composite space composite

**Sample Acquisition Measurements** (depth, volume of static well water and purged water, etc.)

Static Water Level: 12.49 ft BTOC

Screened Interval: 17' - 27' BGS

Sand Pack Interval: 14' - 27.3' BGS

Packer Depth: N/A

**Sample Description** Clear, no sheen, no odor, trace orange particulates.

**Field Measurements on Sample** (pH, conductivity, etc.) SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
2-500 mL	1,4-dioxane	500 mL amber bottles	None

## SAMPLE INTEGRITY DATA SHEET

Well ID LMW-22

Date 06/02/2021

Time Begin Purge 15:18

Time Collect Sample 15:55

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
13.13	15:23	7.22	307.3	12.3	1.51	-126.8	159
13.1	15:28	7.28	311.7	12.6	1.5	-139.2	161
13.07	15:33	7.31	317.1	13	1.35	-140.2	47.1
13.05	15:38	7.32	317.7	12.9	1.4	-139.9	41.5
13.08	15:43	7.34	316.8	12.6	1.22	-139.7	27.2
13.03	15:46	7.34	319.3	13	1.26	-139.5	14.3

**Comments:**

Clear, no sheen, no odor, trace orange particulates.

Grundfos: N/A

Packer: N/A

Tank: N/A

Throttle: N/A

CPM: N/A

CID: N/A

Flow Rate: 150 mL/min

Sampler 

Date June 2, 2021

Supervisor 

Date June 6, 2021

## SAMPLE INTEGRITY DATA SHEET

**Plant/Site** Landsburg Mine Site **Project No.** 923-1000-007.2021

**Site Location** Ravensdale, WA **Sample ID** LMW-20-0621

**Sampling Location** Groundwater Monitoring Well - end dedicated sampling tube

**Technical Procedure Reference(s)** Landsburg Mine Site Compliance Monitoring Plan (2017)

**Type of Sampler** New Tubing and Peristaltic Pump

**Date** June 2, 2021 **Time** 14:45

**Media** Water **Station** LMW-20

**Sample Type:** grab time composite space composite

**Sample Acquisition Measurements** (depth, volume of static well water and purged water, etc.)

Static Water Level: 15.81 ft BTOC

Screened Interval: 14' - 24' BGS

Sand Pack Interval: 11' - 24.5' BGS

Packer Depth: N/A

**Sample Description** Clear, no sheen, no odor.

**Field Measurements on Sample** (pH, conductivity, etc.) SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
2-500 mL	1,4-dioxane	500 mL amber bottles	None

## SAMPLE INTEGRITY DATA SHEET

Well ID LMW-20

Date 06/02/2021

Time Begin Purge 14:10

Time Collect Sample 14:45

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
15.87	14:15	6.65	217.1	11.9	2.95	106.7	0.82
15.88	14:20	6.62	215.9	11.5	2.88	114.8	0.70
15.88	14:25	6.63	224.5	11.9	3.48	117.3	0.56
15.88	14:30	6.64	231	12.1	4.06	120.7	0.36
15.88	14:35	6.64	232.7	11.9	4.16	122.0	0.36
15.89	14:40	6.65	234.7	11.9	4.27	124.2	0.26

**Comments:**

Clear, no sheen, no odor..Tubing intake at 20ft depth

Grundfos: N/A

Packer: N/A

Tank: N/A

Throttle: N/A

CPM: N/A

CID: N/A

Flow Rate: 150 mL/min

Sampler JN 2a

Date June 2, 2021

Supervisor 

Date June 6, 2021

## SAMPLE INTEGRITY DATA SHEET

**Plant/Site** Landsburg Mine Site **Project No.** 923-1000-007.2021

**Site Location** Ravensdale, WA **Sample ID** LMW-21-0621

**Sampling Location** Groundwater Monitoring Well - end dedicated sampling tube

**Technical Procedure Reference(s)** Landsburg Mine Site Compliance Monitoring Plan (2017)

**Type of Sampler** New Tubing and Peristaltic Pump

**Date** June 2, 2021 **Time** 12:41

**Media** Water **Station** LMW-21

**Sample Type:** grab time composite space composite

**Sample Acquisition Measurements** (depth, volume of static well water and purged water, etc.)

Static Water Level: 10.6 ft BTOC

Screened Interval: 9.8' - 14.8' BGS

Sand Pack Interval: 6.8' - 15' BGS

Packer Depth: N/A

**Sample Description** Clear, no sheen, no odor.

**Field Measurements on Sample** (pH, conductivity, etc.) SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
2-500 mL	1,4-dioxane	500 mL amber bottles	None



## SAMPLE INTEGRITY DATA SHEET

Well ID LMW-21

Date 06/02/2021

Time Begin Purge 12:55

Time Collect Sample 12:41

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
11.27	13:00	7.63	294	13.6	6.06	74.2	109
11.7	13:05	7.59	293	13.8	5.33	59.6	30.1
11.95	13:10	7.61	291.2	13.5	3.71	33.2	16.4
12.33	13:15	7.6	285	12.8	2.87	-4.1	6.13
12.33	13:20	7.59	289.9	13.5	3.42	-22.4	3.77
12.57	13:23	7.61	287.5	12.6	2.45	-33.8	5.21

**Comments:**

Clear, no sheen, no odor. Purged dry at 1330. Recharging OK. Sampled 1335 for 1,4-dioxane only. Orange suspended particulates during initial purge. Cleared up by time of sampling.

Grundfos: N/A

Packer: N/A

Tank: N/A

Throttle: N/A

CPM: N/A

CID: N/A

Flow Rate: 150 mL/min

Sampler 

Date June 2, 2021

Supervisor 

Date June 6, 2021

## SAMPLE INTEGRITY DATA SHEET

**Plant/Site** Landsburg Mine Site **Project No.** 923-1000-007.2021

**Site Location** Ravensdale, WA **Sample ID** LMW-10-0621

**Sampling Location** Groundwater Monitoring Well - end dedicated sampling tube

**Technical Procedure Reference(s)** Landsburg Mine Site Compliance Monitoring Plan (2017)

**Type of Sampler** Dedicated QED Bladder

**Date** June 2, 2021 **Time** 11:40

**Media** Water **Station** LMW-10

**Sample Type:** grab time composite space composite

**Sample Acquisition Measurements** (depth, volume of static well water and purged water, etc.)

Static Water Level: 0.22 ft BTOC

Screened Interval: 267' - 289' BGS

Sand Pack Interval: 258' - 289' BGS

Packer Depth: N/A

**Sample Description** Clear, no sheen, no odor.

**Field Measurements on Sample** (pH, conductivity, etc.) SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3-40 mL	VOA	VOA vial	HCl
1-500 mL	Total Metals	HDPE	HNO3
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl
2-500 mL	1,4-dioxane	500 mL amber bottles	None

## SAMPLE INTEGRITY DATA SHEET

Well ID LMW-10

Date 06/02/2021

Time Begin Purge 11:10

Time Collect Sample 11:40

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
0.22	11:15	8.6	288.5	12.7	0.79	-216.3	1.05
0.35	11:20	8.61	287.8	12.8	0.74	-238.2	0.60
1.1	11:25	8.62	288.3	12.8	0.71	-251.5	0.53
2.2	11:30	8.63	288.2	12.8	0.69	-259.1	0.53
3.55	11:35	8.63	288.4	12.9	0.68	-262.9	0.35

**Comments:**

Clear, no sheen, no odor.

Grundfos: N/A

Packer: N/A

Tank: 110

Throttle: 40

CPM: 2

CID: 50

Flow Rate: 300 mL/min

Sampler 

Date June 2, 2021

Supervisor 

Date June 6, 2021

## SAMPLE INTEGRITY DATA SHEET

**Plant/Site** Landsburg Mine Site **Project No.** 923-1000-007.2021

**Site Location** Ravensdale, WA **Sample ID** LMW-4-0621

**Sampling Location** Groundwater Monitoring Well - end dedicated sampling tube

**Technical Procedure Reference(s)** Landsburg Mine Site Compliance Monitoring Plan (2017)

**Type of Sampler** Dedicated Pump Grundfos

**Date** June 2, 2021 **Time** 10:15

**Media** Water **Station** LMW-4

**Sample Type:** grab time composite space composite

**Sample Acquisition Measurements** (depth, volume of static well water and purged water, etc.)

Static Water Level: 9.7 ft BTOC

Screened Interval: 195' - 209.7' BGS

Sand Pack Interval: 189' - 209.7' BGS

Packer Depth: 187.3' BGS

**Sample Description** Clear, no sheen, slight sulfur odor.

**Field Measurements on Sample** (pH, conductivity, etc.) SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
9-40 mL	VOA	VOA vial	HCl
3-500 mL	Total Metals	HDPE	HNO3
12-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
6-40 mL	TPH-Gx (HOLD)	VOA vial	HCl
6-500 mL	1,4-dioxane	500 mL amber bottles	None

## SAMPLE INTEGRITY DATA SHEET

Well ID LMW-4

Date 06/02/2021

Time Begin Purge 09:53

Time Collect Sample 10:15

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
9.7	09:58	7.03	756	11.2	1.15	-185.6	0.42
9.7	10:03	6.97	755	11.2	0.91	-194.5	0.15
9.7	10:08	6.94	759	11.3	0.85	-193.4	0.20
9.7	10:13	6.92	763	11.4	0.8	-192.5	0.21

Comments:

Clear, slight sulfur odor, no sheen.

Extra volume collected for MS/MSD

Grundfos: 80 Hz

Packer: 110 psi

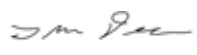
Tank: N/A

Throttle: N/A

CPM: N/A

CID: N/A

Flow Rate: 800 mL/min

Sampler 

Date June 2, 2021

Supervisor 

Date June 6, 2021

## SAMPLE INTEGRITY DATA SHEET

**Plant/Site** Landsburg Mine Site **Project No.** 923-1000-007.2021

**Site Location** Ravensdale, WA **Sample ID** LMW-2-0621

**Sampling Location** Groundwater Monitoring Well - end dedicated sampling tube

**Technical Procedure Reference(s)** Landsburg Mine Site Compliance Monitoring Plan (2017)

**Type of Sampler** Dedicated Pump Grundfos

**Date** June 2, 2021 **Time** 09:10

**Media** Water **Station** LMW-2

**Sample Type:** grab time composite space composite

**Sample Acquisition Measurements** (depth, volume of static well water and purged water, etc.)

Static Water Level: 7.62 ft BTOC

Screened Interval: 27.9' - 38.1' BGS

Sand Pack Interval: 24.8' - 38.1' BGS

Packer Depth: N/A

**Sample Description** Clear, no sheen, no odor.

**Field Measurements on Sample** (pH, conductivity, etc.) SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
3-40 mL	VOA	VOA vial	HCl
1-500 mL	Total Metals	HDPE	HNO3
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl
2-500 mL	1,4-dioxane	500 mL amber bottles	None

## SAMPLE INTEGRITY DATA SHEET

Well ID LMW-2

Date 06/02/2021

Time Begin Purge 08:45

Time Collect Sample 09:10

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
7.63	08:50	6.75	765	11.3	0.95	-203.5	1.07
7.63	08:55	6.83	767	11.7	0.82	-219.7	0.36
7.63	09:00	6.84	775	12.2	0.78	-227.8	0.30
7.63	09:05	6.85	776	12.4	0.75	-233.3	0.14

Comments:

Clear, no odor, no sheen.

LMW-2-0621-D duplicate collected 0915

Grundfos: ~70 Hz

Packer: N/A

Tank: N/A

Throttle: N/A

CPM: N/A

CID: N/A

Flow Rate: 1000 mL/min

Sampler 

Date June 2, 2021

Supervisor 

Date June 6, 2021



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