

June 18, 2020

Project No. 923-1000-006.2020

Mr. Bill Kombol

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LANDSBURG MINE SITE QUARTERLY GROUNDWATER MONITORING REPORT MARCH 2020 SAMPLING

Dear Bill,

Golder Associates Inc. (Golder) completed a quarterly interim groundwater monitoring event at the Landsburg Mine Site during March 2020. Groundwater samples were collected 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 and LMW-15. 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. 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.

Groundwater sampling was conducted in accordance with the *Compliance Monitoring Plan, Landsburg Mine Site* (Ecology 2017a), and included the following activities:

- Measurement of static water levels in each groundwater monitoring well.
- Well purging with dedicated sampling pumps installed in each monitoring well.
- 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 8260C
 - 1,4-Dioxane by USEPA SW-846 Method 8270D

- Low-Level Polychlorinated Biphenyls (PCBs) by USEPA SW-846 Method 8082A
- Organochlorine Pesticides by USEPA SW-846 Method 8081A
- Total Petroleum Hydrocarbons (TPHs) by NWTPH-HCID
- Total Metals by USEPA SW-846 Method 200.8 and SW-846 6010C
- Total Mercury by USEPA SW-846 Method 7470A

Field sampling activities were documented on Sample Integrity Data Sheets (SIDS), provided in Appendix A. 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. Data were found to be acceptable without significant qualifications. Appendix B presents the laboratory analytical report and the data validation report with added data qualifiers noted.

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

A summary of the March 2020 monitoring event is as follows:

- Laboratory analyses did not detect TPH, PCBs, or Pesticides above the laboratory reporting limits in any of the groundwater samples.
- There were no VOCs detected in groundwater above the triggers level concentrations prescribed in the CMP (Ecology 2017a). The following VOCs were detected above their respective laboratory reporting limits.
 - Carbon disulfide was detected in 11 of the 14 wells sampled. The maximum concentration reported across all samples was 0.35 micrograms per liter (µg/L) in LMW-15. All reported concentrations of carbon disulfide are considerably lower than the MTCA Method A groundwater cleanup level of 800 µg/L. Carbon disulfide has been detected at these 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.
 - Benzene was detected in LMW-14 at a concentration of 0.23 µg/L, which is consistent in concentration with previous detections of benzene in this well. The reported concentration is considerably lower than the MTCA Method A groundwater cleanup level of 5 µg/L.
 - Chloroethane was detected in LMW-12 at a concentration of 0.48 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.
 - 1,1-Dichloroethane (1,1-DCA) was detected in LMW-12 at a concentration of 0.38 µg/L. The reported concentration is consistent with previous concentrations of 1,1-DCA detected in LMW-12 and are significantly less than the MTCA Method B groundwater cleanup level of 7.68 µg/L.

- There were no SVOCs detected in groundwater above the triggers level concentrations prescribed in the CMP, except for 1,4-dioxane.
 - 1,4-Dioxane was detected in LMW-2 (1.6 µg/L), LMW-4 (1.3 µg/L), and LMW-12 (1 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 is the first sampling round that included analysis of 1,4-dioxane at the Site. 1,4-Dioxane concentrations reported during the March 2020 round are lower than the concentrations initially reported in November 2017 and are consistent with recent concentrations reported in these wells. The concentration of 1,4-dioxane reported in LMW-12 during the current sampling round is consistent with the low concentrations historically reported in this well, which range from 1.6 µg/L to not detected. 1,4-Dioxane has not been detected in any other Site monitoring wells. The 1,4-dioxane detection is being addressed by the Landsburg Mine Site Group in cooperation with Ecology.
 - An initial detection of bis(2-ethylhexyl) phthalate at 34.2 µg/L was reported in the sample collected from well LMW-8. Bis(2-ethylhexyl) phthalate is a known common laboratory contaminant, so Golder requested that the laboratory re-run the analysis using the remaining sample volume. The re-analysis did not detect bis(2-ethylhexyl) phthalate, which confirmed that the initial detection was the result of a laboratory contaminant. The re-analysis occurred past the recommended hold time for the bis(2-ethylhexyl)phthalate analysis, so to further confirm that the initial detection was a false-positive, well LMW-8 was resampled in April 2020 for bis(2-ethylhexyl)phthalate. Prior to conducting the resampling, Ecology was notified of the initial detection of the bis(2-ethylhexyl) phthalate, the re-analysis result, and the plan to resample well LMW-8 for bis(2-ethylhexyl) phthalate to confirm the initial detection was a false-positive. Bis(2-ethylhexyl) phthalate was not reported above the laboratory detection limit of 0.5 µg/L in LMW-8 during the April 2020 resampling, which confirms the initial detection was a false-positive, related to laboratory contamination.
 - 2,4-Dimethylphenol was detected above the laboratory reporting limit in LMW-14 at a concentration of 3.3 µg/L, which is significantly less than the MTCA Method B groundwater cleanup level of 160 µg/L.
- Metals detected in groundwater samples during the current sampling round include the following:
 - Groundwater samples from several Site wells contained iron concentrations above the MTCA Method B cleanup level of 11 milligrams per liter (mg/L). Manganese was also detected in LMW-14 above the MTCA Method B cleanup level of 0.75 mg/L. Iron and manganese have been detected in mine groundwater above MTCA cleanup levels in every monitoring event at the Site and are naturally occurring metals that are typically associated with groundwater from coal mines (Fuste et al. 1983). The concentrations of iron and manganese reported during the March 2020 sampling event are similar to concentrations reported during the RI (Golder 1996) and the Interim Groundwater Sampling events previously conducted at the Site.
 - Groundwater samples from the LMW-7 and LMW-11 contained total arsenic at concentrations of 0.00334 mg/L and 0.00838 mg/L, respectively. Arsenic in LMW-11 is greater than the MTCA Method A groundwater cleanup level (0.005 mg/L) but lower than the Washington State primary drinking water MCL (0.01 mg/L). Arsenic has been detected in groundwater from LMW-11 near or above MTCA cleanup levels during every monitoring event since LMW-11 was installed. Arsenic is also a naturally

occurring metal commonly detectable in groundwater, especially in older more stagnant groundwater having low reduction-oxidation (redox) and dissolved oxygen levels. The MTCA groundwater cleanup level is based on typical groundwater background levels in the State of Washington. It is believed that the arsenic concentrations are naturally occurring deep within the mine where groundwater is more stagnant and its geochemistry may be different than shallow groundwater within the mine. Arsenic was not detected in any other Site wells.

- The concentrations of a calcium, cobalt, iron, magnesium, manganese, and nickel reported in the sample from well LMW-14 (dual-purpose south sentinel /cap effectiveness well) were higher during the March 2020 sampling round than detected in LMW-14 during the May 2019 sampling round. Of these metals only iron, manganese and cobalt were detected above their cleanup levels. Iron and manganese concentrations are naturally elevated in several of the Site wells in association with the coal mine water and are not designated as contaminants with trigger levels for contingent measures (see Note to Table A-4: *Contingent Groundwater Extraction and Treatment System Plan Triggers*, in the CMP). Cobalt was detected in LMW-14 during the March 2020 sampling round at a concentration of 0.052 mg/L. Cobalt is also a metal that is naturally found in coal. Cobalt was not detected in any of the other wells and has not historically been detected in Site groundwater wells. Cobalt was also not detected in LMW-14 during the May 2019 monitoring round. In January 2020, Ecology added cobalt to the CLARC list of compounds and assigned a groundwater cleanup level of 0.0048 mg/L. Upon receipt of the March 2020 analytical results data validation package, Ecology was notified of the detection of cobalt at a concentration exceeding the groundwater cleanup level, and the plan to resample well LMW-14. Well LMW-14 was resampled in April 2020 for cobalt, iron, and manganese to evaluate if concentrations of these metals naturally fluctuate in LMW-14.
- Cobalt, iron, and manganese detected during the April 2020 resampling of LMW-14 were slightly lower than the concentrations reported in the March 2020 sample results. The attached Table 3 present the March 2020 results and the April 2020 resampling results for cobalt, iron, and manganese in LMW-14. For comparison, Table 3 also presents the May 2019 analytical results for these metals. Most pronounced in comparing the May 2019 results to the March/April 2020 results is the increase in iron from 11.1 mg/L to 53.4/24.2 mg/L, respectively. This increase in iron was accompanied by an increase in cobalt from non-detect in May 2019 to detections of 0.052/0.04 mg/L in March/April 2020 sampling. This association between increased dissolved iron and increased detection of cobalt from a coal bedrock groundwater system is expected given of the following geogenic processes:
 - Colloidal iron in groundwater: Particles of colloidal iron (hydr)oxides (collectively often referred to as ferrihydrite - $[\text{Fe}(\text{OH})_3]$), when present in a groundwater sample, would be accompanied by other metals that are co-precipitated with or adsorbed onto the (hydr)oxide matrix. The relationship between iron and co-precipitated or adsorbed cobalt in the natural environment has been well established (e.g., Butt et al. 2000; Hem 1985; Nordstrom and Alpers 1999). As such, cobalt in the presence of elevated iron would be expected in groundwater, especially in coal bearing strata. LMW-14 is screened within coal of the Rogers Coal seam.
 - Localized variability in groundwater redox conditions: The presence of cobalt in coal is well known, with an average concentration of 4.5 mg/kg across all U.S. coal sources (Lin et al. 2018). In coal, cobalt typically occurs in association with sulfide minerals such as pyrite $[\text{FeS}_2]$ (e.g., Rose et al.

1979). Cobalt in the coal matrix, when associated with iron (hydr)oxides, is highly sensitive to groundwater redox conditions, with increasing co-precipitation of iron and cobalt with reducing redox conditions. At LMW-14, reducing conditions are evident by the field-measured redox potential (ORP) of groundwater, historically ranging from -38.1 to -86.8 millivolts (mV) and low dissolved oxygen (DO) ranging from 1.4 to 0.08 mg/L at LMW-14. This reducing groundwater, when in contact with natural soils and coal bedrock, would cause the reductive dissolution of iron (hydr)oxides and associated cobalt.

During 2019, trench areas 9, 8, 7, and 6 were backfilled in association with the Site Cleanup Action Plan (CAP) (Ecology 2017b). Field parameters including temperature, pH, conductivity, DO, ORP, and turbidity were measured before, during, and subsequent to backfilling of these trench areas. LMW-14 is located at the south end of trench area 6, which is hydrologically upgradient of the former waste disposal area. The average DO measured in LMW-14 prior to completion of trench backfilling was 0.94 mg/L and the average DO measured since completing backfilling of the trench is 0.22 mg/L. The average ORP measured in LMW-14 prior to completion of trench backfilling was -59 mV and the average ORP measured since completing backfilling of the trench is -68 mV. These data indicate that the groundwater in the area of LMW-14 is slightly more reducing following completion of the trench backfilling. As mentioned above, these slight changes in redox conditions can result in increased dissolution of natural iron and cobalt present in the coal bedrock.

Based on these multiple lines of evidence, it is apparent that the cobalt detected in LMW-14 at concentrations exceeding the recently assigned MTCA cleanup level is associated with dissolution of naturally occurring metals present in coal. Similar to arsenic, iron, and manganese at the Site, the cobalt detection in LMW-14 is naturally occurring in association with the coal mine water and is not designated as a contaminant with a trigger level for contingent measures.

If you have any questions or require any additional information, please contact Gary Zimmerman at (425) 883-0777.

Sincerely,

Golder Associates Inc.



Joseph Xi
Senior Project Engineer



Gary Zimmerman
Principal

JX/GZ/sb

Attachments: Table 1: Groundwater Elevation Data, Landsburg Mine Site, March 10-11, 2020
Table 2: March and April 2020 Groundwater Analytical Results Landsburg Mine Site
Table 3: Analytical Results for Cobalt, Iron, and Manganese in LMW-14
Figure 1: Groundwater Monitoring Locations
Figure 2: Cross-Section along Strike at Coal Seam, March 2020
Appendix A: Sample Integrity Data Sheets (SIDS)
Appendix B: Laboratory Analytical Reports Data Validation and Quality Assurance /
Quality Control Review Memorandum, March and April 2020 Laboratory Analytical
Reports

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Washington State Department of Ecology (Ecology). 2017b. Exhibit B of the Consent Decree - Final Cleanup Action Plan Landsburg Mine Site MTCA Remediation Project, Ravensdale, Washington. Prepared by Golder Associates Inc. June 7.

Tables

Table 1: Groundwater Elevation Data, Landsburg Mine Site, March 10-11, 2020

	LMW-1	LMW-2	LMW-3	LMW-4 ¹	LMW-5	LMW-6	LMW-7 ¹	LMW-8	LMW-9	LMW-10	LMW-11	LMW-12	LMW-13R	LMW-14 ¹	LMW-15
Water Depths															
Date of data collection	3/11/2020	3/10/2020	3/10/2020	3/10/2020	3/10/2020	3/10/2020	3/10/2020	3/10/2020	3/10/2020	3/10/2020	3/10/2020	3/10/2020	3/10/2020	3/10/2020	3/10/2020
Time of data collection	8:10 AM	10:30 AM	11:29 AM	10:28 AM	11:34 AM	10:52 AM	8:15 AM	11:38 AM	11:23 AM	10:24 AM	11:08 AM	10:36 AM	10:15 AM	10:59 AM	11:17 AM
Measured to Top of PVC (ft btc)	136.25	6.41	11.83	7.83	13.40	22.18	208.86	3.50	99.07	0.19	156.97	7.12	7.85	159.08	150.72
Surveyed Elevation															
Top of PVC (ft asl)	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
Top of Monument (ft asl)	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
Ground Level (ft asl)	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
Corrected Water Elevation															
Using PVC elevation (ft asl)	629.11	611.38	644.92	611.44	644.87	610.15	562.65	643.47	644.92	618.79	645.22	618.23	618.01	646.04	645.74

Notes:
¹ Data corrected to accommodate well inclination from vertical
NA = Not applicable
NC = Data not collected
ft btc = feet below top of casing
ft asl = feet above sea level

Table 2: March and April 2020 Groundwater Analytical Results Landsburg Mine Site

ANALYTE	UNITS	LMW-2	LMW-3	LMW-4	LMW-4 Duplicate	LMW-5	LMW-6	LMW-7	LMW-8	LMW-8	LMW-9	LMW-10	LMW-11	LMW-12	LMW-13R	LMW-14	LMW-14	LMW-15	Field Blank	Field Blank	Trip Blank
		3/11/2020	3/12/2020	3/10/2020	3/10/2020	3/12/2020	3/11/2020	3/10/2020	3/12/2020	4/21/2020	3/12/2020	3/10/2020	3/11/2020	3/10/2020	3/10/2020	3/11/2020	4/21/2020	3/11/2020	3/11/2020	4/21/2020	3/11/2020
Field Parameter																					
Temperature	°C	10.3	10.8	10.0	-	10.5	9.5	13.6	8.8	10.1	10.2	9.1	9.6	9.8	9.5	9.5	10.0	9.1	-	-	-
pH	stnd	7.57	7.68	7.76	-	6.56	7.73	7.44	6.13	6.57	7.13	9.19	8.38	7.08	7.36	7.64	6.33	8.56	-	-	-
Conductivity	uS/cm	748	224	710	-	507	184	414	343	369	466	261	382	614	663	1596	1262	346	-	-	-
Dissolved Oxygen	mg/L	0.31	0.33	0.36	-	0.3	0.36	0.52	0.93	0.05	0.43	0.31	0.62	0.29	0.35	0.33	0.08	0.62	-	-	-
Oxidation-Reduction Potential	Rel mV	-244.6	-63.7	-98.5	-	-117.4	-92.8	-63.1	-81.9	-78.1	-106.5	-242.3	-90.5	-111.0	-147.7	-86.8	-56.3	-157.7	-	-	-
Turbidity	NTU	1.58	0.61	0.42	-	0.67	0.49	1.69	11.7	5.23	0.74	0.13	1.7	12.0	1.08	3.44	2.45	2.55	-	-	-
Metals (Total)																					
Aluminum	mg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Antimony	mg/L	0.003 U	0.006 U	0.003 U	0.003 U	0.006 U	0.006 U	0.003 U	0.006 U	NS	0.006 U	0.003 U	0.006 U	0.003 U	0.003 U	0.006 U	NS	0.006 U	0.006 U	NS	NS
Arsenic	mg/L	0.003 U	0.006 U	0.003 U	0.003 U	0.006 U	0.006 U	0.00334	0.006 U	NS	0.006 U	0.003 U	0.00838	0.003 U	0.003 U	0.006 U	NS	0.006 U	0.006 U	NS	NS
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	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	NS	NS
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	NS	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NS	0.01 U	0.01 U	NS	NS
Cadmium	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	NS	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	NS	0.002 U	0.002 U	NS	NS
Calcium	mg/L	109	34.8	112	111	80	24.8	37.2	53.6	NS	74.6	6.42	57.4	93.6	86	294	NS	58.2	0.5 U	NS	NS
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	NS	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NS	0.01 U	0.01 U	NS	NS
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	NS	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0515	0.0402	0.01 U	0.01 U	0.003 U	NS
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	NS	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	NS	0.0037	0.003 U	NS	NS
Iron	mg/L	0.2 U	0.2 U	0.459	0.438	0.2 U	2.06	0.571	12.8	NS	1.42	0.2 U	0.554	15	1.2	53.6	24.2	3.13	0.2 U	0.002 J	NS
Lead	mg/L	0.02 U	0.02 U	0.01 U	0.01 U	0.02 U	0.02 U	0.01 U	0.02 U	NS	0.02 U	0.01 U	0.02 U	0.01 U	0.01 U	0.02 U	NS	0.02 U	0.02 U	NS	NS
Magnesium	mg/L	69.8	15	69.8	68.4	45.8	12.7	17.4	29.2	NS	41.7	2.87	26.7	62.6	40.4	188	NS	26.2	0.5 U	NS	NS
Manganese	mg/L	0.199	0.0298	0.177	0.174	0.212	0.0309	0.0592 J	0.394	NS	0.164	0.01 U	0.17	0.515	0.0433	1.16	0.702	0.368	0.01 U	0.001 U	NS
Mercury	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	NS	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	NS	0.001 U	0.001 U	NS	NS
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	NS	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0231	NS	0.01 U	0.01 U	NS	NS
Potassium	mg/L	3.47	1.67	3.7	3.55	2.48	0.654	2.55	1.7	NS	2.35	1.3	2.08	3.82	3.37	5.94	NS	2.23	0.5 U	NS	NS
Selenium	mg/L	0.025 U	0.05 U	0.025 U	0.025 U	0.05 U	0.05 U	0.025 U	0.05 U	NS	0.05 U	0.025 U	0.05 U	0.025 U	0.025 U	0.05 U	NS	0.05 U	0.05 U	NS	NS
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	NS	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	NS	0.005 U	0.005 U	NS	NS
Sodium	mg/L	19.1	9.88	22	21.4	13.9	6.79	52.8	9.41	NS	13.6	81.3	25	13	75.2	29.9	NS	15.8	0.5 U	NS	NS
Thallium	mg/L	0.002 U	0.004 U	0.002 U	0.002 U	0.004 U	0.004 U	0.002 U	0.004 U	NS	0.004 U	0.002 U	0.004 U	0.002 U	0.002 U	0.004 U	NS	0.004 U	0.004 U	NS	NS
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	NS	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	NS	0.003 U	0.003 U	NS	NS
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	NS	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	NS	0.02 U	0.02 U	NS	NS
Volatile Organic Compounds (VOCs)																					
Acetone	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U
Acrolein	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	NS	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	NS	2.5 U	2.5 U	NS	2.5 U
Acrylonitrile	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	1 U
Benzene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.23	NS	0.2 U	0.2 U	NS	0.2 U
Bromobenzene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
Bromochloromethane	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
Bromoethane	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	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	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	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
Bromomethane	ug/L	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	1 U
methyl ethyl ketone	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U
n-Butylbenzene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
Sec-Butylbenzene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
tert-butylbenzene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
Carbon Disulfide	ug/L	0.23 J-	0.1 U	0.18	0.23	0.18	0.14	0.1 U	0.1 U	NS	0.13	0.17	0.14	0.14	0.17	0.11	NS	0.35	0.1 U	NS	0.11
Carbon Tetrachloride	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	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
Chlorobenzene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
Chloroethane	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	NS	0.2 U	0.2 U	0.2 U	0.48	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
2-Chloroethyl vinyl ether	ug/L	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	NS	0.5 U
Chloroform	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
Chloromethane	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	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	NS	0.5 U
2-Chlorotoluene	ug/L	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NS	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NS	0.1 U	0.1 U	NS	0.1 U
4-Chlorotoluene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U

Table 2: March and April 2020 Groundwater Analytical Results Landsburg Mine Site

ANALYTE	UNITS	LMW-2	LMW-3	LMW-4	LMW-4 Duplicate	LMW-5	LMW-6	LMW-7	LMW-8	LMW-8	LMW-9	LMW-10	LMW-11	LMW-12	LMW-13R	LMW-14	LMW-14	LMW-15	Field Blank	Field Blank	Trip Blank
Dichlorodifluoromethane	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	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
1,2-Dibromo-3-Chloropropane	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	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	NS	0.5 U
Ethylene Dibromide	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	NS	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NS	0.1 U	0.1 U	NS	0.1 U
Dibromomethane	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
1,2-Dichlorobenzene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
1,3-Dichlorobenzene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
1,4-Dichlorobenzene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	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	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	1 U
1,1-Dichloroethane	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.38	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
1,2-Dichloroethane	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	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	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
Cis-1,2-Dichloroethene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
Trans-1,2-Dichloroethene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
1,2-Dichloropropane	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
1,3-Dichloropropane	ug/L	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NS	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NS	0.1 U	0.1 U	NS	0.1 U
2,2-Dichloropropane	ug/L	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NS	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NS	0.1 U	0.1 U	NS	0.1 U
1,1-Dichloropropene	ug/L	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NS	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NS	0.1 U	0.1 U	NS	0.1 U
Cis-1,3-Dichloropropene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
Trans-1,3-Dichloropropene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
Ethylbenzene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
Hexachlorobutadiene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.36
2-Hexanone	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U
Iodomethane	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	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	NS	0.5 U
Cumene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
p-Isopropyltoluene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
Methylene Chloride	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	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	NS	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	NS	2.5 U	2.5 U	NS	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	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	NS	0.5 U
n-Propylbenzene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
Styrene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
1,2,3-Trichlorobenzene	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	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
1,2,4-Trichlorobenzene	ug/L	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	NS	0.5 U
1,1,1,2-Tetrachloroethane	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
1,1,2,2-Tetrachloroethane	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	NS	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NS	0.1 U	0.1 U	NS	0.1 U
Tetrachloroethene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
Toluene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
1,1,1-Trichloroethane	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
1,1,2-Trichloroethane	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
Trichloroethene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
CFC-113	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
1,2,3-Trichloropropane	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	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
1,2,4-Trimethylbenzene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
1,3,5-Trimethylbenzene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
Vinyl Acetate	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	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	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	NS	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	NS	0.1 U	0.1 U	NS	0.1 U
m, p-Xylene	ug/L	0.4 UJ	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	NS	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	NS	0.4 U	0.4 U	NS	0.4 U
o-Xylene	ug/L	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NS	0.2 U	0.2 U	NS	0.2 U
Total Xylenes	ug/L	0.6 UJ	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	NS	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	NS	0.6 U	0.6 U	NS	0.6 U

Table 2: March and April 2020 Groundwater Analytical Results Landsburg Mine Site

ANALYTE	UNITS	LMW-2	LMW-3	LMW-4	LMW-4 Duplicate	LMW-5	LMW-6	LMW-7	LMW-8	LMW-8	LMW-9	LMW-10	LMW-11	LMW-12	LMW-13R	LMW-14	LMW-14	LMW-15	Field Blank	Field Blank	Trip Blank
Semi-Volatile Organic Compounds (SVOCs)																					
Phenol	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
bis(2-chloroethyl)Ether	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
2-Chlorophenol	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
1,3-Dichlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
1,4-Dichlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Benzyl Alcohol	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NS	2 U	2 U	2 U	2 U	2 U	2 U	NS	2 U	2 U	NS	NS
1,2-Dichlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
o-cresol	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Bis(2-chloro-1-methylethyl) ether	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
p-cresol	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NS	2 U	2 U	2 U	2 U	2 U	2 U	NS	2 U	2 U	NS	NS
N-Nitrosodi-n-propylamine	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Hexachloroethane	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NS	2 U	2 U	2 U	2 U	2 U	2 U	NS	2 U	2 U	NS	NS
Nitrobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Isophorone	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
2-Nitrophenol	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	NS	NS
2,4-Dimethylphenol	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	NS	NS
Bis(2-Chloroethoxy)Methane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Benzoic Acid	ug/L	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS	20 U	20 U	20 U	20 U	20 U	20 U	NS	20 U	20 U	NS	NS
2,4-Dichlorophenol	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	NS	NS
1,2,4-Trichlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Naphthalene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
4-Chloroaniline	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	NS
Hexachlorobutadiene	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	NS	NS
4-Chloro-3-Methylphenol	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	NS	NS
2-Methylnaphthalene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Hexachlorocyclopentadiene	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	NS
2,4,6-Trichlorophenol	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	NS	NS
2,4,5-Trichlorophenol	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	NS
pcn-002	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
2-Nitroaniline	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	NS	NS
Dimethyl phthalate	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Acenaphthylene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
2,6-Dinitrotoluene	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	NS	NS
m-Nitroaniline	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	NS	NS
Acenaphthene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
2,4-Dinitrophenol	ug/L	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NS	20 U	20 U	20 U	20 U	20 U	20 U	NS	20 U	20 U	NS	NS
Dibenzofuran	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
4-Nitrophenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	NS	10 U	10 U	NS	NS
2,4-Dinitrotoluene	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	NS	NS
Fluorene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Diethyl phthalate	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
4-chlorophenyl-Phenylether	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
4-Nitroaniline	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	NS	NS
4,6-Dinitro-2-Methylphenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	NS	10 U	10 U	NS	NS
N-Nitrosodiphenylamine	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Hexachlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Pentachlorophenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	NS	10 U	10 U	NS	NS
Phenanthrene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Anthracene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Carbazole	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
dibutyl phthalate	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Fluoranthene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Pyrene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Butyl benzyl phthalate	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Benz[a]anthracene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS

Table 2: March and April 2020 Groundwater Analytical Results Landsburg Mine Site

ANALYTE	UNITS	LMW-2	LMW-3	LMW-4	LMW-4 Duplicate	LMW-5	LMW-6	LMW-7	LMW-8	LMW-8	LMW-9	LMW-10	LMW-11	LMW-12	LMW-13R	LMW-14	LMW-14	LMW-15	Field Blank	Field Blank	Trip Blank
3,3'-Dichlorobenzidine	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	NS
Chrysene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
bis(2-ethylhexyl) Phthalate	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	34.2 R	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NS	3 U	3 U	3 U	NS
Di-n-Octyl Phthalate	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Benzo(a)pyrene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Indeno(1,2,3-cd)pyrene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Dibenzo(a,h)anthracene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Benzo(ghi)perylene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
Benzofluoranthenes, Total (b+k+j)	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NS	2 U	2 U	2 U	2 U	2 U	2 U	NS	2 U	2 U	NS	NS
1-Methylnaphthalene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS
1,4-Dioxane	ug/L	1.6	0.4 U	1.3	1.4	0.4 U	0.4 U	0.4 U	0.4 U	NS	0.4 U	0.4 U	0.4 U	1	0.4 U	0.4 U	NS	0.4 U	0.4 U	NS	NS
Polychlorinated Biphenyls (PCBs)																					
PCB-aroclor 1016	µg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ	NS	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NS	0.01 U	0.01 U	NS	NS
PCB-aroclor 1221	µg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ	NS	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NS	0.01 U	0.01 U	NS	NS
PCB-aroclor 1232	µg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ	NS	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NS	0.01 U	0.01 U	NS	NS
PCB-aroclor 1242	µg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ	NS	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NS	0.01 U	0.01 U	NS	NS
PCB-aroclor 1248	µg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ	NS	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NS	0.01 U	0.01 U	NS	NS
PCB-aroclor 1254	µg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ	NS	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NS	0.01 U	0.01 U	NS	NS
PCB-aroclor 1260	µg/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ	NS	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NS	0.01 U	0.01 U	NS	NS
Pesticides																					
alpha-BHC	µg/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	NS	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NS	0.025 U	0.025 U	NS	NS
beta-BHC	µg/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	NS	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NS	0.025 U	0.025 U	NS	NS
Lindane	µg/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	NS	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NS	0.025 U	0.025 U	NS	NS
delta-BHC	µg/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	NS	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NS	0.025 U	0.025 U	NS	NS
Heptachlor	µg/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	NS	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NS	0.025 U	0.025 U	NS	NS
Aldrin	µg/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	NS	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NS	0.025 U	0.025 U	NS	NS
Heptachlor Epoxide	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NS	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NS	0.05 U	0.05 U	NS	NS
trans-Chlordane	µg/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	NS	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NS	0.025 U	0.025 U	NS	NS
cis-Chlordane	µg/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	NS	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NS	0.025 U	0.025 U	NS	NS
4,4'-DDE	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NS	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NS	0.05 U	0.05 U	NS	NS
Dieldrin	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NS	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NS	0.05 U	0.05 U	NS	NS
Endrin	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NS	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NS	0.05 U	0.05 U	NS	NS
4,4'-DDD	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NS	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NS	0.05 U	0.05 U	NS	NS
Endrin Aldehyde	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NS	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NS	0.05 U	0.05 U	NS	NS
4,4'-DDT	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NS	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NS	0.05 U	0.05 U	NS	NS
Endosulfan Sulfate	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NS	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NS	0.05 U	0.05 U	NS	NS
Endrin Ketone	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NS	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NS	0.05 U	0.05 U	NS	NS
Methoxychlor	µg/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	NS	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	NS	0.25 U	0.25 U	NS	NS
Toxaphene	µg/L	1.25 U	1.25 U	1.25 U	1.25 U	1.25 U	1.25 U	1.25 U	1.25 U	NS	1.25 U	1.25 U	1.25 U	1.25 U	1.25 U	1.25 U	NS	1.25 U	1.25 U	NS	NS
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	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NS	0.5 U	0.5 U	NS	NS
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	NS	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	NS	0.25 U	0.25 U	NS	NS
Lube Oil Range	mg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	1 U	1 U	1 U	1 U	NS	1 U	1 U	NS	NS

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

Table 3 - Analytical Results for Cobalt, Iron, and Manganese detected in LMW-14

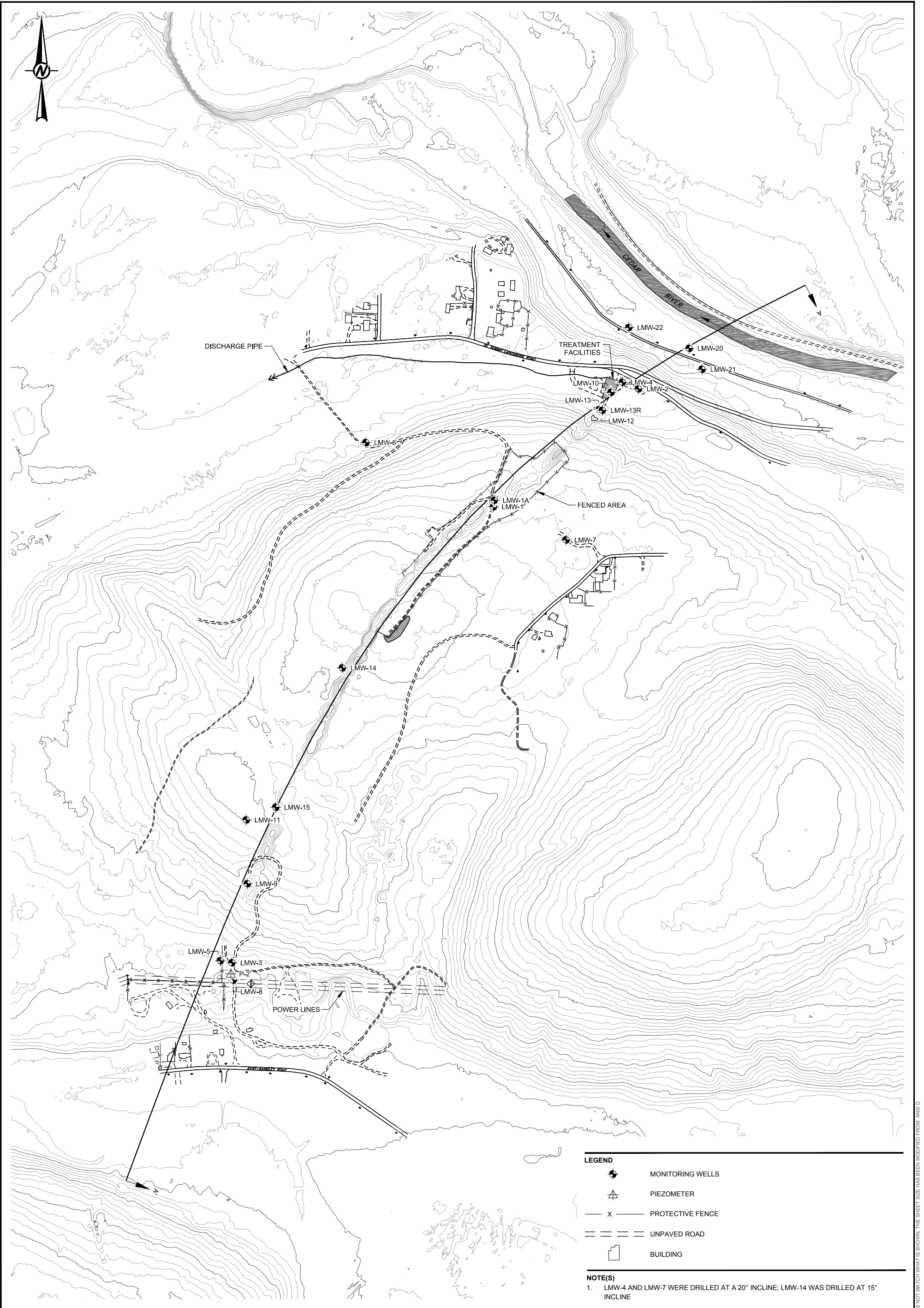
Parameter	2019-05 Result	2020-03 Result	2020-04 Resample Result	MTCA Cleanup Level	Units
Cobalt	0.01 U	0.052	0.04	0.0048	mg/L
Iron	11.1	53.6	24.2	11	mg/L
Manganese	0.79	1.16	0.7	0.75	mg/L

Notes:

U - The analyte was not detected above the level of the method detection limit.

mg/L = milligrams per liter

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

0 300 600
1" = 300' FEET



APPENDIX A

**Sample Integrity Data Sheets
(SIDS)**

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020
Site Location Ravensdale, WA **Sample ID** LMW-2-0320
Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date 3/11/2020 **Time** 0905

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.)

SWL – 7.19 ⁰⁸³⁰ ft below TOC (monument at elev. X) (bottom at 38.1 ft bgs, 4-in casing)

Screen Interval – 27.9-38.1 ft bgs Monument: 2.94 ags

Sand Pack Interval – 24.8-38.1 ft bgs (8-in hole) (~7.8 gal/sand pack vol)

Packer Depth – NA (~22.3 gal/casing vol) (~30.1 gal/total well vol)

Sample Description Extra volume collected for MS/MSD. Clear, 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 (non)
3 – 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
12 – 500 ml, 6 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
6 – 1 Liter, 6 – 1 Liter	PCBs/Pest	Glass Amber	none
6 – 1 Liter	SVOCs	Glass Amber	none
6 – 500 mL	1,4-Dioxane	Glass Amber	none

Sampler (signature) Rodriguez **Date** 3/11/2020

Supervisor (signature) Har **Date** 3-14-2020

FIELD PARAMETERS SHEET

Well ID LMW-2
 Date 3/11/2020
 Time Begin Purge 0833
 Time Collect Sample 0905

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
7.21	0835	9.8	7.41	758	0.48	-192.3	3.04
7.21	0840	10.1	7.44	761	0.40	-215.9	0.99
7.21	0845	10.2	7.50	759	0.36	-232.4	0.67
7.21	0850	10.2	7.53	756	0.33	-241.1	1.66
7.21	0855	10.2	7.54	752	0.32	-243.3	1.15
7.21	0900	10.3	7.57	748	0.31	-244.6	1.58
			Sample	0905			

Comments:

Grundfos: ~80 Hz

Flow Rate: ~~2.474~~ gpm
 0.4

Extra volume collected for MS/MSD

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020
Site Location Ravensdale, WA **Sample ID** LMW-3-0320
Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date 3/12/20

Time 1230

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.)

SWL – 12.78' @ 1112 ft below TOC (monument at elev. X) (bottom at 64.8 ft bgs, 4-in casing)

Screen Interval – 49.8-64.8 ft bgs Monument: 3.08 ags

Sand Pack Interval – 47.1-64.8 ft bgs (8-in hole) (~10.4 gal/sand pack)

Packer Depth – 39.33 ft bgs (~36.1 gal/casing vol) (~16.6 gal/packer casing volume)

(~27.0 gal/total well vol below packer)

Sample Description clear, odorless

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 (non)
1 – 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 – 500 ml, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 – 1 Liter, 2 – 1 Liter	PCBs/Pest	Glass Amber	none
2 – 1 Liter	SVOCs	Glass Amber	none
2 – 500 mL	1,4-Dioxane	Glass Amber	none

Sampler (signature) [Signature]

Date 3/12/20

Supervisor (signature) [Signature]

Date 3-14-2020

FIELD PARAMETERS SHEET

Well ID LMW-3
 Date 3/12/2020
 Time Begin Purge 1125
 Time Collect Sample 1230

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
12.29	1130	10.7	7.57	219.1	1.97	61.9	0.29
12.29	1135	10.8	7.53	218.5	1.06	38.6	0.61
12.29	1140	10.8	7.53	218.2	0.82	10.8	0.31
12.30	1145	10.8	7.54	217.8	0.69	-11.9	0.24
12.31	1150	10.8	7.58	218.1	0.56	-24.0	0.34
12.30	1155	10.9	7.58	218.9	0.46	-36.4	0.34
12.29	1200	10.7	7.57	219.0	0.42	-43.3	0.27
12.30	1205	10.7	7.54	219.6	0.38	-48.6	0.28
12.30	1210	10.8	7.58	220.6	0.36	-56.1	0.31
12.30	1215	10.8	7.65	221.0	0.34	-59.5	0.53
12.30	1220	10.8	7.67	223.1	0.33	-62.8	0.23
12.27	1225	10.8	7.68	223.9	0.33	-63.7	0.61
		Sample 1230					

Comments:

Grundfos: 135 Htz
 Packer: 130psi

Flow Rate 0.55 gpm

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020
Site Location Ravensdale, WA **Sample ID** LMW-4-0320 + LMW-4-0320-D
Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date 3/10/2020 **Time** 1440 / 1450 (Dup)

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.)

SWL - 8.43 ^{@ 1409} ft below TOC (monument at elev. X) (bottom at 209.7 ft bgs, 4-in casing)

Screen Interval - 195-209.7 ft bgs Monument: 2.76 ags

Sand Pack Interval - 189-209.7 ft bgs (8-in hole) (~12.3 gal/sand pack)

Packer Depth - 187.3 ft bgs (~133.3 gal/casing vol) (~14.6 gal/packer casing volume)

(~26.9 gal/total well vol below packer)

** Depths corrected for 70° inclination

Sample Description clear, odorless

Field Measurements on Sample (pH, conductivity, etc.)

SEE FIELD PARAMETERS SHEET

Dupl	R6	Aliquot Amount	Analysis	Container	Preservation / Amount
		6 8 - 40 mL	VOA	VOA Vial	HCl
		2 1 - 500 ml	Total Metals	HDPE	HNO3 (non)
		2 1 - 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
		8 4 - 500 ml, 2 ⁴ - 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
		4 2 - 1 Liter, 2 ⁴ - 1 Liter	PCBs/Pest	Glass Amber	none
		4 2 - 1 Liter	SVOCs	Glass Amber	none
		4 2 - 500 mL	1,4-Dioxane	Glass Amber	none

Sampler (signature) 

Date 3/10/2020

Supervisor (signature) 

Date 3-14-2020

FIELD PARAMETERS SHEET

Well ID LMW-4

Date 3/10/2020

Time Begin Purge 1411

Time Collect Sample 1440 / 1450

[illegible]

Comments:

Grundfos: 80 Htz

Packer: 110psi

Flow Rate 0.29 gpm

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site Project No. 923-1000-006.2020
 Site Location Ravensdale, WA Sample ID LMW-5-0320
 Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date 3/12/2020 Time 1350

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.)

SWL - 14.26 ^{@ 1313} ft below TOC (monument at elev. X) (bottom at 241.8 ft bgs, 4-in casing)

Screen Interval - 231.8-241.8 ft bgs Monument: 3.24 ags

Sand Pack Interval - 231.8-241.8 ft bgs (8-in hole) (~5.9 gal/sand pack)

Packer Depth - 222.11 ft bgs (~150.8 gal/casing vol) (~12.9 gal/packer casing volume)

(~18.7 gal/total well vol below packer)

Sample Description clear, odorless

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 (non)
1 - 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 - 500 ml, 2 - 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 - 1 Liter, 2 - 1 Liter	PCBs/Pest	Glass Amber	none
2 - 1 Liter	SVOCs	Glass Amber	none
2 - 500 mL	1,4-Dioxane	Glass Amber	none

Sampler (signature)  Date 3/12/20

Supervisor (signature)  Date 3-14-2020

FIELD PARAMETERS SHEET

Well ID ~~LMW-3~~ LMW-5

Date 3-12-2020

Time Begin Purge 1317

Time Collect Sample 1350[illegible]

Comments:

Grundfos: 135 Htz

Packer: 110psi

Flow Rate 0.7 gpm

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020
Site Location Ravensdale, WA **Sample ID** LMW-6-0320
Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date 3/11/2020 **Time** 1200

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.)

SWL - 23.06 @ 112 ft below TOC (monument at elev. X) (bottom at 105.9 ft bgs, 4-in casing)

Screen Interval - 90.9-105.9 ft bgs Monument: 3.05 ags

Sand Pack Interval - 82.5-105.9 ft bgs (8-in hole) (~13.7 gal/sand pack)

Packer Depth - 81.22 ft bgs (~53 gal/casing vol) (~16.1 gal/packer casing volume)

(~29.9 gal/total well vol below packer)

Sample Description clear, odorless

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 (non)
1 - 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 - 500 ml, 2 - 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 - 1 Liter, 2 - 1 Liter	PCBs/Pest	Glass Amber	none
2 - 1 Liter	SVOCs	Glass Amber	none
2 - 500 mL	1,4-Dioxane	Glass Amber	none

Sampler (signature) Res Gang

Date 3/11/2020

Supervisor (signature) [Signature]

Date 3-14-2020

FIELD PARAMETERS SHEET

Well ID LMW-6
 Date 3/11/2020
 Time Begin Purge 1112
 Time Collect Sample 1200

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
22.62	1120	9.2	*10.31	182.4	0.60	-166.4	4.50
22.62	1125	9.4	8.03	183.8	0.49	-155.0	2.23
22.62	1130	9.5	8.02	184.0	0.44	-133.1	1.29
22.62	1135	9.5	8.00	184.1	0.42	-115.6	0.78
22.62	1140	9.5	7.98	184.0	0.40	-106.1	1.19
22.62	1145	9.5	7.94	184.1	0.38	-98.8	0.77
22.62	1150	9.5	7.83	184.1	0.37	-94.5	1.38
22.62	1155	9.5	7.73	184.1	0.36	-92.8	0.49
			Sample	1200			

Comments:

Grundfos: 180 Htz
 Packer: 110psi

Flow Rate 0.83 gpm

* pH 8.50 at 1120.

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site Project No. 923-1000-006.2020
 Site Location Ravensdale, WA Sample ID LMW-7-0320
 Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date 3/10/2020

Time 0950

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.)

SWL 222.26 ²⁰⁸¹⁵ ft below TOC (monument at elev. X) (bottom at 253.7 ft bgs, 4-in casing)

Screen Interval – 239.6-253.7 ft bgs Monument: 3.09 ags

Sand Pack Interval – NA

Packer Depth – NA (~28.3 gal/casing vol) ** Depths corrected for 70° inclination

Sample Description Very faint sulfur odor. Clear water

Field Measurements on Sample (pH, conductivity, etc.)

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
^{RL} 3 8 – 40 mL	VOA	VOA Vial	HCl
1 2 – 500 ml	Total Metals	HDPE	HNO3 (non)
1 2 – 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 8 – 500 ml, ² 4 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 4 – 1 Liter, ² 4 – 1 Liter	PCBs/Pest	Glass Amber	none
2 4 – 1 Liter	SVOCs	Glass Amber	none
2 4 – 500 mL	1,4-Dioxane	Glass Amber	none

Sampler (signature) [Signature]

Date 3/10/20

Supervisor (signature) [Signature]

Date 3-14-2020

FIELD PARAMETERS SHEET

Well ID LMW-7
 Date 3/10/2020
 Time Begin Purge 0900
 Time Collect Sample 0950

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
*	0905	10.4	7.01	383.2	1.41	129.1	7.03
	0910	12.7	7.28	405.4	0.88	101.8	3.68
	0915	13.3	7.39	410.6	0.72	75.8	3.74
	0920	13.5	7.40	411.9	0.62	+7.1	2.09
	0925	13.5	7.39	412.0	0.57	-46.5	1.47
	0930	13.6	7.39	412.7	0.55	-59.4	1.43
	0935	13.6	7.42	413.2	0.53	-63.1	1.63
	0940	13.6	7.44	414.4	0.52	-63.1	1.69
Sample							

Comments:

Grundfos: 320 Htz

Flow Rate 0.35 gpm

* Water level tape measure stuck when pump on.

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site Project No. 923-1000-006.2020

Site Location Ravensdale, WA Sample ID LMW-8-0320

Sampling Location Groundwater Monitoring Well End of new sampling tube

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

Type of Sampler New Tubing and Peristaltic Pump, Bailer for VOC samples

Date 3/12/2020 Time 1050

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.)

SWL - 3.75 ⁰⁹⁴⁰ ft below TOC (PVC at black notch) (bottom at 13 ft bgs, 2-in casing)

Screen Interval - 8-13 ft bgs PVC stickup: 1.72 ags

Sand Pack Interval - 6-13 ft bgs (8-in hole) (~5.1 gal/sand pack)

Packer Depth - NA (~1.9 gal/casing vol) (~7.0 gal/total well vol)

Sample Description clear, odorless

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 (non)
1 - 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 - 500 ml, 2 - 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 - 1 Liter, 2 - 1 Liter	PCBs/Pest	Glass Amber	none
2 - 1 Liter	SVOCs	Glass Amber	none
2 - 500 mL	1,4-Dioxane	Glass Amber	none

Sampler (signature) 

Date 3/12/20

Supervisor (signature) 

Date 3-14-2020

FIELD PARAMETERS SHEET

Well ID LMW-8
 Date 3/12/2020
 Time Begin Purge 0945
 Time Collect Sample 1050

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
4.55	0950	8.1	5.95	345.8	0.95	-49.6	>100
4.87	0955	8.2	5.93	341.0	0.66	-69.0	>100
5.13	1000	8.5	6.09	348.8	0.73	-68.0	>100
5.33	1005	8.5	6.16	347.6	0.54	-79.4	56.5
5.35	1010	8.5	6.15	347.7	0.55	-82.3	43.4
5.42	1015	8.7	6.16	347.4	0.62	-82.4	33.2
5.42	1020	8.8	6.28	346.8	0.50	-87.5	25.9
5.42	1025	8.8	6.63	346.5	0.59	-88.9	22.1
5.42	1030	8.7	6.27	343.5	0.64	-87.9	15.2
5.42	1035	8.8	6.19	344.0	0.62	-87.8	16.7
5.42	1040	8.7	6.17	341.8	0.87	-84.3	14.9
5.42	1045	8.6	6.17	341.1	0.88	-82.3	10.6
5.41	1048	8.8	6.13	342.5	0.93	-81.9	11.7
		Sample	1050				

Comments:

- Flow Rate 125 ~~gpm~~ mL/min
- 1010 - started collecting turbidity readings before flow through cell.
 - 1015 - increase purge rate to 175 mL/min

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020
Site Location Ravensdale, WA **Sample ID** LMW-9-0320
Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date 3/12/20

Time 1505

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.)

SWL – 99.38' @ 1419 ft below TOC (PVC at black notch) (bottom at 159 ft bgs, 2-in casing)

Screen Interval – 149-159 ft bgs PVC stickup: 2.86 ags

Sand Pack Interval – 143.5-159 ft bgs (8-in hole) (~11.4 gal/sand pack)

Packer Depth – NA (~10.2 gal/casing vol) (~21.6 gal/total well vol)

Sample Description clear, odorless

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 (non)
1 – 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 – 500 ml, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 – 1 Liter, 2 – 1 Liter	PCBs/Pest	Glass Amber	none
2 – 1 Liter	SVOCs	Glass Amber	none
2 – 500 mL	1,4-Dioxane	Glass Amber	none

Sampler (signature) [Signature]

Date 3/12/20

Supervisor (signature) [Signature]

Date 3-14-2020

FIELD PARAMETERS SHEET

Well ID mw-9

Date 3/12/20

Time Begin Purge 1419

Time Collect Sample 1505

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
99.35	1425	10.0	7.50	469.2	1.18	-107.4	1.42
99.37	1430	10.1	6.98	468.5	0.73	-108.6	1.17
99.37	1435	10.1	6.88	467.4	0.58	-108.2	0.76
99.36	1440	10.1	6.96	466.9	0.54	-108.0	0.88
99.38	1445	10.3	7.05	467.7	0.49	-107.1	0.37
99.36	1450	10.3	7.17	467.9	0.46	-106.6	0.61
99.39	1455	10.2	7.17	467.9	0.45	-106.6	0.84
99.36	1500	10.2	7.13	466.3	0.43	-106.5	0.74
		Sample 1505					

Comments:

Tank: 130

Throttle: 95

CPM: 2

CID:51

Flow Rate 550 mL/min ~~gpm~~

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020
Site Location Ravensdale, WA **Sample ID** LMW-10-0320
Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date 3/10/20

Time 1330

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.)

SWL – 0.19 ^{@ 1024} ft below TOC (PVC) (bottom at 289 ft bgs, 4-in casing)

Screen Interval – 267-289 ft bgs PVC stickup: 3.12 ags

Sand Pack Interval – 258-289 ft bgs (9-in hole) (~18.2 gal/sand pack)

Packer Depth – NA (~191 gal/casing vol) (~209 gal/total well vol)

Sample Description clear, odorless

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 (non)
1 – 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 – 500 ml, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 – 1 Liter, 2 – 1 Liter	PCBs/Pest	Glass Amber	none
2 – 1 Liter	SVOCs	Glass Amber	none
2 – 500 mL	1,4-Dioxane	Glass Amber	none

Sampler (signature)

Date 3/10/2020

Supervisor (signature)

Date 3-14-2020

FIELD PARAMETERS SHEET

Well ID LMW-10
 Date 3/10/2020
 Time Begin Purge 1258
 Time Collect Sample 1330

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
1.70	1305	9.0	9.16	258.6	0.42	-214.9	1.11
2.47	1310	9.1	9.14	259.5	0.37	-228.3	0.58
2.74	1315	9.1	9.15	260.2	0.34	-235.6	0.25
3.31	1320	9.1	9.19	260.8	0.32	-238.5	0.27
4.06	1325	9.1	9.19	261.3	0.31	-242.3	0.13
			Sample 1330				

Comments:

Tank: 110

Throttle: 40

CPM: 2

CID:50

Flow Rate

~~gpm~~

450

mL/min

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020
Site Location Ravensdale, WA **Sample ID** LMW-11-0320
Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date 3/11/2020

Time 1435

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.)

SWL – 157.24 ft below TOC (PVC) (bottom at 707 ft bgs, 4-in casing)

Screen Interval – 696-707 ft bgs PVC stickup: 2.70 ags

Sand Pack Interval – 688-707 ft bgs (8-in hole) (~11.2 gal/sand pack)

Packer Depth – NA (~360.4 gal/casing vol) (~371.6 gal/total well vol)

Sample Description Clear, odorless

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 (non)
1 – 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 – 500 ml, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 – 1 Liter, 2 – 1 Liter	PCBs/Pest	Glass Amber	none
2 – 1 Liter	SVOCs	Glass Amber	none
2 – 500 mL	1,4-Dioxane	Glass Amber	none

Sampler (signature) [Signature]

Date 3/11/20

Supervisor (signature) [Signature]

Date 3-14-2020

FIELD PARAMETERS SHEET

Well ID LMW-11
 Date 3/11/2020
 Time Begin Purge 1353
 Time Collect Sample 1435

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
157.15	1400	9.5	8.54	377.1	3.49	-61.6	0.66
157.25	1405	9.5	8.44	376.5	1.13	-75.8	0.92
157.25	1410	9.6	8.45	382.5	0.85	-82.5	0.38
157.25	1415	9.6	8.44	385.4	0.78	-84.8	1.37
157.25	1420	9.6	8.44	384.0	0.70	-86.8	1.02
157.25	1425	9.5	8.41	382.7	0.66	-88.7	1.02
157.25	1430	9.6	8.38	381.6	0.62	-90.5	1.71
			Sample	1435			

Comments:

Tank: 130

Throttle: 110

CPM: 1

CID: ~~20~~ → 15

Flow Rate ~~200 mL/min~~ gpm

425 mL/min

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site Project No. 923-1000-006.2020

Site Location Ravensdale, WA Sample ID LMW-12-0320

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date 3/10/20

Time 1220

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.)

SWL - 7.32 @ 1140

Screen Interval - 15-25

Sand Pack Interval - 11-25

Packer Depth - NA

Sample Description clear, odorless

Field Measurements on Sample (pH, conductivity, etc.)

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
<u>3 - 40 mL</u>	<u>VOA</u>	<u>VOA Vial</u>	<u>HCl</u>
<u>1 - 500 ml</u>	<u>Total Metals</u>	<u>HDPE</u>	<u>HNO3 (non)</u>
<u>1 - 500 ml</u>	<u>Dissolved Metals</u>	<u>HDPE</u>	<u>HNO3 (filter)</u>
<u>4 - 500 ml, 2 - 40 ml</u>	<u>TPH-HCID</u>	<u>Glass Amber, VOA Vial</u>	<u>HCl</u>
<u>2 - 1 Liter, 2 - 1 Liter</u>	<u>PCBs/Pest</u>	<u>Glass Amber</u>	<u>none</u>
<u>2 - 1 Liter</u>	<u>SVOCs</u>	<u>Glass Amber</u>	<u>none</u>
<u>2 - 500 mL</u>	<u>1,4-Dioxane</u>	<u>Glass Amber</u>	<u>none</u>

Sampler (signature) [Signature]

Date 3/10/2020

Supervisor (signature) [Signature]

Date 3-14-2020

FIELD PARAMETERS SHEET

Well ID LMW-12
 Date 3-10-2020
 Time Begin Purge 1145
 Time Collect Sample 1220

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
7.33	1150	9.6	6.92	577	0.45	-73.5	18.2
7.41	1155	9.6	6.95	577	0.35	-80.5	19.3
7.31	1200	9.7	6.97	578	0.32	-84.0	21.9
7.33	1205	9.7	7.03	610	0.30	-101.5	23.8
7.19	1210	9.8	7.06	614	0.29	-107.7	13.7
7.32	1215	9.8	7.08	614	0.29	-111.0	12.0
	1220	collect sample					

Comments:

Tank: 110

Throttle: 20

CPM: 2

CID: 47

Flow Rate

~~gpm~~
400 mL/min

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site Project No. 923-1000-006.2020

Site Location Ravensdale, WA Sample ID LMW-13R-0320

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date 3/10/20

Time 1050

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.)

SWL - 7.85' @ 1014

Screen Interval -115-140

Sand Pack Interval -110-150

Packer Depth - NA

Sample Description clear, odorless

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 (non)
1 – 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 – 500 ml, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 – 1 Liter, 2 – 1 Liter	PCBs/Pest	Glass Amber	none
2 – 1 Liter	SVOCs	Glass Amber	none
2 – 500 mL	1,4-Dioxane	Glass Amber	none

Sampler (signature) Ree Grogg

Date 3/10/20

Supervisor (signature) [Signature]

Date 3-14-2020

FIELD PARAMETERS SHEET

Well ID LMW-13R

Date 3/10/20

Time Begin Purge 1020

Time Collect Sample 1050

[illegible]

Comments:

Tank: 110

Throttle: 35

CPM: 2

CID: 48

Flow Rate ~~gpm~~
600 mL/min

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

Site Location Ravensdale, WA **Sample ID** LMW-14-0320

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date 3/11/20 **Time** 1305

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.)

SWL - 165.06 @ 1230

Screen Interval - 156.5-172.3' bgs Stickup 2.9' ags

Sand Pack Interval - 152.5-175.8' bgs

Packer Depth - NA **** Depths corrected for 75° inclination**

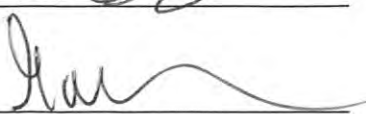
Sample Description clear, odorless

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 (non)
1 - 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 - 500 ml, 2 - 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 - 1 Liter, 2 - 1 Liter	PCBs/Pest	Glass Amber	none
2 - 1 Liter	SVOCs	Glass Amber	none
2 - 500 mL	1,4-Dioxane	Glass Amber	none

Sampler (signature)  **Date** 3/11/20

Supervisor (signature)  **Date** 3-14-2020

FIELD PARAMETERS SHEET

Well ID LMW-14
 Date 3/11/20
 Time Begin Purge 1232
 Time Collect Sample 1305

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
169.55	1240	9.5	7.61	1634	0.50	-61.7	7.78
165.20	1245	9.6	7.60	1659	0.38	-76.0	5.59
165.51	1250	9.5	7.62	1670	0.35	-82.4	4.90
169.47	1255	9.5	7.63	1630	0.34	-85.4	3.99
165.18	1300	9.5	7.64	1596	0.33	-86.8	3.44
			Sample	1305			

Comments:

Tank: 140

Throttle: 115

CPM: 2 CID:

49

Flow Rate

~~gpm~~

400 mL/min

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020

Site Location Ravensdale, WA **Sample ID** LMW-15-0320

Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date 3/10/ 3/11/20 **Time** 1555

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.)

SWL - 151.12 @ 1522

Screen Interval -235-245

Sand Pack Interval -231-245

Packer Depth - NA

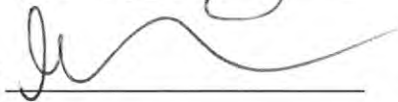
Sample Description clear, odorless

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 (non)
1 – 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 – 500 ml, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 – 1 Liter, 2 – 1 Liter	PCBs/Pest	Glass Amber	none
2 – 1 Liter	SVOCs	Glass Amber	none
2 – 500 mL	1,4-Dioxane	Glass Amber	none

Sampler (signature)  **Date** 3/11/2020

Supervisor (signature)  **Date** 3-14-2020

FIELD PARAMETERS SHEET

Well ID LMW-15
 Date 3/11/2020
 Time Begin Purge 1522
 Time Collect Sample 1555

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
151.35	1530	9.2	8.51	336.4	1.80	-143.1	4.58
151.20	1535	9.1	8.52	343.5	0.90	-154.9	2.70
151.20	1540	9.1	8.53	344.5	0.74	-157.3	2.62
151.33	1545	9.1	8.54	345.4	0.65	-157.7	2.59
151.15	1550	9.1	8.56	345.7	0.62	-157.7	2.55
			Sample	1555			

Comments:

Tank: 130psi

Throttle: 95psi

CPM: 2

CID:53

Flow Rate

~~gpm~~
 400 mL/min

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site **Project No.** 923-1000-006.2020
Site Location Ravensdale, WA **Sample ID** LMW-FB-0320
Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Peristaltic Pump with new tubing

Date 03/11/2020

Time 1020

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.)

SWL - NA ft below TOC (PVC)

Sample Description Lab provided DI and VOC free DI water.

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 (non)
1 – 500 ml	Dissolved Metals	HDPE	HNO3 (filter)
4 – 500 ml, 2 – 40 ml	TPH-HCID	Glass Amber, VOA Vial	HCl
2 – 1 Liter, 2 – 1 Liter	PCBs/Pest	Glass Amber	none
2 – 1 Liter	SVOCs	Glass Amber	none
2 – 500 mL	1,4-Dioxane	Glass Amber	none

Sampler (signature) Ruo Gao

Date 3/11/2020

Supervisor (signature) [Signature]

Date 3-14-2020

FIELD PARAMETERS SHEET

Well ID LMW-2
Date 3/11/2020
Time Begin Purge NA
Time Collect Sample 1020

[illegible]

Comments:

All bottles direct pour, except one
500 mL HDPE with field filter and peristaltic
(dissolved metals).

Sampler's Initials RG

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site Project No. 923-1000-006.2020
 Site Location Ravensdale, WA Sample ID LMW-8-0420
 Sampling Location Groundwater Monitoring Well End of new sampling tube

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

Type of Sampler New Tubing and Peristaltic Pump

Date 4/21/20 Time 12:00^{PM} 1245

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.)

SWL - 4.10 ft below TOC (PVC at black notch) (bottom at 13 ft bgs, 2-in casing)

Screen Interval - 8-13 ft bgs PVC stickup: 1.72 ags

Sand Pack Interval - 6-13 ft bgs (8-in hole) (~5.1 gal/sand pack)

Packer Depth - NA (~1.9 gal/casing vol) (~7.0 gal/total well vol)

Sample Description clear, no odor, some small particles floating

Field Measurements on Sample (pH, conductivity, etc.)

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
<u>2 - 1 Liter</u> <u>500ml</u>	<u>SVOCs</u>	<u>Glass Amber</u>	<u>None</u>

Sampler (signature) [Signature] Date 4/21/20

Supervisor (signature) [Signature] Date 4-27-20

FIELD PARAMETERS SHEET

Well ID LMW-8
 Date 4/21/20
 Time Begin Purge 1205
 Time Collect Sample 1245

Water Level feet bmp	Time	Temp. °C	pH	Cond uS/cm	DO mg/L	ORP mV	Turbidity NTU
5.95	1215	10.1	6.65	342	0.35	-71.7	9.69
6.32	1220	10.1	6.61	350	0.22	-73.4	10.4
6.48	1225	10.1	6.59	359	0.14	-75.1	10.2
6.55	1230	10.1	6.57	366	0.10	-76.6	5.79
6.65	1235	10.1	6.57	370	0.07	-77.5	5.80
6.65	1240	10.1	6.57	369	0.05	-78.1	6.73
	1245	collect sample					5.23

Comments:

Flow Rate 250 ml/min ~ gpm

Sampler's Initials MF

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site Project No. 923-1000-006.2020
 Site Location Ravensdale, WA Sample ID LMW-14-0420
 Sampling Location Groundwater Monitoring Well End of dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date 4/21/20 Time 1125

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.)

SWL - 165.98 ft

Screen Interval - 156.5-172.3' bgs Stickup 2.9' ags

Sand Pack Interval - 152.5-175.8' bgs

Packer Depth - NA ** Depths corrected for 75° inclination

Sample Description clear, 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 (non)
1 - 500 ml	Dissolved Metals	HDPE	HNO3 (filter)

Sampler (signature) [Signature] Date 4/21/20

Supervisor (signature) [Signature] Date 4-22-20

FIELD PARAMETERS SHEET

Well ID Low-14
Date 4/21/20
Time Begin Purge 1053
Time Collect Sample 1125

[illegible]

Comments:

Tank: ~~140~~ ¹⁴⁰ 

Throttle: ~~115~~ ¹¹⁴ ~~100~~ ¹¹⁴ 90

CPM: 2

CID: 49 50

Flow Rate $\frac{400 \text{ mL/min}}{350 \text{ mL/min}}$ gpm

Sampler's Initials JH

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site Project No. 923-1000-006.2020
 Site Location Ravensdale, WA Sample ID LMW-FB-1-0420
 Sampling Location Not applicable

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

Type of Sampler Peristaltic Pump with new tubing

Date 4/21/20 Time 1130

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.)

SWL - N/A ft below TOC (PVC)

Sample Description Lab-provided DI water

Field Measurements on Sample (pH, conductivity, etc.)

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
2-1 Liter	SVOCs	Glass Amber	none
<u>1-500 mL</u>	<u>metals</u>	<u>500 HDPE</u>	<u>HCl</u>

Sampler (signature) [Signature] Date 4/21/20

Supervisor (signature) [Signature] Date 4-22-20

FIELD PARAMETERS SHEET

Well ID FB-1-0420
Date 4/21/20
Time Begin Purge -
Time Collect Sample 1130

[illegible]

Comments:

Sampler's Initials

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Site Project No. 923-1000-006.2020
 Site Location Ravensdale, WA Sample ID LMW-FB-2-0420
 Sampling Location Not applicable

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

Type of Sampler Direct pour into glassware

Date 4/21/20 Time 1255

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.)

SWL – N/A ft below TOC (PVC)

Sample Description Lab-provided DI water

Field Measurements on Sample (pH, conductivity, etc.)

SEE FIELD PARAMETERS SHEET

Aliquot Amount	Analysis	Container	Preservation / Amount
<u>2</u> 500 ml	<u>SVOCs</u> <u>Total Metals</u>	<u>Amber</u> <u>HDPE</u>	<u>none</u> <u>HNO3 (non)</u>
<u>1</u> 500 ml	<u>Dissolved Metals</u>	<u>HDPE</u>	<u>HNO3 (filter)</u>

Sampler (signature) [Signature] Date 4/21/20

Supervisor (signature) [Signature] Date 4-22-20

FIELD PARAMETERS SHEET

Well ID LMW-8

Date 4/21/20

Time Begin Purge 125Time Collect Sample 1255[illegible]

Comments:

Sampler's Initials TH

APPENDIX B

Laboratory Analytical Reports Data
Validation and Quality Assurance /
Quality Control Review
Memorandum and
March and April Laboratory
Analytical Report



Analytical Resources, Incorporated
Analytical Chemists and Consultants

06 April 2020

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)
20C0126

Associated SDG ID(s)
N/A

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: 2000126		Turn-around Requested: Standard			Page: 1 of 1		 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						
ARI Client Company: Golder		Phone: 425-883-0777			Date: 3/10/2020				Ice Present?				
Client Contact: Gary Zimmerman					No. of Coolers: 6				Cooler Temps: See CRF				
Client Project Name: Landsburg					Analysis Requested								
Client Project #: 9231000006.2020		Samplers: Tom Haskins, Reno Gregory			Notes/Comments								
Sample ID	Date	Time	Matrix	No. Containers	VOC client List	PCB(LL) Pesticides	SVOCs 8270D client List	TPH HClD + Follow Ups (Hold)	Metals Total	Metals Dissolved*	1,4 Dioxane (8270D)	Notes/Comments	
LMW-7-0320	3/10/20	0950	W	19	X	X	X	X	X	Hold	X	*Field Filtered w/ 0.45 um filter Analyse under MSA w/ Golder	
LMW-13R-0320	3/10/20	1050	W	19	X	X	X	X	X	↓	X		
LMW-12-0320	3/10/20	1220	W	19	X	X	X	X	X	↓	X		
LMW-10-0320	3/10/20	1330	W	19	X	X	X	X	X	↓	X		
LMW-4-0320	3/10/20	1440	W	19	X	X	X	X	X	↓	X		
LMW-4-0320-D	3/10/20	1450	W	19	X	X	X	X	X	↓	X		
Comments/Special Instructions Ecology EIM EDD client specific RLS and Analyte lists		Relinquished by: (Signature) Reno Gregory		Received by: (Signature) Kenny Dang		Relinquished by: (Signature)		Received by: (Signature)					
		Printed Name: Reno Gregory		Printed Name: Kenny Dang		Printed Name:		Printed Name:					
		Company: Golder		Company: ARI		Company:		Company:					
		Date & Time: 3/10/20 1512		Date & Time: 3/10/2020 1512		Date & Time:		Date & Time:					

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:
06-Apr-2020 09:50

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LMW-7-0320	20C0126-01	Water	10-Mar-2020 09:50	10-Mar-2020 17:12
LMW-7-0320	20C0126-02	Water	10-Mar-2020 09:50	10-Mar-2020 17:12
LMW-13R-0320	20C0126-03	Water	10-Mar-2020 10:50	10-Mar-2020 17:12
LMW-13R-0320	20C0126-04	Water	10-Mar-2020 10:50	10-Mar-2020 17:12
LMW-12-0320	20C0126-05	Water	10-Mar-2020 12:20	10-Mar-2020 17:12
LMW-12-0320	20C0126-06	Water	10-Mar-2020 12:20	10-Mar-2020 17:12
LMW-10-0320	20C0126-07	Water	10-Mar-2020 13:30	10-Mar-2020 17:12
LMW-10-0320	20C0126-08	Water	10-Mar-2020 13:30	10-Mar-2020 17:12
LMW-4-0320	20C0126-09	Water	10-Mar-2020 14:40	10-Mar-2020 17:12
LMW-4-0320	20C0126-10	Water	10-Mar-2020 14:40	10-Mar-2020 17:12
LMW-4-0320-D	20C0126-11	Water	10-Mar-2020 14:50	10-Mar-2020 17:12
LMW-4-0320-D	20C0126-12	Water	10-Mar-2020 14:50	10-Mar-2020 17:12



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

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

Reported:
06-Apr-2020 09:50

Work Order Case Narrative

PCB Aroclors - EPA Method SW8082A

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 LCS percent recoveries were within control limits.

Volatiles - EPA Method SW8260C

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 LCS/LCSD percent recoveries and RPD were within control limits.

No vials were used that contained air bubbles.

Semivolatiles - EPA Method SW8270D

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 LCS percent recoveries were within control limits.



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

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

Reported:
06-Apr-2020 09:50

1,4-Dioxane- EPA Method SW8270DSIM

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 LCS percent recoveries were within control limits.

Total and Dissolved Metals - EPA Method 200.8, 6010C and 7470 and 7471

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 LCS percent recoveries were within control limits.

The matrix spike/matrix spike duplicate recoveries and RPD were within limits with the exception of analytes flagged on the associated forms.

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.

The LCS percent recoveries were within control limits.

Pesticides - EPA Method SW8081B



Golder Associates

18300 NE Union Hill Road Suite 200

Redmond WA, 98052-3333

Project: Landsburg

Project Number: Landsburg

Project Manager: Gary Zimmerman

Reported:

06-Apr-2020 09:50

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 LCS percent recoveries were within control limits.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Golder

Project Name: Landsburg

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 20C0126

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 YES NO

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

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

Time 1512

5.1 1.1 2.9 2.8 0.8 3.4

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

Temp Gun ID#: DOO 5206

Cooler Accepted by: KD Date: 3/10/2020 Time: 1512

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

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

Samples Logged by: CD Date: 3/11/2020 Time: 0755 Labels checked by: CD

**** 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 in MW-4-0320 has an air bubble.

By: CD Date: 3/11/2020



WORK ORDER

20C0126

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

Preservation Confirmation

Container ID	Container Type	pH
20C0126-01 A	Glass NM, Amber, 1000 mL	
20C0126-01 B	Glass NM, Amber, 1000 mL	
20C0126-01 C	Glass NM, Amber, 1000 mL	
20C0126-01 D	Glass NM, Amber, 1000 mL	
20C0126-01 E	Glass NM, Amber, 1000 mL	
20C0126-01 F	Glass NM, Amber, 1000 mL	
20C0126-01 G	Glass NM, Amber, 500 mL	
20C0126-01 H	Glass NM, Amber, 500 mL	
20C0126-01 I	Glass NM, Amber, 500 mL	
20C0126-01 J	Glass NM, Amber, 500 mL	
20C0126-01 K	Glass NM, Amber, 500 mL	
20C0126-01 L	Glass NM, Amber, 500 mL	
20C0126-01 M	HDPE NM, 500 mL, 1:1 HNO3	LL Pass
20C0126-01 N	VOA Vial, Clear, 40 mL, HCL	
20C0126-01 O	VOA Vial, Clear, 40 mL, HCL	
20C0126-01 P	VOA Vial, Clear, 40 mL, HCL	
20C0126-01 Q	VOA Vial, Clear, 40 mL, HCL	
20C0126-01 R	VOA Vial, Clear, 40 mL, HCL	
20C0126-02 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LL Pass
20C0126-03 A	Glass NM, Amber, 1000 mL	
20C0126-03 B	Glass NM, Amber, 1000 mL	
20C0126-03 C	Glass NM, Amber, 1000 mL	
20C0126-03 D	Glass NM, Amber, 1000 mL	
20C0126-03 E	Glass NM, Amber, 1000 mL	
20C0126-03 F	Glass NM, Amber, 1000 mL	
20C0126-03 G	Glass NM, Amber, 500 mL	
20C0126-03 H	Glass NM, Amber, 500 mL	
20C0126-03 I	Glass NM, Amber, 500 mL	
20C0126-03 J	Glass NM, Amber, 500 mL	
20C0126-03 K	Glass NM, Amber, 500 mL	
20C0126-03 L	Glass NM, Amber, 500 mL	
20C0126-03 M	HDPE NM, 500 mL, 1:1 HNO3	LL Pass
20C0126-03 N	VOA Vial, Clear, 40 mL, HCL	
20C0126-03 O	VOA Vial, Clear, 40 mL, HCL	
20C0126-03 P	VOA Vial, Clear, 40 mL, HCL	



WORK ORDER

20C0126

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

20C0126-03 Q	VOA Vial, Clear, 40 mL, HCL		
20C0126-03 R	VOA Vial, Clear, 40 mL, HCL		
20C0126-04 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LZ	pass
20C0126-05 A	Glass NM, Amber, 1000 mL		
20C0126-05 B	Glass NM, Amber, 1000 mL		
20C0126-05 C	Glass NM, Amber, 1000 mL		
20C0126-05 D	Glass NM, Amber, 1000 mL		
20C0126-05 E	Glass NM, Amber, 1000 mL		
20C0126-05 F	Glass NM, Amber, 1000 mL		
20C0126-05 G	Glass NM, Amber, 500 mL		
20C0126-05 H	Glass NM, Amber, 500 mL		
20C0126-05 I	Glass NM, Amber, 500 mL		
20C0126-05 J	Glass NM, Amber, 500 mL		
20C0126-05 K	Glass NM, Amber, 500 mL		
20C0126-05 L	Glass NM, Amber, 500 mL		
20C0126-05 M	HDPE NM, 500 mL, 1:1 HNO3	LZ	pass
20C0126-05 N	VOA Vial, Clear, 40 mL, HCL		
20C0126-05 O	VOA Vial, Clear, 40 mL, HCL		
20C0126-05 P	VOA Vial, Clear, 40 mL, HCL		
20C0126-05 Q	VOA Vial, Clear, 40 mL, HCL		
20C0126-05 R	VOA Vial, Clear, 40 mL, HCL		
20C0126-06 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LZ	pass
20C0126-07 A	Glass NM, Amber, 1000 mL		
20C0126-07 B	Glass NM, Amber, 1000 mL		
20C0126-07 C	Glass NM, Amber, 1000 mL		
20C0126-07 D	Glass NM, Amber, 1000 mL		
20C0126-07 E	Glass NM, Amber, 1000 mL		
20C0126-07 F	Glass NM, Amber, 1000 mL		
20C0126-07 G	Glass NM, Amber, 500 mL		
20C0126-07 H	Glass NM, Amber, 500 mL		
20C0126-07 I	Glass NM, Amber, 500 mL		
20C0126-07 J	Glass NM, Amber, 500 mL		
20C0126-07 K	Glass NM, Amber, 500 mL		
20C0126-07 L	Glass NM, Amber, 500 mL		
20C0126-07 M	HDPE NM, 500 mL, 1:1 HNO3	LZ	pass
20C0126-07 N	VOA Vial, Clear, 40 mL, HCL		
20C0126-07 O	VOA Vial, Clear, 40 mL, HCL		



WORK ORDER

20C0126

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

20C0126-07 P	VOA Vial, Clear, 40 mL, HCL		
20C0126-07 Q	VOA Vial, Clear, 40 mL, HCL		
20C0126-07 R	VOA Vial, Clear, 40 mL, HCL		
20C0126-08 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LZ	pass
20C0126-09 A	Glass NM, Amber, 1000 mL		
20C0126-09 B	Glass NM, Amber, 1000 mL		
20C0126-09 C	Glass NM, Amber, 1000 mL		
20C0126-09 D	Glass NM, Amber, 1000 mL		
20C0126-09 E	Glass NM, Amber, 1000 mL		
20C0126-09 F	Glass NM, Amber, 1000 mL		
20C0126-09 G	Glass NM, Amber, 500 mL		
20C0126-09 H	Glass NM, Amber, 500 mL		
20C0126-09 I	Glass NM, Amber, 500 mL		
20C0126-09 J	Glass NM, Amber, 500 mL		
20C0126-09 K	Glass NM, Amber, 500 mL		
20C0126-09 L	Glass NM, Amber, 500 mL		
20C0126-09 M	HDPE NM, 500 mL, 1:1 HNO3	LZ	pass
20C0126-09 N	VOA Vial, Clear, 40 mL, HCL		
20C0126-09 O	VOA Vial, Clear, 40 mL, HCL		
20C0126-09 P	VOA Vial, Clear, 40 mL, HCL		
20C0126-09 Q	VOA Vial, Clear, 40 mL, HCL		
20C0126-09 R	VOA Vial, Clear, 40 mL, HCL		
20C0126-10 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LZ	pass
20C0126-11 A	Glass NM, Amber, 1000 mL		
20C0126-11 B	Glass NM, Amber, 1000 mL		
20C0126-11 C	Glass NM, Amber, 1000 mL		
20C0126-11 D	Glass NM, Amber, 1000 mL		
20C0126-11 E	Glass NM, Amber, 1000 mL		
20C0126-11 F	Glass NM, Amber, 1000 mL		
20C0126-11 G	Glass NM, Amber, 500 mL		
20C0126-11 H	Glass NM, Amber, 500 mL		
20C0126-11 I	Glass NM, Amber, 500 mL		
20C0126-11 J	Glass NM, Amber, 500 mL		
20C0126-11 K	Glass NM, Amber, 500 mL		
20C0126-11 L	Glass NM, Amber, 500 mL		
20C0126-11 M	HDPE NM, 500 mL, 1:1 HNO3	LZ	pass
20C0126-11 N	VOA Vial, Clear, 40 mL, HCL		



WORK ORDER

20C0126

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

20C0126-11 O VOA Vial, Clear, 40 mL, HCL

20C0126-11 P VOA Vial, Clear, 40 mL, HCL

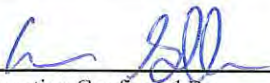
20C0126-11 Q VOA Vial, Clear, 40 mL, HCL

20C0126-11 R VOA Vial, Clear, 40 mL, HCL

20C0126-12 A HDPE NM, 500 mL, 1:1 HNO₃ (FF)

L2

pkcs


Preservation Confirmed By


Date



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

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

Reported:
06-Apr-2020 09:50

LMW-7-0320
20C0126-01 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2 Analyst: PKC
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BIC0344
Prepared: 03/17/2020
Sample Size: 10 mL
Final Volume: 10 mL
Extract ID: 20C0126-01 O
Sampled: 03/10/2020 09:50
Analyzed: 03/17/2020 16:19

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	2.50	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
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	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	0.10	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	0.10	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	0.50	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



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

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

Reported:
06-Apr-2020 09:50

LMW-7-0320
20C0126-01 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/10/2020 09:50

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 16:19

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	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	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	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			80-120 %	101	%	
Surrogate: 1,2-Dichloroethane-d4			80-129 %	107	%	



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

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

Reported:
06-Apr-2020 09:50

LMW-7-0320
20C0126-01 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/10/2020 09:50

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 16:19

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	98.0	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	93.5	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	99.9	%	



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

Reported:
06-Apr-2020 09:50

LMW-7-0320
20C0126-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6 Analyst: JZ

Sampled: 03/10/2020 09:50

Analyzed: 03/19/2020 14:55

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BIC0202 Sample Size: 500 mL
Prepared: 03/16/2020 Final Volume: 0.5 mL

Extract ID: 20C0126-01 H 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U



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

Reported:
06-Apr-2020 09:50

LMW-7-0320
20C0126-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Sampled: 03/10/2020 09:50

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2020 14:55

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			33-120 %	64.4	%	
Surrogate: Phenol-d5			38-120 %	63.8	%	
Surrogate: 2-Chlorophenol-d4			41-120 %	66.2	%	
Surrogate: 1,2-Dichlorobenzene-d4			20-120 %	57.9	%	
Surrogate: Nitrobenzene-d5			27-120 %	64.7	%	
Surrogate: 2-Fluorobiphenyl			33-120 %	61.5	%	
Surrogate: 2,4,6-Tribromophenol			52-120 %	65.0	%	
Surrogate: p-Terphenyl-d14			28-120 %	64.4	%	



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Project Manager: Gary Zimmerman

Reported:
06-Apr-2020 09:50

LMW-7-0320
20C0126-01 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM	Sampled: 03/10/2020 09:50	
Instrument: NT6 Analyst: JZ	Analyzed: 03/20/2020 02:57	
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)	Extract ID: 20C0126-01 K 02
	Preparation Batch: BIC0203	Sample Size: 500 mL
	Prepared: 03/16/2020	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 %	57.4	%	



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Reported:
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LMW-7-0320
20C0126-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4 Analyst: JGR/CTO

Sampled: 03/10/2020 09:50

Analyzed: 03/12/2020 13:32

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0197 Sample Size: 500 mL
Prepared: 03/11/2020 Final Volume: 1 mL

Extract ID: 20C0126-01 G 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 %	99.2	%	
Surrogate: n-Triacontane			50-150 %	90.2	%	



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Reported:
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LMW-7-0320
20C0126-01 (Water)

Chlorinated Pesticides

Method: EPA 8081B
Instrument: ECD6 Analyst: YZ/JGR

Sampled: 03/10/2020 09:50

Analyzed: 03/18/2020 16:11

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0208
Prepared: 03/17/2020

Extract ID: 20C0126-01 J 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			11-144 %	86.6	%	
Surrogate: Decachlorobiphenyl [2C]			11-144 %	81.0	%	
Surrogate: Tetrachlorometaxylene			30-120 %	72.5	%	
Surrogate: Tetrachlorometaxylene [2C]			30-120 %	77.1	%	



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Reported:
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LMW-7-0320
20C0126-01 (Water)

Aroclor PCB

Method: EPA 8082A			Sampled: 03/10/2020 09:50
Instrument: ECD7 Analyst: JGR			Analyzed: 03/17/2020 16:08
Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 20C0126-01 A 01
	Preparation Batch: BIC0207		
	Prepared: 03/16/2020		
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20C0126-01 A 01
	Cleanup Batch: CIC0096		
	Cleaned: 17-Mar-2020		
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20C0126-01 A 01
	Cleanup Batch: CIC0094		
	Cleaned: 17-Mar-2020		
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20C0126-01 A 01
	Cleanup Batch: CIC0095		
	Cleaned: 17-Mar-2020		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			29-120 %	61.8	%	
Surrogate: Tetrachlorometaxylene			32-120 %	50.9	%	
Surrogate: Decachlorobiphenyl [2C]			29-120 %	59.6	%	
Surrogate: Tetrachlorometaxylene [2C]			32-120 %	45.4	%	



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Reported:
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LMW-7-0320
20C0126-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 03/10/2020 09:50

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/12/2020 19:48

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0126-01 M 01

Preparation Batch: BIC0204

Sample Size: 25 mL

Prepared: 03/11/2020

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-7-0320
20C0126-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 03/10/2020 09:50

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/12/2020 19:48

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 20C0126-01 M 01

Preparation Batch: BIC0204

Sample Size: 25 mL

Prepared: 03/11/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.00300	0.00334	mg/L	
Selenium	7782-49-2	1	0.0250	ND	mg/L	U



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LMW-7-0320
20C0126-01 (Water)

Metals and Metallic Compounds

Method: EPA 6010C

Sampled: 03/10/2020 09:50

Instrument: ICP2 Analyst: SKM

Analyzed: 03/17/2020 14:33

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 20C0126-01 M 02

Preparation Batch: BIC0293

Sample Size: 25 mL

Prepared: 03/16/2020

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	37.2	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	0.571	mg/L	
Magnesium	7439-95-4	1	0.500	17.4	mg/L	
Manganese	7439-96-5	1	0.0100	0.0592	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	2.55	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	50.0	52.8	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-7-0320
20C0126-01 (Water)

Metals and Metallic Compounds

Method: EPA 7470A	Sampled: 03/10/2020 09:50
Instrument: HYDRA Analyst: BLC	Analyzed: 03/12/2020 16:38
Sample Preparation:	Preparation Method: TWM EPA 7470A
	Preparation Batch: BIC0205
	Prepared: 03/11/2020
	Sample Size: 20 mL
	Final Volume: 20 mL
	Extract ID: 20C0126-01 M

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-13R-0320
20C0126-03 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/10/2020 10:50

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 16:39

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 20C0126-03 O

Preparation Batch: BIC0344

Sample Size: 10 mL

Prepared: 03/17/2020

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	2.50	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
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	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	0.10	0.17	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	0.10	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	0.50	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-0320
20C0126-03 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/10/2020 10:50

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 16:39

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	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	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	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			80-120 %	99.8	%	
Surrogate: 1,2-Dichloroethane-d4			80-129 %	108	%	



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Reported:
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LMW-13R-0320
20C0126-03 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/10/2020 10:50

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 16:39

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	97.2	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	95.2	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	102	%	



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LMW-13R-0320
20C0126-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6 Analyst: JZ

Sampled: 03/10/2020 10:50

Analyzed: 03/19/2020 15:28

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BIC0202 Sample Size: 500 mL
Prepared: 03/16/2020 Final Volume: 0.5 mL

Extract ID: 20C0126-03 H 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U



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Reported:
06-Apr-2020 09:50

LMW-13R-0320
20C0126-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Sampled: 03/10/2020 10:50

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2020 15:28

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorophenol</i>			33-120 %	59.7	%	
<i>Surrogate: Phenol-d5</i>			38-120 %	60.8	%	
<i>Surrogate: 2-Chlorophenol-d4</i>			41-120 %	61.3	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			20-120 %	53.4	%	
<i>Surrogate: Nitrobenzene-d5</i>			27-120 %	60.9	%	
<i>Surrogate: 2-Fluorobiphenyl</i>			33-120 %	58.6	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			52-120 %	64.2	%	
<i>Surrogate: p-Terphenyl-d14</i>			28-120 %	64.0	%	



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Reported:
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LMW-13R-0320
20C0126-03 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM

Sampled: 03/10/2020 10:50

Instrument: NT6 Analyst: JZ

Analyzed: 03/20/2020 03:22

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 20C0126-03 K 01

Preparation Batch: BIC0203

Sample Size: 500 mL

Prepared: 03/16/2020

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 %	56.2	%	



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Project Manager: Gary Zimmerman

Reported:
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LMW-13R-0320
20C0126-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4 Analyst: JGR/CTO

Sampled: 03/10/2020 10:50

Analyzed: 03/12/2020 13:52

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0197 Sample Size: 500 mL
Prepared: 03/11/2020 Final Volume: 1 mL

Extract ID: 20C0126-03 G 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
<i>Surrogate: o-Terphenyl</i>			50-150 %	95.1	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	80.3	%	



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Reported:
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LMW-13R-0320
20C0126-03 (Water)

Chlorinated Pesticides

Method: EPA 8081B
Instrument: ECD6 Analyst: YZ/JGR

Sampled: 03/10/2020 10:50

Analyzed: 03/18/2020 16:29

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0208 Sample Size: 500 mL
Prepared: 03/17/2020 Final Volume: 5 mL

Extract ID: 20C0126-03 J 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			11-144 %	78.9	%	
Surrogate: Decachlorobiphenyl [2C]			11-144 %	76.0	%	
Surrogate: Tetrachlorometaxylene			30-120 %	71.3	%	
Surrogate: Tetrachlorometaxylene [2C]			30-120 %	44.7	%	



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Reported:
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LMW-13R-0320
20C0126-03 (Water)

Aroclor PCB

Method: EPA 8082A			Sampled: 03/10/2020 10:50
Instrument: ECD7 Analyst: JGR			Analyzed: 03/17/2020 16:29
Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 20C0126-03 A 01
	Preparation Batch: BIC0207		
	Prepared: 03/16/2020		
	Sample Size: 1000 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20C0126-03 A 01
	Cleanup Batch: CIC0096		
	Cleaned: 17-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20C0126-03 A 01
	Cleanup Batch: CIC0094		
	Cleaned: 17-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20C0126-03 A 01
	Cleanup Batch: CIC0095		
	Cleaned: 17-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			29-120 %	61.2	%	
Surrogate: Tetrachlorometaxylene			32-120 %	49.2	%	
Surrogate: Decachlorobiphenyl [2C]			29-120 %	59.1	%	
Surrogate: Tetrachlorometaxylene [2C]			32-120 %	44.6	%	



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Reported:
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LMW-13R-0320
20C0126-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 03/10/2020 10:50

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/12/2020 19:27

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0126-03 M 01

Preparation Batch: BIC0204

Sample Size: 25 mL

Prepared: 03/11/2020

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-13R-0320
20C0126-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 03/10/2020 10:50

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/12/2020 19:27

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0126-03 M 01

Preparation Batch: BIC0204

Sample Size: 25 mL

Prepared: 03/11/2020

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-0320
20C0126-03 (Water)

Metals and Metallic Compounds

Method: EPA 6010C

Sampled: 03/10/2020 10:50

Instrument: ICP2 Analyst: SKM

Analyzed: 03/17/2020 15:14

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 20C0126-03 M 02

Preparation Batch: BIC0293

Sample Size: 25 mL

Prepared: 03/16/2020

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	86.0	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	1.20	mg/L	
Magnesium	7439-95-4	1	0.500	40.4	mg/L	
Manganese	7439-96-5	1	0.0100	0.0433	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	3.37	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	50.0	75.2	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-13R-0320
20C0126-03 (Water)

Metals and Metallic Compounds

Method: EPA 7470A	Sampled: 03/10/2020 10:50
Instrument: HYDRA Analyst: BLC	Analyzed: 03/12/2020 16:47
Sample Preparation:	Preparation Method: TWM EPA 7470A
	Preparation Batch: BIC0205
	Prepared: 03/11/2020
	Sample Size: 20 mL
	Final Volume: 20 mL
	Extract ID: 20C0126-03 M

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-12-0320
20C0126-05 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2 Analyst: PKC
Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BIC0344
Prepared: 03/17/2020
Sample Size: 10 mL
Final Volume: 10 mL
Extract ID: 20C0126-05 P
Sampled: 03/10/2020 12:20
Analyzed: 03/17/2020 16:59

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	0.48	ug/L	
Trichlorofluoromethane	75-69-4	1	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.50	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
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	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	0.10	0.14	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	0.38	ug/L	
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.10	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	0.50	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-12-0320
20C0126-05 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/10/2020 12:20

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 16:59

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	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	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	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			80-120 %	99.0	%	
Surrogate: 1,2-Dichloroethane-d4			80-129 %	110	%	



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Reported:
06-Apr-2020 09:50

LMW-12-0320
20C0126-05 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/10/2020 12:20

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 16:59

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	98.1	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	95.3	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	101	%	



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LMW-12-0320
20C0126-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6 Analyst: JZ

Sampled: 03/10/2020 12:20

Analyzed: 03/19/2020 16:01

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BIC0202 Sample Size: 500 mL
Prepared: 03/16/2020 Final Volume: 0.5 mL

Extract ID: 20C0126-05 H 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U



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Reported:
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LMW-12-0320
20C0126-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Sampled: 03/10/2020 12:20

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2020 16:01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			33-120 %	62.2	%	
Surrogate: Phenol-d5			38-120 %	64.0	%	
Surrogate: 2-Chlorophenol-d4			41-120 %	64.7	%	
Surrogate: 1,2-Dichlorobenzene-d4			20-120 %	54.7	%	
Surrogate: Nitrobenzene-d5			27-120 %	63.4	%	
Surrogate: 2-Fluorobiphenyl			33-120 %	60.5	%	
Surrogate: 2,4,6-Tribromophenol			52-120 %	66.4	%	
Surrogate: p-Terphenyl-d14			28-120 %	65.7	%	



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LMW-12-0320
20C0126-05 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM	Sampled: 03/10/2020 12:20	
Instrument: NT6 Analyst: JZ	Analyzed: 03/20/2020 03:47	
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)	Extract ID: 20C0126-05 K 01
	Preparation Batch: BIC0203	Sample Size: 500 mL
	Prepared: 03/16/2020	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	1.0	ug/L	
Surrogate: 1,4-Dioxane-d8			33.6-120 %	54.9	%	



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LMW-12-0320
20C0126-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4 Analyst: JGR/CTO

Sampled: 03/10/2020 12:20

Analyzed: 03/12/2020 14:11

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0197 Sample Size: 500 mL
Prepared: 03/11/2020 Final Volume: 1 mL

Extract ID: 20C0126-05 G 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 %	94.9	%	
Surrogate: n-Triacontane			50-150 %	77.2	%	



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LMW-12-0320
20C0126-05 (Water)

Chlorinated Pesticides

Method: EPA 8081B
Instrument: ECD6 Analyst: YZ/JGR

Sampled: 03/10/2020 12:20

Analyzed: 03/18/2020 16:47

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0208 Sample Size: 500 mL
Prepared: 03/17/2020 Final Volume: 5 mL

Extract ID: 20C0126-05 J 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			11-144 %	74.0	%	
Surrogate: Decachlorobiphenyl [2C]			11-144 %	74.7	%	
Surrogate: Tetrachlorometaxylene			30-120 %	78.7	%	
Surrogate: Tetrachlorometaxylene [2C]			30-120 %	75.2	%	



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LMW-12-0320
20C0126-05 (Water)

Aroclor PCB

Method: EPA 8082A			Sampled: 03/10/2020 12:20
Instrument: ECD7 Analyst: JGR			Analyzed: 03/17/2020 16:50
Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 20C0126-05 A 01
	Preparation Batch: BIC0207		
	Prepared: 03/16/2020		
	Sample Size: 1000 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20C0126-05 A 01
	Cleanup Batch: CIC0096		
	Cleaned: 17-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20C0126-05 A 01
	Cleanup Batch: CIC0094		
	Cleaned: 17-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20C0126-05 A 01
	Cleanup Batch: CIC0095		
	Cleaned: 17-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			29-120 %	48.8	%	
Surrogate: Tetrachlorometaxylene			32-120 %	49.2	%	
Surrogate: Decachlorobiphenyl [2C]			29-120 %	49.9	%	
Surrogate: Tetrachlorometaxylene [2C]			32-120 %	45.3	%	



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LMW-12-0320
20C0126-05 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 03/10/2020 12:20

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/12/2020 19:31

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0126-05 M 01

Preparation Batch: BIC0204

Sample Size: 25 mL

Prepared: 03/11/2020

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-12-0320
20C0126-05 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 03/10/2020 12:20

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/12/2020 19:31

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0126-05 M 01

Preparation Batch: BIC0204

Sample Size: 25 mL

Prepared: 03/11/2020

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-12-0320
20C0126-05 (Water)

Metals and Metallic Compounds

Method: EPA 6010C

Sampled: 03/10/2020 12:20

Instrument: ICP2 Analyst: SKM

Analyzed: 03/17/2020 15:19

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 20C0126-05 M 02

Preparation Batch: BIC0293

Sample Size: 25 mL

Prepared: 03/16/2020

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	93.6	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	15.0	mg/L	
Magnesium	7439-95-4	1	0.500	62.6	mg/L	
Manganese	7439-96-5	1	0.0100	0.515	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	3.82	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	13.0	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-12-0320
20C0126-05 (Water)

Metals and Metallic Compounds

Method: EPA 7470A	Sampled: 03/10/2020 12:20
Instrument: HYDRA Analyst: BLC	Analyzed: 03/12/2020 16:49
Sample Preparation:	Extract ID: 20C0126-05 M
Preparation Method: TWM EPA 7470A	
Preparation Batch: BIC0205	Sample Size: 20 mL
Prepared: 03/11/2020	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-12-0320
20C0126-05RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6010C	Sampled: 03/10/2020 12:20
Instrument: ICP2 Analyst: SKM	Analyzed: 03/31/2020 15:42
Sample Preparation:	Preparation Method: TWC EPA 3010A
	Preparation Batch: BIC0638
	Prepared: 03/30/2020
	Sample Size: 25 mL
	Final Volume: 25 mL
	Extract ID: 20C0126-05RE1 M 03

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	0.200	13.8	mg/L	



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LMW-12-0320
20C0126-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010C	Sampled: 03/10/2020 12:20
Instrument: ICP2 Analyst: SKM	Analyzed: 03/31/2020 12:47
Sample Preparation:	Preparation Method: WMN (No Prep)
	Preparation Batch: BIC0637
	Prepared: 03/30/2020
	Sample Size: 25 mL
	Final Volume: 25 mL
	Extract ID: 20C0126-06 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	0.200	13.4	mg/L	



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LMW-10-0320
20C0126-07 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/10/2020 13:30

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 17:20

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 20C0126-07 R

Preparation Batch: BIC0344

Sample Size: 10 mL

Prepared: 03/17/2020

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	2.50	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
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	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	0.10	0.17	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	0.10	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	0.50	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-10-0320
20C0126-07 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/10/2020 13:30

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 17:20

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
1,1,1,2-Tetrachloroethane	79-34-5	1	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	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	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			80-120 %	103	%	
Surrogate: 1,2-Dichloroethane-d4			80-129 %	108	%	



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Reported:
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LMW-10-0320
20C0126-07 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/10/2020 13:30

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 17:20

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	97.1	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	97.2	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	103	%	



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LMW-10-0320
20C0126-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6 Analyst: JZ

Sampled: 03/10/2020 13:30

Analyzed: 03/19/2020 16:34

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BIC0202
Prepared: 03/16/2020

Extract ID: 20C0126-07 H 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U



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LMW-10-0320
20C0126-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Sampled: 03/10/2020 13:30

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2020 16:34

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			33-120 %	72.2	%	
Surrogate: Phenol-d5			38-120 %	73.7	%	
Surrogate: 2-Chlorophenol-d4			41-120 %	74.4	%	
Surrogate: 1,2-Dichlorobenzene-d4			20-120 %	62.3	%	
Surrogate: Nitrobenzene-d5			27-120 %	73.6	%	
Surrogate: 2-Fluorobiphenyl			33-120 %	69.0	%	
Surrogate: 2,4,6-Tribromophenol			52-120 %	78.0	%	
Surrogate: p-Terphenyl-d14			28-120 %	76.9	%	



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LMW-10-0320
20C0126-07 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM	Sampled: 03/10/2020 13:30	
Instrument: NT6 Analyst: JZ	Analyzed: 03/20/2020 04:12	
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)	Extract ID: 20C0126-07 K 01
	Preparation Batch: BIC0203	Sample Size: 500 mL
	Prepared: 03/16/2020	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 %	50.4	%	



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LMW-10-0320
20C0126-07 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4 Analyst: JGR/CTO

Sampled: 03/10/2020 13:30

Analyzed: 03/12/2020 14:31

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0197 Sample Size: 500 mL
Prepared: 03/11/2020 Final Volume: 1 mL

Extract ID: 20C0126-07 G 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 %	92.8	%	
Surrogate: n-Triacontane			50-150 %	81.5	%	



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LMW-10-0320
20C0126-07 (Water)

Chlorinated Pesticides

Method: EPA 8081B
Instrument: ECD6 Analyst: YZ/JGR

Sampled: 03/10/2020 13:30

Analyzed: 03/18/2020 17:05

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0208 Sample Size: 500 mL
Prepared: 03/17/2020 Final Volume: 5 mL

Extract ID: 20C0126-07 J 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			11-144 %	74.9	%	
Surrogate: Decachlorobiphenyl [2C]			11-144 %	70.4	%	
Surrogate: Tetrachlorometaxylene			30-120 %	76.9	%	
Surrogate: Tetrachlorometaxylene [2C]			30-120 %	83.0	%	



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LMW-10-0320
20C0126-07 (Water)

Aroclor PCB

Method: EPA 8082A			Sampled: 03/10/2020 13:30
Instrument: ECD7 Analyst: JGR			Analyzed: 03/17/2020 17:11
Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 20C0126-07 A 01
	Preparation Batch: BIC0207		
	Prepared: 03/16/2020		
		Sample Size: 1000 mL	
		Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20C0126-07 A 01
	Cleanup Batch: CIC0096		
	Cleaned: 17-Mar-2020		
		Initial Volume: 0.5 mL	
		Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20C0126-07 A 01
	Cleanup Batch: CIC0094		
	Cleaned: 17-Mar-2020		
		Initial Volume: 0.5 mL	
		Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20C0126-07 A 01
	Cleanup Batch: CIC0095		
	Cleaned: 17-Mar-2020		
		Initial Volume: 0.5 mL	
		Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			29-120 %	48.0	%	
Surrogate: Tetrachlorometaxylene			32-120 %	48.4	%	
Surrogate: Decachlorobiphenyl [2C]			29-120 %	48.2	%	
Surrogate: Tetrachlorometaxylene [2C]			32-120 %	43.3	%	



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LMW-10-0320
20C0126-07 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 03/10/2020 13:30

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/12/2020 19:35

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0126-07 M 01

Preparation Batch: BIC0204

Sample Size: 25 mL

Prepared: 03/11/2020

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-10-0320
20C0126-07 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 03/10/2020 13:30

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/12/2020 19:35

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0126-07 M 01

Preparation Batch: BIC0204

Sample Size: 25 mL

Prepared: 03/11/2020

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-10-0320
20C0126-07 (Water)

Metals and Metallic Compounds

Method: EPA 6010C

Sampled: 03/10/2020 13:30

Instrument: ICP2 Analyst: SKM

Analyzed: 03/17/2020 15:23

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 20C0126-07 M 02

Preparation Batch: BIC0293

Sample Size: 25 mL

Prepared: 03/16/2020

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	6.42	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	2.87	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	1	50.0	81.3	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-10-0320
20C0126-07 (Water)

Metals and Metallic Compounds

Method: EPA 7470A	Sampled: 03/10/2020 13:30
Instrument: HYDRA Analyst: BLC	Analyzed: 03/12/2020 16:57
Sample Preparation:	Extract ID: 20C0126-07 M
Preparation Method: TWM EPA 7470A	
Preparation Batch: BIC0205	Sample Size: 20 mL
Prepared: 03/11/2020	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-4-0320
20C0126-09 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/10/2020 14:40

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 17:40

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 20C0126-09 O

Preparation Batch: BIC0344

Sample Size: 10 mL

Prepared: 03/17/2020

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	2.50	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
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	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	0.10	0.18	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	0.10	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	0.50	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:
06-Apr-2020 09:50

LMW-4-0320
20C0126-09 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/10/2020 14:40

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 17:40

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	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	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	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			80-120 %	103	%	
Surrogate: 1,2-Dichloroethane-d4			80-129 %	111	%	



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LMW-4-0320
20C0126-09 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/10/2020 14:40

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 17:40

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	97.2	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	92.9	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	102	%	



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LMW-4-0320
20C0126-09 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6 Analyst: JZ

Sampled: 03/10/2020 14:40

Analyzed: 03/19/2020 17:07

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BIC0202 Sample Size: 500 mL
Prepared: 03/16/2020 Final Volume: 0.5 mL

Extract ID: 20C0126-09 H 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U



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LMW-4-0320
20C0126-09 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Sampled: 03/10/2020 14:40

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2020 17:07

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorophenol</i>			33-120 %	62.6	%	
<i>Surrogate: Phenol-d5</i>			38-120 %	64.8	%	
<i>Surrogate: 2-Chlorophenol-d4</i>			41-120 %	65.0	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			20-120 %	55.6	%	
<i>Surrogate: Nitrobenzene-d5</i>			27-120 %	62.9	%	
<i>Surrogate: 2-Fluorobiphenyl</i>			33-120 %	62.2	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			52-120 %	69.5	%	
<i>Surrogate: p-Terphenyl-d14</i>			28-120 %	74.0	%	



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LMW-4-0320
20C0126-09 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM	Sampled: 03/10/2020 14:40	
Instrument: NT6 Analyst: JZ	Analyzed: 03/20/2020 04:37	
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)	Extract ID: 20C0126-09 K 01
	Preparation Batch: BIC0203	Sample Size: 500 mL
	Prepared: 03/16/2020	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	1.3	ug/L	
Surrogate: 1,4-Dioxane-d8			33.6-120 %	49.3	%	



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LMW-4-0320
20C0126-09 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4 Analyst: JGR/CTO

Sampled: 03/10/2020 14:40

Analyzed: 03/12/2020 14:50

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0197 Sample Size: 500 mL
Prepared: 03/11/2020 Final Volume: 1 mL

Extract ID: 20C0126-09 G 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
<i>Surrogate: o-Terphenyl</i>			50-150 %	93.9	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	87.0	%	



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LMW-4-0320
20C0126-09 (Water)

Chlorinated Pesticides

Method: EPA 8081B
Instrument: ECD6 Analyst: YZ/JGR

Sampled: 03/10/2020 14:40

Analyzed: 03/18/2020 17:23

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0208 Sample Size: 500 mL
Prepared: 03/17/2020 Final Volume: 5 mL

Extract ID: 20C0126-09 J 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			11-144 %	85.1	%	
Surrogate: Decachlorobiphenyl [2C]			11-144 %	84.5	%	
Surrogate: Tetrachlorometaxylene			30-120 %	84.9	%	
Surrogate: Tetrachlorometaxylene [2C]			30-120 %	79.4	%	



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LMW-4-0320
20C0126-09 (Water)

Aroclor PCB

Method: EPA 8082A			Sampled: 03/10/2020 14:40
Instrument: ECD7 Analyst: JGR			Analyzed: 03/17/2020 17:32
Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 20C0126-09 A 01
	Preparation Batch: BIC0207		
	Prepared: 03/16/2020		
	Sample Size: 1000 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20C0126-09 A 01
	Cleanup Batch: CIC0096		
	Cleaned: 17-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20C0126-09 A 01
	Cleanup Batch: CIC0094		
	Cleaned: 17-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20C0126-09 A 01
	Cleanup Batch: CIC0095		
	Cleaned: 17-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			29-120 %	48.5	%	
Surrogate: Tetrachlorometaxylene			32-120 %	42.1	%	
Surrogate: Decachlorobiphenyl [2C]			29-120 %	48.5	%	
Surrogate: Tetrachlorometaxylene [2C]			32-120 %	38.4	%	



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LMW-4-0320
20C0126-09 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 03/10/2020 14:40

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/12/2020 19:40

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0126-09 M 01

Preparation Batch: BIC0204

Sample Size: 25 mL

Prepared: 03/11/2020

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-4-0320
20C0126-09 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 03/10/2020 14:40

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/12/2020 19:40

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0126-09 M 01

Preparation Batch: BIC0204

Sample Size: 25 mL

Prepared: 03/11/2020

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-4-0320
20C0126-09 (Water)

Metals and Metallic Compounds

Method: EPA 6010C

Sampled: 03/10/2020 14:40

Instrument: ICP2 Analyst: SKM

Analyzed: 03/17/2020 15:28

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 20C0126-09 M 02

Preparation Batch: BIC0293

Sample Size: 25 mL

Prepared: 03/16/2020

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	112	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	0.459	mg/L	
Magnesium	7439-95-4	1	0.500	69.8	mg/L	
Manganese	7439-96-5	1	0.0100	0.177	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	3.70	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	22.0	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-4-0320
20C0126-09 (Water)

Metals and Metallic Compounds

Method: EPA 7470A	Sampled: 03/10/2020 14:40
Instrument: HYDRA Analyst: BLC	Analyzed: 03/12/2020 16:59
Sample Preparation:	Extract ID: 20C0126-09 M
Preparation Method: TWM EPA 7470A	
Preparation Batch: BIC0205	Sample Size: 20 mL
Prepared: 03/11/2020	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-4-0320-D
20C0126-11 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2 Analyst: PKC

Sampled: 03/10/2020 14:50

Analyzed: 03/17/2020 18:00

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BIC0344 Sample Size: 10 mL
Prepared: 03/17/2020 Final Volume: 10 mL

Extract ID: 20C0126-11 P

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	2.50	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
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	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	0.10	0.23	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	0.10	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	0.50	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-4-0320-D
20C0126-11 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/10/2020 14:50

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 18:00

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	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	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	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			80-120 %	103	%	
Surrogate: 1,2-Dichloroethane-d4			80-129 %	113	%	



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LMW-4-0320-D
20C0126-11 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/10/2020 14:50

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 18:00

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	100	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	94.2	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	101	%	



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LMW-4-0320-D
20C0126-11 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6 Analyst: JZ

Sampled: 03/10/2020 14:50

Analyzed: 03/19/2020 17:40

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BIC0202 Sample Size: 500 mL
Prepared: 03/16/2020 Final Volume: 0.5 mL

Extract ID: 20C0126-11 H 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U



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LMW-4-0320-D
20C0126-11 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Sampled: 03/10/2020 14:50

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2020 17:40

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			33-120 %	64.0	%	
Surrogate: Phenol-d5			38-120 %	65.5	%	
Surrogate: 2-Chlorophenol-d4			41-120 %	65.9	%	
Surrogate: 1,2-Dichlorobenzene-d4			20-120 %	55.9	%	
Surrogate: Nitrobenzene-d5			27-120 %	66.0	%	
Surrogate: 2-Fluorobiphenyl			33-120 %	62.5	%	
Surrogate: 2,4,6-Tribromophenol			52-120 %	70.2	%	
Surrogate: p-Terphenyl-d14			28-120 %	73.2	%	



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LMW-4-0320-D
20C0126-11 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM	Sampled: 03/10/2020 14:50	
Instrument: NT6 Analyst: JZ	Analyzed: 03/20/2020 05:01	
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)	Extract ID: 20C0126-11 K 01
	Preparation Batch: BIC0203	Sample Size: 500 mL
	Prepared: 03/16/2020	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	1.4	ug/L	
Surrogate: 1,4-Dioxane-d8			33.6-120 %	53.7	%	



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LMW-4-0320-D
20C0126-11 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID

Sampled: 03/10/2020 14:50

Instrument: FID4 Analyst: JGR/CTO

Analyzed: 03/12/2020 15:10

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20C0126-11 G 01

Preparation Batch: BIC0197

Sample Size: 500 mL

Prepared: 03/11/2020

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 %	93.8	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	82.6	%	



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LMW-4-0320-D
20C0126-11 (Water)

Chlorinated Pesticides

Method: EPA 8081B
Instrument: ECD6 Analyst: YZ/JGR

Sampled: 03/10/2020 14:50

Analyzed: 03/18/2020 17:41

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0208 Sample Size: 500 mL
Prepared: 03/17/2020 Final Volume: 5 mL

Extract ID: 20C0126-11 J 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			11-144 %	88.5	%	
Surrogate: Decachlorobiphenyl [2C]			11-144 %	88.6	%	
Surrogate: Tetrachlorometaxylene			30-120 %	79.8	%	
Surrogate: Tetrachlorometaxylene [2C]			30-120 %	81.4	%	



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LMW-4-0320-D
20C0126-11 (Water)

Aroclor PCB

Method: EPA 8082A			Sampled: 03/10/2020 14:50
Instrument: ECD7 Analyst: JGR			Analyzed: 03/17/2020 17:53
Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 20C0126-11 A 01
	Preparation Batch: BIC0207		
	Prepared: 03/16/2020		
	Sample Size: 1000 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20C0126-11 A 01
	Cleanup Batch: CIC0096		
	Cleaned: 17-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20C0126-11 A 01
	Cleanup Batch: CIC0094		
	Cleaned: 17-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20C0126-11 A 01
	Cleanup Batch: CIC0095		
	Cleaned: 17-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			29-120 %	47.2	%	
Surrogate: Tetrachlorometaxylene			32-120 %	45.2	%	
Surrogate: Decachlorobiphenyl [2C]			29-120 %	47.5	%	
Surrogate: Tetrachlorometaxylene [2C]			32-120 %	40.7	%	



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

Reported:
06-Apr-2020 09:50

LMW-4-0320-D
20C0126-11 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 03/10/2020 14:50

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/12/2020 19:44

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0126-11 M 01

Preparation Batch: BIC0204

Sample Size: 25 mL

Prepared: 03/11/2020

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:
06-Apr-2020 09:50

LMW-4-0320-D
20C0126-11 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 03/10/2020 14:50

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/12/2020 19:44

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0126-11 M 01

Preparation Batch: BIC0204

Sample Size: 25 mL

Prepared: 03/11/2020

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-4-0320-D
20C0126-11 (Water)

Metals and Metallic Compounds

Method: EPA 6010C

Sampled: 03/10/2020 14:50

Instrument: ICP2 Analyst: SKM

Analyzed: 03/17/2020 16:17

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 20C0126-11 M 02

Preparation Batch: BIC0293

Sample Size: 25 mL

Prepared: 03/16/2020

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	111	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	0.438	mg/L	
Magnesium	7439-95-4	1	0.500	68.4	mg/L	
Manganese	7439-96-5	1	0.0100	0.174	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	3.55	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	21.4	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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Reported:
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LMW-4-0320-D
20C0126-11 (Water)

Metals and Metallic Compounds

Method: EPA 7470A	Sampled: 03/10/2020 14:50
Instrument: HYDRA Analyst: BLC	Analyzed: 03/12/2020 17:06
Sample Preparation:	Preparation Method: TWM EPA 7470A
	Preparation Batch: BIC0205
	Prepared: 03/11/2020
	Sample Size: 20 mL
	Final Volume: 20 mL
	Extract ID: 20C0126-11 M

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:
06-Apr-2020 09:50

Volatile Organic Compounds - Quality Control

Batch BIC0344 - EPA 5030 (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
Blank (BIC0344-BLK1)		Prepared: 17-Mar-2020 Analyzed: 17-Mar-2020 15:38								
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	2.50	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
Bromoethane	ND	0.20	ug/L							U
Iodomethane	ND	0.50	ug/L							U
Methylene Chloride	ND	1.00	ug/L							U
Acrylonitrile	ND	1.00	ug/L							U
Carbon Disulfide	ND	0.10	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	0.10	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	0.50	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



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Volatile Organic Compounds - Quality Control

Batch BIC0344 - EPA 5030 (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
Blank (BIC0344-BLK1)		Prepared: 17-Mar-2020 Analyzed: 17-Mar-2020 15:38								
trans-1,3-Dichloropropene	ND	0.20	ug/L							U
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	0.10	ug/L							U
1,2,3-Trichloropropane	ND	0.20	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	0.20	ug/L							U



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Project Manager: Gary Zimmerman

Reported:
06-Apr-2020 09:50

Volatile Organic Compounds - Quality Control

Batch BIC0344 - EPA 5030 (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
Blank (BIC0344-BLK1)		Prepared: 17-Mar-2020 Analyzed: 17-Mar-2020 15:38								
Naphthalene	ND	0.50	ug/L							U
1,2,3-Trichlorobenzene	ND	0.20	ug/L							U
Dichlorodifluoromethane	ND	0.20	ug/L							U
<i>Surrogate: Dibromofluoromethane</i>	4.77		ug/L	5.00		95.3	80-120			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.68		ug/L	5.00		93.6	80-129			
<i>Surrogate: Toluene-d8</i>	4.89		ug/L	5.00		97.8	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.77		ug/L	5.00		95.4	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	5.07		ug/L	5.00		101	80-120			
LCS (BIC0344-BS1)		Prepared: 17-Mar-2020 Analyzed: 17-Mar-2020 13:57								
Chloromethane	8.40	0.50	ug/L	10.0		84.0	60-138			
Vinyl Chloride	9.05	0.10	ug/L	10.0		90.5	66-133			
Bromomethane	9.22	1.00	ug/L	10.0		92.2	72-131			
Chloroethane	8.85	0.20	ug/L	10.0		88.5	60-155			
Trichlorofluoromethane	9.81	0.20	ug/L	10.0		98.1	80-129			
Acrolein	46.8	2.50	ug/L	50.0		93.7	52-144			
1,1,2-Trichloro-1,2,2-Trifluoroethane	9.62	0.20	ug/L	10.0		96.2	76-129			
Acetone	50.8	5.00	ug/L	50.0		102	58-142			
1,1-Dichloroethene	9.27	0.20	ug/L	10.0		92.7	69-135			
Bromoethane	9.34	0.20	ug/L	10.0		93.4	78-128			
Iodomethane	9.03	0.50	ug/L	10.0		90.3	56-147			
Methylene Chloride	8.90	1.00	ug/L	10.0		89.0	65-135			
Acrylonitrile	9.45	1.00	ug/L	10.0		94.5	64-134			
Carbon Disulfide	8.93	0.10	ug/L	10.0		89.3	78-125			
trans-1,2-Dichloroethene	9.15	0.20	ug/L	10.0		91.5	78-128			
Vinyl Acetate	9.47	0.20	ug/L	10.0		94.7	55-138			
1,1-Dichloroethane	9.20	0.20	ug/L	10.0		92.0	76-124			
2-Butanone	47.4	5.00	ug/L	50.0		94.7	61-140			
2,2-Dichloropropane	9.22	0.10	ug/L	10.0		92.2	78-125			
cis-1,2-Dichloroethene	8.95	0.20	ug/L	10.0		89.5	80-121			
Chloroform	8.84	0.20	ug/L	10.0		88.4	80-122			
Bromochloromethane	8.87	0.20	ug/L	10.0		88.7	80-121			
1,1,1-Trichloroethane	9.32	0.20	ug/L	10.0		93.2	79-123			
1,1-Dichloropropene	9.34	0.10	ug/L	10.0		93.4	80-120			
Carbon tetrachloride	9.61	0.20	ug/L	10.0		96.1	53-137			



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Reported:
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Volatile Organic Compounds - Quality Control

Batch BIC0344 - EPA 5030 (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
LCS (BIC0344-BS1)		Prepared: 17-Mar-2020 Analyzed: 17-Mar-2020 13:57								
1,2-Dichloroethane	9.00	0.20	ug/L	10.0		90.0	75-123			
Benzene	8.74	0.20	ug/L	10.0		87.4	80-120			
Trichloroethene	9.32	0.20	ug/L	10.0		93.2	80-120			
1,2-Dichloropropane	8.83	0.20	ug/L	10.0		88.3	80-120			
Bromodichloromethane	9.25	0.20	ug/L	10.0		92.5	80-121			
Dibromomethane	9.27	0.20	ug/L	10.0		92.7	80-120			
2-Chloroethyl vinyl ether	9.78	0.50	ug/L	10.0		97.8	74-127			
4-Methyl-2-Pentanone	47.9	2.50	ug/L	50.0		95.8	67-133			
cis-1,3-Dichloropropene	9.60	0.20	ug/L	10.0		96.0	80-124			
Toluene	8.86	0.20	ug/L	10.0		88.6	80-120			
trans-1,3-Dichloropropene	9.55	0.20	ug/L	10.0		95.5	71-127			
2-Hexanone	49.3	5.00	ug/L	50.0		98.7	69-133			
1,1,2-Trichloroethane	9.29	0.20	ug/L	10.0		92.9	80-121			
1,3-Dichloropropane	9.54	0.10	ug/L	10.0		95.4	80-120			
Tetrachloroethene	9.77	0.20	ug/L	10.0		97.7	80-120			
Dibromochloromethane	9.77	0.20	ug/L	10.0		97.7	65-135			
1,2-Dibromoethane	9.78	0.10	ug/L	10.0		97.8	80-121			
Chlorobenzene	9.17	0.20	ug/L	10.0		91.7	80-120			
Ethylbenzene	9.35	0.20	ug/L	10.0		93.5	80-120			
1,1,1,2-Tetrachloroethane	9.40	0.20	ug/L	10.0		94.0	80-120			
m,p-Xylene	19.3	0.40	ug/L	20.0		96.7	80-121			
o-Xylene	9.62	0.20	ug/L	10.0		96.2	80-121			
Xylenes, total	29.0	0.60	ug/L	30.0		96.6	76-127			
Styrene	9.53	0.20	ug/L	10.0		95.3	80-124			
Bromoform	9.43	0.20	ug/L	10.0		94.3	51-134			
1,1,2,2-Tetrachloroethane	9.59	0.10	ug/L	10.0		95.9	77-123			
1,2,3-Trichloropropane	9.63	0.20	ug/L	10.0		96.3	76-125			
trans-1,4-Dichloro 2-Butene	9.35	1.00	ug/L	10.0		93.5	55-129			
n-Propylbenzene	9.79	0.20	ug/L	10.0		97.9	78-130			
Bromobenzene	9.50	0.20	ug/L	10.0		95.0	80-120			
Isopropyl Benzene	10.1	0.20	ug/L	10.0		101	80-128			
2-Chlorotoluene	9.88	0.10	ug/L	10.0		98.8	78-122			
4-Chlorotoluene	10.1	0.20	ug/L	10.0		101	80-121			
t-Butylbenzene	10.1	0.20	ug/L	10.0		101	78-125			
1,3,5-Trimethylbenzene	10.3	0.20	ug/L	10.0		103	80-129			



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Project: Landsburg
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Project Manager: Gary Zimmerman

Reported:
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Volatile Organic Compounds - Quality Control

Batch BIC0344 - EPA 5030 (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
LCS (BIC0344-BS1)		Prepared: 17-Mar-2020 Analyzed: 17-Mar-2020 13:57								
1,2,4-Trimethylbenzene	10.2	0.20	ug/L	10.0		102	80-127			
s-Butylbenzene	10.4	0.20	ug/L	10.0		104	78-129			
4-Isopropyl Toluene	10.7	0.20	ug/L	10.0		107	79-130			
1,3-Dichlorobenzene	9.49	0.20	ug/L	10.0		94.9	80-120			
1,4-Dichlorobenzene	9.28	0.20	ug/L	10.0		92.8	80-120			
n-Butylbenzene	10.5	0.20	ug/L	10.0		105	74-129			
1,2-Dichlorobenzene	9.56	0.20	ug/L	10.0		95.6	80-120			
1,2-Dibromo-3-chloropropane	9.67	0.50	ug/L	10.0		96.7	62-123			
1,2,4-Trichlorobenzene	9.79	0.50	ug/L	10.0		97.9	64-124			
Hexachloro-1,3-Butadiene	10.7	0.20	ug/L	10.0		107	58-123			
Naphthalene	10.1	0.50	ug/L	10.0		101	50-134			
1,2,3-Trichlorobenzene	9.89	0.20	ug/L	10.0		98.9	49-133			
Dichlorodifluoromethane	9.33	0.20	ug/L	10.0		93.3	48-147			
<i>Surrogate: Dibromofluoromethane</i>	4.98		ug/L	5.00		99.6	80-120			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.06		ug/L	5.00		101	80-129			
<i>Surrogate: Toluene-d8</i>	5.04		ug/L	5.00		101	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	5.02		ug/L	5.00		100	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	5.04		ug/L	5.00		101	80-120			
LCS Dup (BIC0344-BSD1)		Prepared: 17-Mar-2020 Analyzed: 17-Mar-2020 14:17								
Chloromethane	9.06	0.50	ug/L	10.0		90.6	60-138	7.63	30	
Vinyl Chloride	9.84	0.10	ug/L	10.0		98.4	66-133	8.32	30	
Bromomethane	10.1	1.00	ug/L	10.0		101	72-131	8.82	30	
Chloroethane	9.60	0.20	ug/L	10.0		96.0	60-155	8.19	30	
Trichlorofluoromethane	10.6	0.20	ug/L	10.0		106	80-129	7.73	30	
Acrolein	48.1	2.50	ug/L	50.0		96.1	52-144	2.58	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	10.1	0.20	ug/L	10.0		101	76-129	4.70	30	
Acetone	48.8	5.00	ug/L	50.0		97.7	58-142	3.85	30	
1,1-Dichloroethene	9.93	0.20	ug/L	10.0		99.3	69-135	6.81	30	
Bromoethane	10.1	0.20	ug/L	10.0		101	78-128	7.62	30	
Iodomethane	9.92	0.50	ug/L	10.0		99.2	56-147	9.38	30	
Methylene Chloride	9.60	1.00	ug/L	10.0		96.0	65-135	7.52	30	
Acrylonitrile	9.70	1.00	ug/L	10.0		97.0	64-134	2.63	30	
Carbon Disulfide	9.61	0.10	ug/L	10.0		96.1	78-125	7.36	30	
trans-1,2-Dichloroethene	9.69	0.20	ug/L	10.0		96.9	78-128	5.77	30	



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Project Manager: Gary Zimmerman

Reported:
06-Apr-2020 09:50

Volatile Organic Compounds - Quality Control

Batch BIC0344 - EPA 5030 (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
LCS Dup (BIC0344-BSD1)		Prepared: 17-Mar-2020 Analyzed: 17-Mar-2020 14:17								
Vinyl Acetate	9.80	0.20	ug/L	10.0		98.0	55-138	3.43	30	
1,1-Dichloroethane	9.99	0.20	ug/L	10.0		99.9	76-124	8.19	30	
2-Butanone	48.5	5.00	ug/L	50.0		97.0	61-140	2.40	30	
2,2-Dichloropropane	10.0	0.10	ug/L	10.0		100	78-125	8.19	30	
cis-1,2-Dichloroethene	9.82	0.20	ug/L	10.0		98.2	80-121	9.25	30	
Chloroform	9.70	0.20	ug/L	10.0		97.0	80-122	9.28	30	
Bromochloromethane	9.77	0.20	ug/L	10.0		97.7	80-121	9.73	30	
1,1,1-Trichloroethane	10.0	0.20	ug/L	10.0		100	79-123	7.49	30	
1,1-Dichloropropene	10.0	0.10	ug/L	10.0		100	80-120	7.07	30	
Carbon tetrachloride	10.1	0.20	ug/L	10.0		101	53-137	4.75	30	
1,2-Dichloroethane	9.82	0.20	ug/L	10.0		98.2	75-123	8.65	30	
Benzene	9.56	0.20	ug/L	10.0		95.6	80-120	9.00	30	
Trichloroethene	10.1	0.20	ug/L	10.0		101	80-120	7.95	30	
1,2-Dichloropropane	9.99	0.20	ug/L	10.0		99.9	80-120	12.30	30	
Bromodichloromethane	10.3	0.20	ug/L	10.0		103	80-121	10.30	30	
Dibromomethane	10.1	0.20	ug/L	10.0		101	80-120	8.30	30	
2-Chloroethyl vinyl ether	10.4	0.50	ug/L	10.0		104	74-127	6.00	30	
4-Methyl-2-Pentanone	50.3	2.50	ug/L	50.0		101	67-133	4.83	30	
cis-1,3-Dichloropropene	10.5	0.20	ug/L	10.0		105	80-124	8.51	30	
Toluene	9.79	0.20	ug/L	10.0		97.9	80-120	9.96	30	
trans-1,3-Dichloropropene	10.6	0.20	ug/L	10.0		106	71-127	10.10	30	
2-Hexanone	51.1	5.00	ug/L	50.0		102	69-133	3.49	30	
1,1,2-Trichloroethane	10.2	0.20	ug/L	10.0		102	80-121	9.11	30	
1,3-Dichloropropane	10.4	0.10	ug/L	10.0		104	80-120	8.81	30	
Tetrachloroethene	10.0	0.20	ug/L	10.0		100	80-120	2.43	30	
Dibromochloromethane	10.7	0.20	ug/L	10.0		107	65-135	9.27	30	
1,2-Dibromoethane	10.7	0.10	ug/L	10.0		107	80-121	9.09	30	
Chlorobenzene	10.0	0.20	ug/L	10.0		100	80-120	8.91	30	
Ethylbenzene	10.1	0.20	ug/L	10.0		101	80-120	7.75	30	
1,1,1,2-Tetrachloroethane	10.4	0.20	ug/L	10.0		104	80-120	10.10	30	
m,p-Xylene	20.9	0.40	ug/L	20.0		105	80-121	7.82	30	
o-Xylene	10.3	0.20	ug/L	10.0		103	80-121	6.97	30	
Xylenes, total	31.2	0.60	ug/L	30.0		104	76-127	7.54	30	
Styrene	10.6	0.20	ug/L	10.0		106	80-124	10.70	30	
Bromoform	10.4	0.20	ug/L	10.0		104	51-134	9.66	30	



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

Reported:
06-Apr-2020 09:50

Volatile Organic Compounds - Quality Control

Batch BIC0344 - EPA 5030 (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
LCS Dup (BIC0344-BSD1)		Prepared: 17-Mar-2020 Analyzed: 17-Mar-2020 14:17								
1,1,2,2-Tetrachloroethane	9.94	0.10	ug/L	10.0		99.4	77-123	3.61	30	
1,2,3-Trichloropropane	10.3	0.20	ug/L	10.0		103	76-125	6.36	30	
trans-1,4-Dichloro 2-Butene	10.0	1.00	ug/L	10.0		100	55-129	6.89	30	
n-Propylbenzene	10.3	0.20	ug/L	10.0		103	78-130	5.05	30	
Bromobenzene	10.3	0.20	ug/L	10.0		103	80-120	8.44	30	
Isopropyl Benzene	10.8	0.20	ug/L	10.0		108	80-128	6.20	30	
2-Chlorotoluene	10.7	0.10	ug/L	10.0		107	78-122	7.64	30	
4-Chlorotoluene	10.6	0.20	ug/L	10.0		106	80-121	5.37	30	
t-Butylbenzene	10.8	0.20	ug/L	10.0		108	78-125	6.43	30	
1,3,5-Trimethylbenzene	11.0	0.20	ug/L	10.0		110	80-129	6.31	30	
1,2,4-Trimethylbenzene	10.9	0.20	ug/L	10.0		109	80-127	6.60	30	
s-Butylbenzene	10.9	0.20	ug/L	10.0		109	78-129	4.47	30	
4-Isopropyl Toluene	11.3	0.20	ug/L	10.0		113	79-130	5.61	30	
1,3-Dichlorobenzene	10.1	0.20	ug/L	10.0		101	80-120	6.45	30	
1,4-Dichlorobenzene	10.1	0.20	ug/L	10.0		101	80-120	8.70	30	
n-Butylbenzene	10.8	0.20	ug/L	10.0		108	74-129	3.31	30	
1,2-Dichlorobenzene	10.2	0.20	ug/L	10.0		102	80-120	5.99	30	
1,2-Dibromo-3-chloropropane	10.3	0.50	ug/L	10.0		103	62-123	5.88	30	
1,2,4-Trichlorobenzene	10.2	0.50	ug/L	10.0		102	64-124	4.60	30	
Hexachloro-1,3-Butadiene	10.6	0.20	ug/L	10.0		106	58-123	0.97	30	
Naphthalene	10.4	0.50	ug/L	10.0		104	50-134	2.79	30	
1,2,3-Trichlorobenzene	10.4	0.20	ug/L	10.0		104	49-133	5.15	30	
Dichlorodifluoromethane	9.69	0.20	ug/L	10.0		96.9	48-147	3.79	30	
Surrogate: Dibromofluoromethane	5.03		ug/L	5.00		101	80-120			
Surrogate: 1,2-Dichloroethane-d4	4.95		ug/L	5.00		98.9	80-129			
Surrogate: Toluene-d8	5.07		ug/L	5.00		101	80-120			
Surrogate: 4-Bromofluorobenzene	5.09		ug/L	5.00		102	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	4.99		ug/L	5.00		99.7	80-120			



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Project Number: Landsburg
Project Manager: Gary Zimmerman

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Semivolatile Organic Compounds - Quality Control

Batch BIC0202 - 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
Blank (BIC0202-BLK1)		Prepared: 16-Mar-2020 Analyzed: 19-Mar-2020 11:36								
Phenol	ND	1.0	ug/L							U
bis(2-chloroethyl) ether	ND	1.0	ug/L							U
2-Chlorophenol	ND	1.0	ug/L							U
1,3-Dichlorobenzene	ND	1.0	ug/L							U
1,4-Dichlorobenzene	ND	1.0	ug/L							U
Benzyl Alcohol	ND	2.0	ug/L							U
1,2-Dichlorobenzene	ND	1.0	ug/L							U
2-Methylphenol	ND	1.0	ug/L							U
2,2'-Oxybis(1-chloropropane)	ND	1.0	ug/L							U
4-Methylphenol	ND	2.0	ug/L							U
N-Nitroso-di-n-Propylamine	ND	1.0	ug/L							U
Hexachloroethane	ND	2.0	ug/L							U
Nitrobenzene	ND	1.0	ug/L							U
Isophorone	ND	1.0	ug/L							U
2-Nitrophenol	ND	3.0	ug/L							U
2,4-Dimethylphenol	ND	3.0	ug/L							U
Bis(2-Chloroethoxy)methane	ND	1.0	ug/L							U
Benzoic acid	ND	20.0	ug/L							U
2,4-Dichlorophenol	ND	3.0	ug/L							U
1,2,4-Trichlorobenzene	ND	1.0	ug/L							U
Naphthalene	ND	1.0	ug/L							U
4-Chloroaniline	ND	5.0	ug/L							U
Hexachlorobutadiene	ND	3.0	ug/L							U
4-Chloro-3-Methylphenol	ND	3.0	ug/L							U
2-Methylnaphthalene	ND	1.0	ug/L							U
Hexachlorocyclopentadiene	ND	5.0	ug/L							U
2,4,6-Trichlorophenol	ND	3.0	ug/L							U
2,4,5-Trichlorophenol	ND	5.0	ug/L							U
2-Chloronaphthalene	ND	1.0	ug/L							U
2-Nitroaniline	ND	3.0	ug/L							U
Dimethylphthalate	ND	1.0	ug/L							U
Acenaphthylene	ND	1.0	ug/L							U
2,6-Dinitrotoluene	ND	3.0	ug/L							U
3-Nitroaniline	ND	3.0	ug/L							U
Acenaphthene	ND	1.0	ug/L							U



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Project Number: Landsburg
Project Manager: Gary Zimmerman

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Semivolatile Organic Compounds - Quality Control

Batch BIC0202 - 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
Blank (BIC0202-BLK1)		Prepared: 16-Mar-2020 Analyzed: 19-Mar-2020 11:36								
2,4-Dinitrophenol	ND	20.0	ug/L							U
Dibenzofuran	ND	1.0	ug/L							U
4-Nitrophenol	ND	10.0	ug/L							U
2,4-Dinitrotoluene	ND	3.0	ug/L							U
Fluorene	ND	1.0	ug/L							U
Diethyl phthalate	ND	1.0	ug/L							U
4-Chlorophenylphenyl ether	ND	1.0	ug/L							U
4-Nitroaniline	ND	3.0	ug/L							U
4,6-Dinitro-2-methylphenol	ND	10.0	ug/L							U
N-Nitrosodiphenylamine	ND	1.0	ug/L							U
4-Bromophenyl phenyl ether	ND	1.0	ug/L							U
Hexachlorobenzene	ND	1.0	ug/L							U
Pentachlorophenol	ND	10.0	ug/L							U
Phenanthrene	ND	1.0	ug/L							U
Anthracene	ND	1.0	ug/L							U
Carbazole	ND	1.0	ug/L							U
Di-n-Butylphthalate	ND	1.0	ug/L							U
Fluoranthene	ND	1.0	ug/L							U
Pyrene	ND	1.0	ug/L							U
Butylbenzylphthalate	ND	1.0	ug/L							U
Benzo(a)anthracene	ND	1.0	ug/L							U
3,3'-Dichlorobenzidine	ND	5.0	ug/L							U
Chrysene	ND	1.0	ug/L							U
bis(2-Ethylhexyl)phthalate	ND	3.0	ug/L							U
Di-n-Octylphthalate	ND	1.0	ug/L							U
Benzo(a)pyrene	ND	1.0	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	1.0	ug/L							U
Dibenzo(a,h)anthracene	ND	1.0	ug/L							U
Benzo(g,h,i)perylene	ND	1.0	ug/L							U
Benzo(a)fluoranthene, Total	ND	2.0	ug/L							U
1-Methylnaphthalene	ND	1.0	ug/L							U
Surrogate: 2-Fluorophenol	28.9		ug/L	37.5		77.0	33-120			
Surrogate: Phenol-d5	28.1		ug/L	37.5		74.9	38-120			
Surrogate: 2-Chlorophenol-d4	29.7		ug/L	37.5		79.1	41-120			
Surrogate: 1,2-Dichlorobenzene-d4	16.2		ug/L	25.0		64.8	20-120			



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Semivolatile Organic Compounds - Quality Control

Batch BIC0202 - 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
Blank (BIC0202-BLK1)		Prepared: 16-Mar-2020 Analyzed: 19-Mar-2020 11:36								
Surrogate: Nitrobenzene-d5	19.2		ug/L	25.0		77.0	27-120			
Surrogate: 2-Fluorobiphenyl	17.7		ug/L	25.0		70.7	33-120			
Surrogate: 2,4,6-Tribromophenol	28.1		ug/L	37.5		74.9	52-120			
Surrogate: p-Terphenyl-d14	19.3		ug/L	25.0		77.1	28-120			
LCS (BIC0202-BS1)		Prepared: 16-Mar-2020 Analyzed: 19-Mar-2020 12:09								
Phenol	19.3	1.0	ug/L	25.0		77.2	35-120			
bis(2-chloroethyl) ether	19.7	1.0	ug/L	25.0		79.0	46.5-120			
2-Chlorophenol	18.7	1.0	ug/L	25.0		74.6	48-120			
1,3-Dichlorobenzene	13.5	1.0	ug/L	25.0		53.9	34.2-120			
1,4-Dichlorobenzene	14.2	1.0	ug/L	25.0		56.8	36-120			
Benzyl Alcohol	20.3	2.0	ug/L	25.0		81.1	27.4-120			
1,2-Dichlorobenzene	14.7	1.0	ug/L	25.0		58.6	38.4-120			
2-Methylphenol	19.2	1.0	ug/L	25.0		76.7	47.8-120			
2,2'-Oxybis(1-chloropropane)	18.7	1.0	ug/L	25.0		74.9	40.4-120			
4-Methylphenol	20.3	2.0	ug/L	25.0		81.1	52.3-120			
N-Nitroso-di-n-Propylamine	18.7	1.0	ug/L	25.0		74.8	51.4-120			
Hexachloroethane	12.3	2.0	ug/L	25.0		49.3	29.5-120			
Nitrobenzene	20.0	1.0	ug/L	25.0		79.9	51.5-120			
Isophorone	25.3	1.0	ug/L	25.0		101	62.3-128			
2-Nitrophenol	19.3	3.0	ug/L	25.0		77.4	58.6-124			
2,4-Dimethylphenol	44.4	3.0	ug/L	65.0		68.3	38.5-120			
Bis(2-Chloroethoxy)methane	20.6	1.0	ug/L	25.0		82.2	52.9-120			
Benzoic acid	89.8	20.0	ug/L	115		78.1	38.2-120			
2,4-Dichlorophenol	48.6	3.0	ug/L	65.0		74.7	43.6-120			
1,2,4-Trichlorobenzene	14.7	1.0	ug/L	25.0		58.7	38.6-120			
Naphthalene	17.9	1.0	ug/L	25.0		71.4	40.5-120			
4-Chloroaniline	49.5	5.0	ug/L	65.0		76.1	42.7-120			
Hexachlorobutadiene	11.9	3.0	ug/L	25.0		47.6	32.3-120			
4-Chloro-3-Methylphenol	51.7	3.0	ug/L	65.0		79.6	51.9-120			
2-Methylnaphthalene	17.4	1.0	ug/L	25.0		69.8	47.3-120			
Hexachlorocyclopentadiene	27.3	5.0	ug/L	65.0		42.0	23.3-120			
2,4,6-Trichlorophenol	50.0	3.0	ug/L	65.0		76.9	47-120			
2,4,5-Trichlorophenol	51.5	5.0	ug/L	65.0		79.3	48.4-120			
2-Chloronaphthalene	17.3	1.0	ug/L	25.0		69.1	47.7-123			



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

Reported:
06-Apr-2020 09:50

Semivolatile Organic Compounds - Quality Control

Batch BIC0202 - 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
LCS (BIC0202-BS1)		Prepared: 16-Mar-2020 Analyzed: 19-Mar-2020 12:09								
2-Nitroaniline	60.3	3.0	ug/L	65.0		92.7	56.8-120			
Dimethylphthalate	20.2	1.0	ug/L	25.0		80.8	65.2-125			
Acenaphthylene	18.3	1.0	ug/L	25.0		73.2	44.1-120			
2,6-Dinitrotoluene	57.0	3.0	ug/L	65.0		87.7	69.3-140			
3-Nitroaniline	57.4	3.0	ug/L	65.0		88.3	60.9-120			
Acenaphthene	18.3	1.0	ug/L	25.0		73.1	50.4-120			
2,4-Dinitrophenol	91.1	20.0	ug/L	115		79.2	33.7-183			
Dibenzofuran	19.1	1.0	ug/L	25.0		76.5	49.9-120			
4-Nitrophenol	53.3	10.0	ug/L	65.0		82.0	50.2-136			
2,4-Dinitrotoluene	54.5	3.0	ug/L	65.0		83.8	66.8-132			
Fluorene	19.2	1.0	ug/L	25.0		76.8	57.8-120			
Diethyl phthalate	20.7	1.0	ug/L	25.0		82.7	68.1-120			
4-Chlorophenylphenyl ether	19.6	1.0	ug/L	25.0		78.5	59.1-127			
4-Nitroaniline	52.9	3.0	ug/L	65.0		81.3	56-122			
4,6-Dinitro-2-methylphenol	95.8	10.0	ug/L	115		83.3	37.9-162			
N-Nitrosodiphenylamine	17.5	1.0	ug/L	25.0		69.8	59.6-120			
4-Bromophenyl phenyl ether	19.3	1.0	ug/L	25.0		77.1	59.6-120			
Hexachlorobenzene	18.5	1.0	ug/L	25.0		74.1	53.7-120			
Pentachlorophenol	58.0	10.0	ug/L	65.0		89.2	40.3-128			
Phenanthrene	19.6	1.0	ug/L	25.0		78.3	58.8-120			
Anthracene	19.0	1.0	ug/L	25.0		75.9	60.5-120			
Carbazole	18.9	1.0	ug/L	25.0		75.4	59.7-120			
Di-n-Butylphthalate	21.0	1.0	ug/L	25.0		83.9	71-120			
Fluoranthene	19.4	1.0	ug/L	25.0		77.6	66.7-120			
Pyrene	20.7	1.0	ug/L	25.0		82.8	62.7-127			
Butylbenzylphthalate	21.5	1.0	ug/L	25.0		86.1	67.4-128			
Benzo(a)anthracene	19.7	1.0	ug/L	25.0		78.7	58.3-128			
3,3'-Dichlorobenzidine	42.4	5.0	ug/L	65.0		65.2	34.1-120			
Chrysene	19.1	1.0	ug/L	25.0		76.5	58.9-120			
bis(2-Ethylhexyl)phthalate	20.6	3.0	ug/L	25.0		82.5	68.3-123			
Di-n-Octylphthalate	19.9	1.0	ug/L	25.0		79.4	61.5-120			
Benzo(a)pyrene	18.5	1.0	ug/L	25.0		73.8	70.6-120			
Indeno(1,2,3-cd)pyrene	19.2	1.0	ug/L	25.0		76.6	46.5-120			
Dibenzo(a,h)anthracene	19.6	1.0	ug/L	25.0		78.5	49.6-120			
Benzo(g,h,i)perylene	19.1	1.0	ug/L	25.0		76.3	37-120			



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

Reported:
06-Apr-2020 09:50

Semivolatile Organic Compounds - Quality Control

Batch BIC0202 - 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
LCS (BIC0202-BS1)										
					Prepared: 16-Mar-2020 Analyzed: 19-Mar-2020 12:09					
Benzofluoranthenes, Total	39.5	2.0	ug/L	50.0		79.0	66.5-120			
1-Methylnaphthalene	16.6	1.0	ug/L	25.0		66.3	46.9-120			
Surrogate: 2-Fluorophenol	25.4		ug/L	37.5		67.8	33-120			
Surrogate: Phenol-d5	26.5		ug/L	37.5		70.6	38-120			
Surrogate: 2-Chlorophenol-d4	26.2		ug/L	37.5		70.0	41-120			
Surrogate: 1,2-Dichlorobenzene-d4	14.2		ug/L	25.0		56.9	20-120			
Surrogate: Nitrobenzene-d5	17.7		ug/L	25.0		70.8	27-120			
Surrogate: 2-Fluorobiphenyl	16.3		ug/L	25.0		65.3	33-120			
Surrogate: 2,4,6-Tribromophenol	28.2		ug/L	37.5		75.3	52-120			
Surrogate: p-Terphenyl-d14	17.8		ug/L	25.0		71.2	28-120			
LCS Dup (BIC0202-BSD1)										
					Prepared: 16-Mar-2020 Analyzed: 19-Mar-2020 12:42					
Phenol	20.2	1.0	ug/L	25.0		80.6	35-120	4.31	30	
bis(2-chloroethyl) ether	20.0	1.0	ug/L	25.0		80.1	46.5-120	1.33	30	
2-Chlorophenol	19.2	1.0	ug/L	25.0		76.7	48-120	2.73	30	
1,3-Dichlorobenzene	13.0	1.0	ug/L	25.0		51.9	34.2-120	3.82	30	
1,4-Dichlorobenzene	13.9	1.0	ug/L	25.0		55.6	36-120	2.24	30	
Benzyl Alcohol	21.4	2.0	ug/L	25.0		85.8	27.4-120	5.62	30	
1,2-Dichlorobenzene	14.3	1.0	ug/L	25.0		57.3	38.4-120	2.33	30	
2-Methylphenol	20.3	1.0	ug/L	25.0		81.3	47.8-120	5.92	30	
2,2'-Oxybis(1-chloropropane)	19.0	1.0	ug/L	25.0		76.1	40.4-120	1.63	30	
4-Methylphenol	21.3	2.0	ug/L	25.0		85.3	52.3-120	5.14	30	
N-Nitroso-di-n-Propylamine	20.0	1.0	ug/L	25.0		80.0	51.4-120	6.71	30	
Hexachloroethane	12.0	2.0	ug/L	25.0		48.2	29.5-120	2.38	30	
Nitrobenzene	20.7	1.0	ug/L	25.0		82.8	51.5-120	3.46	30	
Isophorone	26.6	1.0	ug/L	25.0		106	62.3-128	4.88	30	
2-Nitrophenol	20.3	3.0	ug/L	25.0		81.0	58.6-124	4.58	30	
2,4-Dimethylphenol	44.7	3.0	ug/L	65.0		68.7	38.5-120	0.58	30	
Bis(2-Chloroethoxy)methane	21.3	1.0	ug/L	25.0		85.4	52.9-120	3.77	30	
Benzoic acid	93.6	20.0	ug/L	115		81.4	38.2-120	4.19	30	
2,4-Dichlorophenol	49.6	3.0	ug/L	65.0		76.2	43.6-120	2.00	30	
1,2,4-Trichlorobenzene	14.7	1.0	ug/L	25.0		58.7	38.6-120	0.01	30	
Naphthalene	17.6	1.0	ug/L	25.0		70.6	40.5-120	1.22	30	
4-Chloroaniline	50.9	5.0	ug/L	65.0		78.3	42.7-120	2.81	30	
Hexachlorobutadiene	11.7	3.0	ug/L	25.0		46.7	32.3-120	1.91	30	



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

Reported:
06-Apr-2020 09:50

Semivolatile Organic Compounds - Quality Control

Batch BIC0202 - 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
LCS Dup (BIC0202-BSD1)		Prepared: 16-Mar-2020 Analyzed: 19-Mar-2020 12:42								
4-Chloro-3-Methylphenol	54.3	3.0	ug/L	65.0		83.5	51.9-120	4.83	30	
2-Methylnaphthalene	18.0	1.0	ug/L	25.0		72.1	47.3-120	3.26	30	
Hexachlorocyclopentadiene	30.7	5.0	ug/L	65.0		47.2	23.3-120	11.70	30	
2,4,6-Trichlorophenol	52.3	3.0	ug/L	65.0		80.5	47-120	4.57	30	
2,4,5-Trichlorophenol	54.3	5.0	ug/L	65.0		83.5	48.4-120	5.23	30	
2-Chloronaphthalene	18.5	1.0	ug/L	25.0		74.2	47.7-123	7.05	30	
2-Nitroaniline	65.0	3.0	ug/L	65.0		100	56.8-120	7.61	30	
Dimethylphthalate	21.2	1.0	ug/L	25.0		84.8	65.2-125	4.75	30	
Acenaphthylene	19.5	1.0	ug/L	25.0		78.2	44.1-120	6.60	30	
2,6-Dinitrotoluene	60.6	3.0	ug/L	65.0		93.3	69.3-140	6.24	30	
3-Nitroaniline	62.1	3.0	ug/L	65.0		95.6	60.9-120	7.93	30	
Acenaphthene	19.7	1.0	ug/L	25.0		78.7	50.4-120	7.39	30	
2,4-Dinitrophenol	102	20.0	ug/L	115		89.0	33.7-183	11.60	30	
Dibenzofuran	20.6	1.0	ug/L	25.0		82.6	49.9-120	7.70	30	
4-Nitrophenol	58.7	10.0	ug/L	65.0		90.4	50.2-136	9.64	30	
2,4-Dinitrotoluene	58.6	3.0	ug/L	65.0		90.1	66.8-132	7.30	30	
Fluorene	20.7	1.0	ug/L	25.0		82.6	57.8-120	7.31	30	
Diethyl phthalate	21.9	1.0	ug/L	25.0		87.5	68.1-120	5.63	30	
4-Chlorophenylphenyl ether	21.3	1.0	ug/L	25.0		85.3	59.1-127	8.33	30	
4-Nitroaniline	58.5	3.0	ug/L	65.0		90.0	56-122	10.10	30	
4,6-Dinitro-2-methylphenol	99.8	10.0	ug/L	115		86.8	37.9-162	4.14	30	
N-Nitrosodiphenylamine	18.5	1.0	ug/L	25.0		73.9	59.6-120	5.59	30	
4-Bromophenyl phenyl ether	20.3	1.0	ug/L	25.0		81.2	59.6-120	5.21	30	
Hexachlorobenzene	19.7	1.0	ug/L	25.0		78.8	53.7-120	6.06	30	
Pentachlorophenol	61.1	10.0	ug/L	65.0		94.0	40.3-128	5.22	30	
Phenanthrene	20.9	1.0	ug/L	25.0		83.5	58.8-120	6.49	30	
Anthracene	20.2	1.0	ug/L	25.0		80.6	60.5-120	6.02	30	
Carbazole	19.9	1.0	ug/L	25.0		79.7	59.7-120	5.56	30	
Di-n-Butylphthalate	22.1	1.0	ug/L	25.0		88.4	71-120	5.23	30	
Fluoranthene	20.7	1.0	ug/L	25.0		82.8	66.7-120	6.46	30	
Pyrene	22.5	1.0	ug/L	25.0		89.9	62.7-127	8.29	30	
Butylbenzylphthalate	23.2	1.0	ug/L	25.0		92.8	67.4-128	7.43	30	
Benzo(a)anthracene	21.4	1.0	ug/L	25.0		85.8	58.3-128	8.57	30	
3,3'-Dichlorobenzidine	44.7	5.0	ug/L	65.0		68.7	34.1-120	5.20	30	
Chrysene	20.5	1.0	ug/L	25.0		82.1	58.9-120	7.10	30	



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Semivolatile Organic Compounds - Quality Control

Batch BIC0202 - EPA 3520C (Liq Liq)

Instrument: NT6 Analyst: JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BIC0202-BSD1)		Prepared: 16-Mar-2020 Analyzed: 19-Mar-2020 12:42							
bis(2-Ethylhexyl)phthalate	22.4	3.0	ug/L	25.0		89.5 68.3-123	8.12	30	
Di-n-Octylphthalate	21.5	1.0	ug/L	25.0		85.9 61.5-120	7.88	30	
Benzo(a)pyrene	20.0	1.0	ug/L	25.0		80.1 70.6-120	8.11	30	
Indeno(1,2,3-cd)pyrene	20.4	1.0	ug/L	25.0		81.7 46.5-120	6.43	30	
Dibenzo(a,h)anthracene	20.8	1.0	ug/L	25.0		83.1 49.6-120	5.73	30	
Benzo(g,h,i)perylene	20.1	1.0	ug/L	25.0		80.4 37-120	5.24	30	
Benzo(a)fluoranthene, Total	43.2	2.0	ug/L	50.0		86.4 66.5-120	8.84	30	
1-Methylnaphthalene	17.5	1.0	ug/L	25.0		69.9 46.9-120	5.18	30	
Surrogate: 2-Fluorophenol	24.8		ug/L	37.5		66.2 33-120			
Surrogate: Phenol-d5	26.6		ug/L	37.5		70.9 38-120			
Surrogate: 2-Chlorophenol-d4	25.7		ug/L	37.5		68.6 41-120			
Surrogate: 1,2-Dichlorobenzene-d4	13.8		ug/L	25.0		55.1 20-120			
Surrogate: Nitrobenzene-d5	17.4		ug/L	25.0		69.7 27-120			
Surrogate: 2-Fluorobiphenyl	16.3		ug/L	25.0		65.1 33-120			
Surrogate: 2,4,6-Tribromophenol	28.8		ug/L	37.5		76.8 52-120			
Surrogate: p-Terphenyl-d14	18.3		ug/L	25.0		73.4 28-120			



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Semivolatile Organic Compounds - SIM - Quality Control

Batch BIC0203 - EPA 3520C (Liq Liq)

Instrument: NT6 Analyst: JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BIC0203-BLK1)		Prepared: 16-Mar-2020 Analyzed: 20-Mar-2020 00:52							
1,4-Dioxane	ND	0.4	ug/L						U
Surrogate: 1,4-Dioxane-d8	5.91		ug/L	10.0	59.1	33.6-120			
LCS (BIC0203-BS1)		Prepared: 16-Mar-2020 Analyzed: 20-Mar-2020 01:17							
1,4-Dioxane	6.3	0.4	ug/L	10.0	63.4	39.9-120			
Surrogate: 1,4-Dioxane-d8	5.49		ug/L	10.0	54.9	33.6-120			
LCS Dup (BIC0203-BSD1)		Prepared: 16-Mar-2020 Analyzed: 20-Mar-2020 01:42							
1,4-Dioxane	6.7	0.4	ug/L	10.0	66.7	39.9-120	5.05	30	
Surrogate: 1,4-Dioxane-d8	5.76		ug/L	10.0	57.6	33.6-120			



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Petroleum Hydrocarbons - Quality Control

Batch BIC0197 - EPA 3510C SepF

Instrument: FID4 Analyst: JGR/CTO

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BIC0197-BLK1)		Prepared: 11-Mar-2020 Analyzed: 12-Mar-2020 12:34							
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	0.209		mg/L	0.225	93.0	50-150			
Surrogate: n-Triacontane	0.188		mg/L	0.225	83.4	50-150			



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Chlorinated Pesticides - Quality Control

Batch BIC0208 - EPA 3510C SepF

Instrument: ECD6 Analyst: YZ/JGR

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIC0208-BLK1)		Prepared: 17-Mar-2020 Analyzed: 18-Mar-2020 15:17								
alpha-BHC	ND	0.025	ug/L							U
beta-BHC	ND	0.025	ug/L							U
gamma-BHC (Lindane)	ND	0.025	ug/L							U
delta-BHC	ND	0.025	ug/L							U
Heptachlor	ND	0.025	ug/L							U
Aldrin	ND	0.025	ug/L							U
Heptachlor Epoxide	ND	0.050	ug/L							U
trans-Chlordane (beta-Chlordane)	ND	0.025	ug/L							U
cis-Chlordane (alpha-chlordane)	ND	0.025	ug/L							U
Endosulfan I	ND	0.025	ug/L							U
4,4'-DDE	ND	0.050	ug/L							U
Dieldrin	ND	0.050	ug/L							U
Endrin	ND	0.050	ug/L							U
Endosulfan II	ND	0.050	ug/L							U
4,4'-DDD	ND	0.050	ug/L							U
Endrin Aldehyde	ND	0.050	ug/L							U
4,4'-DDT	ND	0.050	ug/L							U
Endosulfan Sulfate	ND	0.050	ug/L							U
Endrin Ketone	ND	0.050	ug/L							U
Methoxychlor	ND	0.250	ug/L							U
Toxaphene	ND	1.25	ug/L							U
Surrogate: Decachlorobiphenyl	0.276		ug/L	0.400		68.9	11-144			
Surrogate: Decachlorobiphenyl [2C]	0.259		ug/L	0.400		64.8	11-144			
Surrogate: Tetrachlorometaxylene	0.299		ug/L	0.400		74.7	30-120			
Surrogate: Tetrachlorometaxylene [2C]	0.325		ug/L	0.400		81.3	30-120			

LCS (BIC0208-BS1)		Prepared: 17-Mar-2020 Analyzed: 18-Mar-2020 15:35								
alpha-BHC	0.149	0.025	ug/L	0.200		74.5	57-120			
beta-BHC	0.149	0.025	ug/L	0.200		74.5	59-120			
gamma-BHC (Lindane)	0.151	0.025	ug/L	0.200		75.6	62-120			
delta-BHC	0.149	0.025	ug/L	0.200		74.7	15-145			
Heptachlor	0.144	0.025	ug/L	0.200		72.2	54-120			
Aldrin	0.142	0.025	ug/L	0.200		70.8	47-120			
Heptachlor Epoxide	0.153	0.050	ug/L	0.200		76.4	63-120			
trans-Chlordane (beta-Chlordane)	0.141	0.025	ug/L	0.200		70.4	63-120			



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Chlorinated Pesticides - Quality Control

Batch BIC0208 - EPA 3510C SepF

Instrument: ECD6 Analyst: YZ/JGR

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BIC0208-BS1)		Prepared: 17-Mar-2020 Analyzed: 18-Mar-2020 15:35								
cis-Chlordane (alpha-chlordane)	0.148	0.025	ug/L	0.200		74.1	60-120			
Endosulfan I	0.152	0.025	ug/L	0.200		75.9	58-121			
4,4'-DDE	0.313	0.050	ug/L	0.400		78.4	69-128			
Dieldrin	0.310	0.050	ug/L	0.400		77.5	62-120			
Endrin	0.291	0.050	ug/L	0.400		72.6	64-120			
Endosulfan II	0.304	0.050	ug/L	0.400		75.9	64-120			
4,4'-DDD	0.288	0.050	ug/L	0.400		72.0	63-120			
Endrin Aldehyde	0.238	0.050	ug/L	0.400		59.4	41-120			
4,4'-DDT	0.262	0.050	ug/L	0.400		65.5	57-124			
Endosulfan Sulfate	0.267	0.050	ug/L	0.400		66.8	47-120			
Endrin Ketone	0.277	0.050	ug/L	0.400		69.3	58-120			
Methoxychlor	1.34	0.250	ug/L	2.00		67.0	56-120			
Surrogate: Decachlorobiphenyl	0.266		ug/L	0.400		66.6	11-144			
Surrogate: Decachlorobiphenyl [2C]	0.275		ug/L	0.400		68.8	11-144			
Surrogate: Tetrachlorometaxylene	0.229		ug/L	0.400		57.3	30-120			
Surrogate: Tetrachlorometaxylene [2C]	0.278		ug/L	0.400		69.6	30-120			
LCS Dup (BIC0208-BSD1)		Prepared: 17-Mar-2020 Analyzed: 18-Mar-2020 15:53								
alpha-BHC	0.167	0.025	ug/L	0.200		83.4	57-120	11.20	30	
beta-BHC	0.169	0.025	ug/L	0.200		84.7	59-120	16.30	30	
gamma-BHC (Lindane)	0.169	0.025	ug/L	0.200		84.4	62-120	11.00	30	
delta-BHC	0.167	0.025	ug/L	0.200		83.4	15-145	11.00	30	
Heptachlor	0.168	0.025	ug/L	0.200		83.8	54-120	14.90	30	
Aldrin	0.165	0.025	ug/L	0.200		82.4	47-120	15.10	30	
Heptachlor Epoxide	0.168	0.050	ug/L	0.200		84.2	63-120	9.72	30	
trans-Chlordane (beta-Chlordane)	0.157	0.025	ug/L	0.200		78.5	63-120	10.90	30	
cis-Chlordane (alpha-chlordane)	0.165	0.025	ug/L	0.200		82.7	60-120	10.90	30	
Endosulfan I	0.168	0.025	ug/L	0.200		83.9	58-121	10.00	30	
4,4'-DDE	0.354	0.050	ug/L	0.400		88.5	69-128	12.10	30	
Dieldrin	0.343	0.050	ug/L	0.400		85.8	62-120	10.20	30	
Endrin	0.329	0.050	ug/L	0.400		82.2	64-120	12.40	30	
Endosulfan II	0.344	0.050	ug/L	0.400		86.0	64-120	12.40	30	
4,4'-DDD	0.327	0.050	ug/L	0.400		81.7	63-120	12.70	30	
Endrin Aldehyde	0.272	0.050	ug/L	0.400		67.9	41-120	13.40	30	
4,4'-DDT	0.302	0.050	ug/L	0.400		75.6	57-124	14.30	30	



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Chlorinated Pesticides - Quality Control

Batch BIC0208 - EPA 3510C SepF

Instrument: ECD6 Analyst: YZ/JGR

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BIC0208-BSD1)		Prepared: 17-Mar-2020 Analyzed: 18-Mar-2020 15:53							
Endosulfan Sulfate	0.307	0.050	ug/L	0.400		76.7 47-120	13.70	30	
Endrin Ketone	0.312	0.050	ug/L	0.400		78.0 58-120	11.90	30	
Methoxychlor	1.54	0.250	ug/L	2.00		76.9 56-120	13.80	30	
Surrogate: Decachlorobiphenyl	0.289		ug/L	0.400		72.2 11-144			
Surrogate: Decachlorobiphenyl [2C]	0.266		ug/L	0.400		66.5 11-144			
Surrogate: Tetrachlorometaxylene	0.270		ug/L	0.400		67.6 30-120			
Surrogate: Tetrachlorometaxylene [2C]	0.314		ug/L	0.400		78.6 30-120			



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Aroclor PCB - Quality Control

Batch BIC0207 - EPA 3510C SepF

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIC0207-BLK1)		Prepared: 16-Mar-2020 Analyzed: 17-Mar-2020 15:06								
Aroclor 1016	ND	0.010	ug/L							U
Aroclor 1221	ND	0.010	ug/L							U
Aroclor 1232	ND	0.010	ug/L							U
Aroclor 1242	ND	0.010	ug/L							U
Aroclor 1248	ND	0.010	ug/L							U
Aroclor 1254	ND	0.010	ug/L							U
Aroclor 1260	ND	0.010	ug/L							U
Surrogate: Decachlorobiphenyl	0.00959		ug/L	0.0200		47.9	29-120			
Surrogate: Tetrachlorometaxylene	0.00924		ug/L	0.0200		46.2	32-120			
Surrogate: Decachlorobiphenyl [2C]	0.00963		ug/L	0.0200		48.1	29-120			
Surrogate: Tetrachlorometaxylene [2C]	0.00805		ug/L	0.0200		40.2	32-120			
LCS (BIC0207-BS1)		Prepared: 16-Mar-2020 Analyzed: 17-Mar-2020 15:26								
Aroclor 1016	0.038	0.010	ug/L	0.0500		76.2	54-120			
Aroclor 1260	0.034	0.010	ug/L	0.0500		67.8	51-128			
Surrogate: Decachlorobiphenyl	0.00880		ug/L	0.0200		44.0	29-120			
Surrogate: Tetrachlorometaxylene	0.00942		ug/L	0.0200		47.1	32-120			
Surrogate: Decachlorobiphenyl [2C]	0.00857		ug/L	0.0200		42.8	29-120			
Surrogate: Tetrachlorometaxylene [2C]	0.00866		ug/L	0.0200		43.3	32-120			
LCS Dup (BIC0207-BSD1)		Prepared: 16-Mar-2020 Analyzed: 17-Mar-2020 15:47								
Aroclor 1016	0.043	0.010	ug/L	0.0500		86.5	54-120	12.60	30	
Aroclor 1260	0.036	0.010	ug/L	0.0500		72.0	51-128	6.06	30	
Surrogate: Decachlorobiphenyl	0.00962		ug/L	0.0200		48.1	29-120			
Surrogate: Tetrachlorometaxylene	0.00990		ug/L	0.0200		49.5	32-120			
Surrogate: Decachlorobiphenyl [2C]	0.00965		ug/L	0.0200		48.2	29-120			
Surrogate: Tetrachlorometaxylene [2C]	0.00894		ug/L	0.0200		44.7	32-120			



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

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06-Apr-2020 09:50

Metals and Metallic Compounds - Quality Control

Batch BIC0204 - 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
Blank (BIC0204-BLK1)			Prepared: 11-Mar-2020 Analyzed: 12-Mar-2020 15:42								
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
LCS (BIC0204-BS1)			Prepared: 11-Mar-2020 Analyzed: 12-Mar-2020 15:46								
Antimony	121	0.0245	0.00300	mg/L	0.0250		98.0	80-120			
Antimony	123	0.0255	0.00300	mg/L	0.0250		102	80-120			
Lead	208	0.0241	0.0100	mg/L	0.0250		96.2	80-120			
Thallium	205	0.0259	0.00200	mg/L	0.0250		104	80-120			
Arsenic	75a	0.0242	0.00300	mg/L	0.0250		96.7	80-120			
Selenium	78	0.0791	0.0250	mg/L	0.0800		98.9	80-120			
Duplicate (BIC0204-DUP2)			Source: 20C0126-01		Prepared: 11-Mar-2020 Analyzed: 12-Mar-2020 19:53						
Antimony	121	ND	0.00300	mg/L		ND					U
Lead	208	ND	0.0100	mg/L		ND					U
Arsenic	75a	0.00327	0.00300	mg/L		0.00334			2.30	20	
Selenium	78	ND	0.0250	mg/L		ND					U
Duplicate (BIC0204-DUP4)			Source: 20C0126-01		Prepared: 11-Mar-2020 Analyzed: 13-Mar-2020 18:50						
Thallium	205	ND	0.00200	mg/L		ND					U
Matrix Spike (BIC0204-MS2)			Source: 20C0126-01		Prepared: 11-Mar-2020 Analyzed: 12-Mar-2020 19:57						
Antimony	121	0.0256	0.00300	mg/L	0.0250	ND	102	75-125			
Lead	208	0.0243	0.0100	mg/L	0.0250	ND	97.1	75-125			
Arsenic	75a	0.0280	0.00300	mg/L	0.0250	0.00334	98.5	75-125			
Selenium	78	0.0748	0.0250	mg/L	0.0800	ND	93.5	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike (BIC0204-MS4)			Source: 20C0126-01		Prepared: 11-Mar-2020 Analyzed: 13-Mar-2020 18:55						
Thallium	205	0.0247	0.00200	mg/L	0.0250	ND	98.6	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BIC0204-MSD2)			Source: 20C0126-01		Prepared: 11-Mar-2020 Analyzed: 12-Mar-2020 20:02						



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Metals and Metallic Compounds - Quality Control

Batch BIC0204 - 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
Matrix Spike Dup (BIC0204-MSD2)		Source: 20C0126-01		Prepared: 11-Mar-2020 Analyzed: 12-Mar-2020 20:02							
Antimony	121	0.0247	0.00300	mg/L	0.0250	ND	98.9	75-125	3.52	20	
Lead	208	0.0238	0.0100	mg/L	0.0250	ND	95.3	75-125	1.89	20	
Arsenic	75a	0.0280	0.00300	mg/L	0.0250	0.00334	98.5	75-125	0.01	20	
Selenium	78	0.0745	0.0250	mg/L	0.0800	ND	93.1	75-125	0.39	20	

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

Matrix Spike Dup (BIC0204-MSD4)		Source: 20C0126-01		Prepared: 11-Mar-2020 Analyzed: 13-Mar-2020 19:00							
Thallium	205	0.0246	0.00200	mg/L	0.0250	ND	98.5	75-125	0.14	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 BIC0205 - TWM EPA 7470A

Instrument: HYDRA Analyst: BLC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIC0205-BLK1)		Prepared: 11-Mar-2020 Analyzed: 12-Mar-2020 16:33								
Mercury	ND	0.00100	mg/L							U
LCS (BIC0205-BS1)		Prepared: 11-Mar-2020 Analyzed: 12-Mar-2020 16:35								
Mercury	0.00188	0.00100	mg/L	0.00200		94.1	80-120			
Duplicate (BIC0205-DUP1)		Source: 20C0126-01 Prepared: 11-Mar-2020 Analyzed: 12-Mar-2020 16:40								
Mercury	ND	0.00100	mg/L		ND					U
Matrix Spike (BIC0205-MS1)		Source: 20C0126-01 Prepared: 11-Mar-2020 Analyzed: 12-Mar-2020 16:42								
Mercury	ND	0.00100	mg/L	0.00100	ND	96.1	75-125			U

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

Matrix Spike Dup (BIC0205-MSD1)		Source: 20C0126-01 Prepared: 11-Mar-2020 Analyzed: 12-Mar-2020 16:45								
Mercury	ND	0.00100	mg/L	0.00100	ND	99.5	75-125			U

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



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Metals and Metallic Compounds - Quality Control

Batch BIC0293 - TWC EPA 3010A

Instrument: ICP2 Analyst: SKM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIC0293-BLK1)		Prepared: 16-Mar-2020 Analyzed: 17-Mar-2020 14:07								
Aluminum	ND	1.00	mg/L							U
Barium	ND	0.500	mg/L							U
Beryllium	ND	0.0100	mg/L							U
Cadmium	ND	0.0020	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
Sodium	ND	50.0	mg/L							U
Vanadium	ND	0.0030	mg/L							U
Zinc	ND	0.0200	mg/L							U

LCS (BIC0293-BS1)

		Prepared: 16-Mar-2020 Analyzed: 17-Mar-2020 14:47								
Aluminum	2.02	1.00	mg/L	2.00		101	80-120			
Barium	2.01	0.500	mg/L	2.00		101	80-120			
Beryllium	0.496	0.0100	mg/L	0.500		99.1	80-120			
Cadmium	0.494	0.0020	mg/L	0.500		98.9	80-120			
Calcium	9.69	0.500	mg/L	10.0		96.9	80-120			
Chromium	0.509	0.0100	mg/L	0.500		102	80-120			
Cobalt	0.494	0.0100	mg/L	0.500		98.9	80-120			
Copper	0.501	0.0030	mg/L	0.500		100	80-120			
Iron	1.99	0.200	mg/L	2.00		99.3	80-120			
Magnesium	10.1	0.500	mg/L	10.0		101	80-120			
Manganese	0.483	0.0100	mg/L	0.500		96.5	80-120			
Nickel	0.502	0.0100	mg/L	0.500		100	80-120			
Potassium	9.77	0.500	mg/L	10.0		97.7	80-120			
Silver	0.511	0.0050	mg/L	0.500		102	80-120			
Sodium	9.98	0.500	mg/L	10.0		99.8	80-120			



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Metals and Metallic Compounds - Quality Control

Batch BIC0293 - TWC EPA 3010A

Instrument: ICP2 Analyst: SKM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BIC0293-BS1)		Prepared: 16-Mar-2020 Analyzed: 17-Mar-2020 14:47								
Vanadium	0.507	0.0030	mg/L	0.500		101	80-120			
Zinc	0.497	0.0200	mg/L	0.500		99.5	80-120			
Duplicate (BIC0293-DUP1)		Source: 20C0126-01 Prepared: 16-Mar-2020 Analyzed: 17-Mar-2020 14:29								
Aluminum	ND	1.00	mg/L		ND					U
Barium	ND	0.500	mg/L		ND					U
Beryllium	ND	0.0100	mg/L		ND					U
Cadmium	ND	0.0020	mg/L		ND					U
Calcium	36.3	0.500	mg/L		37.2			2.44	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	0.555	0.200	mg/L		0.571			2.85	20	
Magnesium	17.0	0.500	mg/L		17.4			2.14	20	
Manganese	0.0481	0.0100	mg/L		0.0592			20.60	20	*
Nickel	ND	0.0100	mg/L		ND					U
Potassium	2.47	0.500	mg/L		2.55			3.23	20	
Silver	ND	0.0050	mg/L		ND					U
Sodium	51.3	50.0	mg/L		52.8			2.99	20	
Vanadium	ND	0.0030	mg/L		ND					U
Zinc	ND	0.0200	mg/L		ND					U
Matrix Spike (BIC0293-MS1)		Source: 20C0126-01 Prepared: 16-Mar-2020 Analyzed: 17-Mar-2020 14:38								
Aluminum	1.92	1.00	mg/L	2.00	ND	95.2	75-125			
Barium	2.28	0.500	mg/L	2.00	ND	94.6	75-125			
Beryllium	0.476	0.0100	mg/L	0.500	ND	95.2	75-125			
Cadmium	0.469	0.0020	mg/L	0.500	ND	93.8	75-125			
Calcium	45.4	0.500	mg/L	10.0	37.2	81.8	75-125			
Chromium	0.487	0.0100	mg/L	0.500	ND	97.5	75-125			
Cobalt	0.473	0.0100	mg/L	0.500	ND	94.5	75-125			
Copper	0.474	0.0030	mg/L	0.500	ND	94.7	75-125			
Iron	2.45	0.200	mg/L	2.00	0.571	93.9	75-125			
Magnesium	25.4	0.500	mg/L	10.0	17.4	80.4	75-125			
Manganese	0.503	0.0100	mg/L	0.500	0.0592	88.7	75-125			
Nickel	0.475	0.0100	mg/L	0.500	ND	95.0	75-125			



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Metals and Metallic Compounds - Quality Control

Batch BIC0293 - TWC EPA 3010A

Instrument: ICP2 Analyst: SKM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BIC0293-MS1)		Source: 20C0126-01		Prepared: 16-Mar-2020		Analyzed: 17-Mar-2020 14:38				
Potassium	11.7	0.500	mg/L	10.0	2.55	91.8	75-125			
Silver	0.480	0.0050	mg/L	0.500	ND	95.9	75-125			
Sodium	60.7	50.0	mg/L	10.0	52.8	78.5	75-125			
Vanadium	0.471	0.0030	mg/L	0.500	ND	94.3	75-125			
Zinc	0.472	0.0200	mg/L	0.500	ND	94.3	75-125			

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

Matrix Spike Dup (BIC0293-MSD1)		Source: 20C0126-01		Prepared: 16-Mar-2020		Analyzed: 17-Mar-2020 14:42				
Aluminum	1.97	1.00	mg/L	2.00	ND	97.7	75-125	2.59	20	
Barium	2.34	0.500	mg/L	2.00	ND	97.7	75-125	2.66	20	
Beryllium	0.483	0.0100	mg/L	0.500	ND	96.5	75-125	1.39	20	
Cadmium	0.475	0.0020	mg/L	0.500	ND	95.0	75-125	1.25	20	
Calcium	47.0	0.500	mg/L	10.0	37.2	97.7	75-125	3.43	20	
Chromium	0.498	0.0100	mg/L	0.500	ND	99.6	75-125	2.18	20	
Cobalt	0.481	0.0100	mg/L	0.500	ND	96.1	75-125	1.64	20	
Copper	0.483	0.0030	mg/L	0.500	ND	96.7	75-125	2.07	20	
Iron	2.50	0.200	mg/L	2.00	0.571	96.4	75-125	2.04	20	
Magnesium	26.3	0.500	mg/L	10.0	17.4	89.4	75-125	3.50	20	
Manganese	0.516	0.0100	mg/L	0.500	0.0592	91.3	75-125	2.51	20	
Nickel	0.486	0.0100	mg/L	0.500	ND	97.3	75-125	2.37	20	
Potassium	12.0	0.500	mg/L	10.0	2.55	94.9	75-125	2.61	20	
Silver	0.487	0.0050	mg/L	0.500	ND	97.4	75-125	1.56	20	
Sodium	62.8	50.0	mg/L	10.0	52.8	99.6	75-125	3.41	20	
Vanadium	0.487	0.0030	mg/L	0.500	ND	97.3	75-125	3.17	20	
Zinc	0.483	0.0200	mg/L	0.500	ND	96.5	75-125	2.29	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 BIC0638 - TWC EPA 3010A

Instrument: ICP2 Analyst: SKM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIC0638-BLK1)		Prepared: 30-Mar-2020 Analyzed: 31-Mar-2020 15:33								
Iron	ND	0.200	mg/L							U
LCS (BIC0638-BS1)		Prepared: 30-Mar-2020 Analyzed: 31-Mar-2020 16:13								
Iron	2.08	0.200	mg/L	2.00		104	80-120			
Duplicate (BIC0638-DUP1)		Source: 20C0126-05RE1 Prepared: 30-Mar-2020 Analyzed: 31-Mar-2020 15:38								
Cobalt	ND	0.0100	mg/L		ND					U
Copper	ND	0.0030	mg/L		ND					U
Iron	14.0	0.200	mg/L		13.8			1.35	20	
Manganese	0.491	0.0100	mg/L		0.495			0.81	20	
Zinc	ND	0.0200	mg/L		ND					U
Matrix Spike (BIC0638-MS1)		Source: 20C0126-05RE1 Prepared: 30-Mar-2020 Analyzed: 31-Mar-2020 15:47								
Iron	15.4	0.200	mg/L	2.00	13.8	80.5	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BIC0638-MSD1)		Source: 20C0126-05RE1 Prepared: 30-Mar-2020 Analyzed: 31-Mar-2020 15:51								
Iron	15.9	0.200	mg/L	2.00	13.8	107	75-125	3.43	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										



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Metals and Metallic Compounds (dissolved) - Quality Control

Batch BIC0637 - WMN (No Prep)

Instrument: ICP2 Analyst: SKM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIC0637-BLK1)		Prepared: 30-Mar-2020 Analyzed: 31-Mar-2020 12:29								
Iron, Dissolved	ND	0.200	mg/L							U
LCS (BIC0637-BS1)		Prepared: 30-Mar-2020 Analyzed: 31-Mar-2020 13:01								
Iron, Dissolved	2.00	0.200	mg/L	2.00		100	80-120			
Duplicate (BIC0637-DUP2)		Source: 20C0126-06		Prepared: 30-Mar-2020 Analyzed: 31-Mar-2020 12:43						
Iron, Dissolved	13.5	0.200	mg/L		13.4			1.05	20	
Matrix Spike (BIC0637-MS2)		Source: 20C0126-06		Prepared: 30-Mar-2020 Analyzed: 31-Mar-2020 12:52						
Iron, Dissolved	14.8	0.200	mg/L	2.00	13.4	71.1	75-125			HC

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

Matrix Spike Dup (BIC0637-MSD2)		Source: 20C0126-06		Prepared: 30-Mar-2020 Analyzed: 31-Mar-2020 12:56						
Iron, Dissolved	14.9	0.200	mg/L	2.00	13.4	75.9	75-125	0.65	20	

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
EPA 200.8 in Water	
Lead-208	NELAP,WADOE,WA-DW,DoD-ELAP
Antimony-121	NELAP,WADOE,WA-DW,DoD-ELAP
Thallium-205	NELAP,WADOE,WA-DW,DoD-ELAP
EPA 200.8 UCT-KED in Water	
Arsenic-75a	NELAP,WADOE,WA-DW,DoD-ELAP
Selenium-78	NELAP,WADOE,WA-DW,DoD-ELAP
EPA 6010C in Water	
Silver	WADOE,NELAP,DoD-ELAP
Aluminum	WADOE,NELAP,DoD-ELAP
Barium	WADOE,NELAP,DoD-ELAP,ADEC
Beryllium	WADOE,NELAP,DoD-ELAP
Calcium	WADOE,NELAP,DoD-ELAP
Cadmium	WADOE,NELAP,DoD-ELAP,ADEC
Cobalt	WADOE,NELAP,DoD-ELAP
Chromium	WADOE,NELAP,DoD-ELAP,ADEC
Copper	WADOE,NELAP,DoD-ELAP
Iron	WADOE,NELAP,DoD-ELAP
Potassium	WADOE,NELAP,DoD-ELAP
Magnesium	WADOE,NELAP,DoD-ELAP
Manganese	WADOE,NELAP,DoD-ELAP
Sodium	DoD-ELAP,WADOE,NELAP
Sodium-1	DoD-ELAP
Nickel	WADOE,NELAP,DoD-ELAP,ADEC
Vanadium	WADOE,NELAP,DoD-ELAP,ADEC
Zinc	WADOE,NELAP,DoD-ELAP
Iron	WADOE,NELAP,DoD-ELAP
EPA 7470A in Water	
Mercury	WADOE,NELAP,DoD-ELAP,CALAP
EPA 8081B in Water	
alpha-BHC	DoD-ELAP,NELAP,CALAP,WADOE
alpha-BHC [2C]	DoD-ELAP,NELAP,CALAP,WADOE
beta-BHC	DoD-ELAP,NELAP,CALAP,WADOE
beta-BHC [2C]	DoD-ELAP,NELAP,CALAP,WADOE
gamma-BHC (Lindane)	DoD-ELAP,NELAP,CALAP,WADOE



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gamma-BHC (Lindane) [2C]	DoD-ELAP,NELAP,CALAP,WADOE
delta-BHC	DoD-ELAP,NELAP,CALAP,WADOE
delta-BHC [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Heptachlor	DoD-ELAP,NELAP,CALAP,WADOE
Heptachlor [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Aldrin	DoD-ELAP,NELAP,CALAP,WADOE
Aldrin [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Heptachlor Epoxide	DoD-ELAP,NELAP,CALAP,WADOE
Heptachlor Epoxide [2C]	DoD-ELAP,NELAP,CALAP,WADOE
trans-Chlordane (beta-Chlordane)	DoD-ELAP,NELAP,CALAP,WADOE
trans-Chlordane (beta-Chlordane) [2C]	DoD-ELAP,NELAP,CALAP,WADOE
cis-Chlordane (alpha-chlordane)	DoD-ELAP,NELAP,CALAP,WADOE
cis-Chlordane (alpha-chlordane) [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Endosulfan I	DoD-ELAP,NELAP,CALAP,WADOE
Endosulfan I [2C]	DoD-ELAP,NELAP,CALAP,WADOE
4,4'-DDE	DoD-ELAP,NELAP,CALAP,WADOE
4,4'-DDE [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Dieldrin	DoD-ELAP,NELAP,CALAP,WADOE
Dieldrin [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Endrin	DoD-ELAP,NELAP,CALAP,WADOE
Endrin [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Endosulfan II	DoD-ELAP,NELAP,CALAP,WADOE
Endosulfan II [2C]	DoD-ELAP,NELAP,CALAP,WADOE
4,4'-DDD	DoD-ELAP,NELAP,CALAP,WADOE
4,4'-DDD [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Endrin Aldehyde	DoD-ELAP,NELAP,CALAP,WADOE
Endrin Aldehyde [2C]	DoD-ELAP,NELAP,CALAP,WADOE
4,4'-DDT	DoD-ELAP,NELAP,CALAP,WADOE
4,4'-DDT [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Endosulfan Sulfate	DoD-ELAP,NELAP,CALAP,WADOE
Endosulfan Sulfate [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Endrin Ketone	DoD-ELAP,NELAP,CALAP,WADOE
Endrin Ketone [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Methoxychlor	DoD-ELAP,NELAP,CALAP,WADOE
Methoxychlor [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Hexachlorobutadiene	DoD-ELAP,NELAP,CALAP,WADOE
Hexachlorobutadiene [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Hexachlorobenzene	DoD-ELAP,NELAP,CALAP,WADOE
Hexachlorobenzene [2C]	DoD-ELAP,NELAP,CALAP,WADOE
2,4'-DDE	DoD-ELAP,NELAP,CALAP,WADOE



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Redmond WA, 98052-3333

Project: Landsburg

Project Number: Landsburg

Project Manager: Gary Zimmerman

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2,4'-DDE [2C]	DoD-ELAP,NELAP,CALAP,WADOE
2,4'-DDD	DoD-ELAP,NELAP,CALAP,WADOE
2,4'-DDD [2C]	DoD-ELAP,NELAP,CALAP,WADOE
2,4'-DDT	DoD-ELAP,NELAP,CALAP,WADOE
2,4'-DDT [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Oxychlorane	DoD-ELAP,NELAP,CALAP,WADOE
Oxychlorane [2C]	DoD-ELAP,NELAP,CALAP,WADOE
cis-Nonachlor	DoD-ELAP,NELAP,CALAP,WADOE
cis-Nonachlor [2C]	DoD-ELAP,NELAP,CALAP,WADOE
trans-Nonachlor	DoD-ELAP,NELAP,CALAP,WADOE
trans-Nonachlor [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Mirex	DoD-ELAP,NELAP,CALAP,WADOE
Mirex [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Hexachloroethane	DoD-ELAP,NELAP,CALAP
Hexachloroethane [2C]	DoD-ELAP,NELAP,CALAP
Toxaphene	DoD-ELAP,NELAP,CALAP,WADOE
Toxaphene [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Chlordane, technical	DoD-ELAP,NELAP,CALAP,WADOE
Chlordane, technical [2C]	DoD-ELAP,NELAP,CALAP,WADOE

EPA 8082A in Water

Aroclor 1016	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC

EPA 8260C in Water



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Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acrolein	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE



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Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Hexane	WADOE
2-Pentanone	WADOE

EPA 8270D in Water

Phenol	CALAP,WADOE,DoD-ELAP,NELAP
bis(2-chloroethyl) ether	CALAP,WADOE,DoD-ELAP,NELAP
2-Chlorophenol	CALAP,WADOE,DoD-ELAP,NELAP



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1,3-Dichlorobenzene	CALAP,WADOE,DoD-ELAP,NELAP
1,4-Dichlorobenzene	CALAP,WADOE,DoD-ELAP,NELAP
Benzyl Alcohol	CALAP,WADOE,DoD-ELAP,NELAP
1,2-Dichlorobenzene	CALAP,WADOE,DoD-ELAP,NELAP
2-Methylphenol	CALAP,WADOE,DoD-ELAP,NELAP
2,2'-Oxybis(1-chloropropane)	DoD-ELAP
4-Methylphenol	CALAP,WADOE,DoD-ELAP,NELAP
N-Nitroso-di-n-Propylamine	CALAP,WADOE,DoD-ELAP,NELAP
Hexachloroethane	CALAP,WADOE,DoD-ELAP,NELAP
Nitrobenzene	CALAP,WADOE,DoD-ELAP,NELAP
Isophorone	CALAP,WADOE,DoD-ELAP,NELAP
2-Nitrophenol	CALAP,WADOE,DoD-ELAP,NELAP
2,4-Dimethylphenol	CALAP,WADOE,DoD-ELAP,NELAP
Bis(2-Chloroethoxy)methane	CALAP,WADOE,DoD-ELAP,NELAP
Benzoic acid	CALAP,WADOE,DoD-ELAP,NELAP
2,4-Dichlorophenol	CALAP,WADOE,DoD-ELAP,NELAP
1,2,4-Trichlorobenzene	CALAP,WADOE,DoD-ELAP,NELAP
Naphthalene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
4-Chloroaniline	CALAP,WADOE,DoD-ELAP,NELAP
Hexachlorobutadiene	CALAP,WADOE,DoD-ELAP,NELAP
4-Chloro-3-Methylphenol	CALAP,WADOE,DoD-ELAP,NELAP
2-Methylnaphthalene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Hexachlorocyclopentadiene	CALAP,WADOE,DoD-ELAP,NELAP
2,4,6-Trichlorophenol	CALAP,WADOE,DoD-ELAP,NELAP
2,4,5-Trichlorophenol	CALAP,WADOE,DoD-ELAP,NELAP
2-Chloronaphthalene	CALAP,WADOE,DoD-ELAP,NELAP
2-Nitroaniline	CALAP,WADOE,DoD-ELAP,NELAP
Dimethylphthalate	CALAP,WADOE,DoD-ELAP,NELAP
Acenaphthylene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
2,6-Dinitrotoluene	CALAP,WADOE,DoD-ELAP,NELAP
3-Nitroaniline	CALAP,WADOE,DoD-ELAP,NELAP
Acenaphthene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
2,4-Dinitrophenol	CALAP,WADOE,DoD-ELAP,NELAP
Dibenzofuran	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
4-Nitrophenol	CALAP,WADOE,DoD-ELAP,NELAP
2,4-Dinitrotoluene	CALAP,WADOE,DoD-ELAP,NELAP
Fluorene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Diethyl phthalate	CALAP,WADOE,DoD-ELAP,NELAP
4-Chlorophenylphenyl ether	CALAP,WADOE,DoD-ELAP,NELAP
4-Nitroaniline	CALAP,WADOE,DoD-ELAP,NELAP



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4,6-Dinitro-2-methylphenol	CALAP,WADOE,DoD-ELAP,NELAP
N-Nitrosodiphenylamine	DoD-ELAP
4-Bromophenyl phenyl ether	CALAP,WADOE,DoD-ELAP,NELAP
Hexachlorobenzene	CALAP,WADOE,DoD-ELAP,NELAP
Pentachlorophenol	CALAP,WADOE,DoD-ELAP,NELAP
Phenanthrene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Anthracene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Carbazole	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Di-n-Butylphthalate	CALAP,WADOE,DoD-ELAP,NELAP
Fluoranthene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Pyrene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Butylbenzylphthalate	CALAP,WADOE,DoD-ELAP,NELAP
Benzo(a)anthracene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
3,3'-Dichlorobenzidine	DoD-ELAP
Chrysene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
bis(2-Ethylhexyl)phthalate	CALAP,WADOE,DoD-ELAP,NELAP
Di-n-Octylphthalate	CALAP,WADOE,DoD-ELAP,NELAP
Benzo(b)fluoranthene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Benzo(k)fluoranthene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Benzo(a)pyrene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Indeno(1,2,3-cd)pyrene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Dibenzo(a,h)anthracene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Benzo(g,h,i)perylene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Benzofluoranthenes, Total	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
1-Methylnaphthalene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
N-Nitrosodimethylamine	CALAP,WADOE,DoD-ELAP,NELAP
Aniline	CALAP,WADOE,DoD-ELAP,NELAP
Benzidine	CALAP,WADOE,DoD-ELAP,NELAP
Retene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Perylene	CALAP,WADOE,ADEC
Pyridine	CALAP,WADOE,DoD-ELAP,NELAP
N-Nitrosomethylethylamine	CALAP
2,6-Dichlorophenol	CALAP,WADOE
alpha-Terpineol	CALAP,WADOE,DoD-ELAP,NELAP
1,4-Dioxane	CALAP,WADOE,DoD-ELAP,NELAP
2,3,4,6-Tetrachlorophenol	CALAP,WADOE,DoD-ELAP
Triphenyl Phosphate	CALAP,WADOE,DoD-ELAP,NELAP
Butyl Diphenyl Phosphate	CALAP,WADOE,DoD-ELAP,NELAP
Dibutyl Phenyl Phosphate	CALAP,WADOE,DoD-ELAP,NELAP
Tributyl Phosphate	CALAP,WADOE,DoD-ELAP,NELAP



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Butylated Hydroxytoluene	CALAP,WADOE,DoD-ELAP,NELAP
Azobenzene (1,2-DP-Hydrazine)	CALAP,WADOE,DoD-ELAP,NELAP
Tetrachloroguaiacol	CALAP,WADOE,DoD-ELAP
3,4,5-Trichloroguaiacol	CALAP,WADOE
3,4,6-Trichloroguaiacol	CALAP,WADOE
4,5,6-Trichloroguaiacol	CALAP,WADOE
Guaiacol	CALAP,WADOE
1,2,4,5-Tetrachlorobenzene	CALAP,WADOE,DoD-ELAP,NELAP

EPA 8270D-SIM in Water

1,4-Dioxane	WADOE,NELAP,DoD-ELAP
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NWTPH-HCID in Water

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

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2020
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019



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Notes and Definitions

*	Flagged value is not within established control limits.
B	This analyte was detected in the method blank.
D	The reported value is from a dilution
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 ≤ 5 times the reporting limit and the replicate control limit defaults to $\pm$ RL instead of 20% RPD
M	Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
NRS	This surrogate not reported due to chromatographic interference
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
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

06 April 2020

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)
20C0167

Associated SDG ID(s)
N/A

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: 2000167	Turn-around Requested: Standard	Page: 1 of 2	
ARI Client Company: Golder	Phone: 425-883-0777	Date: 3-12-20	Ice Present? Yes
Client Contact: Gary Zimmerman		No. of Coolers: 12	Cooler Temps: See CRF
Client Project Name: Landsburg			
Client Project #: 9231000006.2020	Samplers: Tom Haskins Reno Gregory		



Analytical Resources, Incorporated
Analytical Chemists and Consultants
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206-695-6200 206-695-6201 (fax)
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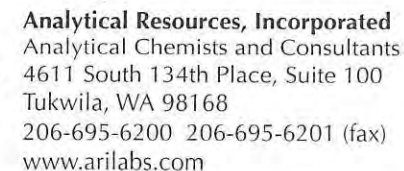
Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested								Notes/Comments
					VOC client list	PCB (LL)	Pesticides	SVOC 8270D client list	TPH HClD + Follow Ups (Holds)	Metals Total	Metals* Dissolved	1,4 Dioxane (8270D)	
LMW-2-0320	3/11/20	0905	W	57	X	X	X	X	X	X	X	X	* Field Filtered w/ 0.45µm filter -Analyze under MSA w/ Golder Extra Volume For MS/MSD
LMW-FB-0320	↓	1020	↓	19	↓	↓	↓	↓	↓	↓	↓	↓	
LMW-6-0320	↓	1200	↓	19	↓	↓	↓	↓	↓	↓	↓	↓	
LMW-14-0320	↓	1305	↓	19	↓	↓	↓	↓	↓	↓	↓	↓	
LMW-11-0320	↓	1435	↓	19	↓	↓	↓	↓	↓	↓	↓	↓	
LMW-15-0320	↓	1555	↓	19	↓	↓	↓	↓	↓	↓	↓	↓	
LMW-8-0320	3/12/20	1050	W	19	↓	↓	↓	↓	↓	↓	↓	↓	
LMW-3-0320	↓	1230	↓	19	↓	↓	↓	↓	↓	↓	↓	↓	
LMW-5-0320	↓	1350	↓	19	↓	↓	↓	↓	↓	↓	↓	↓	
LMW-9-0320	↓	1505	↓	19	↓	↓	↓	↓	↓	↓	↓	↓	

Comments/Special Instructions -Ecology EIM EDP -client specific RLs and analyte list	Relinquished by: (Signature) <i>[Signature]</i>	Received by: (Signature) <i>[Signature]</i>	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Reno Gregory	Printed Name: Kenny Dang	Printed Name:	Printed Name:
	Company: Golder	Company: ARI	Company:	Company:
	Date & Time: 3/12/20 1626	Date & Time: 3/12/20 1626	Date & Time:	Date & Time:

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, not withstanding 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: 2000167		Turn-around Requested: Standard		
ARI Client Company: Golder		Phone: 425-883-0777		
Client Contact: Gary Zimmerman				
Client Project Name: Landsburg				
Client Project #: 9231000006.2020		Samplers: Tom Huskins. Reno Gregory		
Sample ID	Date	Time	Matrix	No. Containers
Trip Blank - 0320	3/6/20	-	W	3
Comments/Special Instructions - Ecology EIM EDP - client specific RLs and analyte list	Relinquished by: (Signature) <i>Reno Gregory</i>		Received by: (Signature) <i>[Signature]</i>	
	Printed Name: Reno Gregory		Printed Name: K	
	Company: Golder		Company: AR	
	Date & Time: 3-12-20 1626		Date & Time: 1626	

[illegible]

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:
06-Apr-2020 09:12

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LMW-2-0320	20C0167-01	Water	11-Mar-2020 09:05	12-Mar-2020 16:26
LMW-2-0320	20C0167-02	Water	11-Mar-2020 09:05	12-Mar-2020 16:26
LMW-FB-0320	20C0167-03	Water	11-Mar-2020 10:20	12-Mar-2020 16:26
LMW-FB-0320	20C0167-04	Water	11-Mar-2020 10:20	12-Mar-2020 16:26
LMW-6-0320	20C0167-05	Water	11-Mar-2020 12:00	12-Mar-2020 16:26
LMW-6-0320	20C0167-06	Water	11-Mar-2020 12:00	12-Mar-2020 16:26
LMW-14-0320	20C0167-07	Water	11-Mar-2020 13:05	12-Mar-2020 16:26
LMW-14-0320	20C0167-08	Water	11-Mar-2020 13:05	12-Mar-2020 16:26
LMW-11-0320	20C0167-09	Water	11-Mar-2020 14:35	12-Mar-2020 16:26
LMW-11-0320	20C0167-10	Water	11-Mar-2020 14:35	12-Mar-2020 16:26
LMW-15-0320	20C0167-11	Water	11-Mar-2020 15:55	12-Mar-2020 16:26
LMW-15-0320	20C0167-12	Water	11-Mar-2020 15:55	12-Mar-2020 16:26
LMW-8-0320	20C0167-13	Water	12-Mar-2020 10:50	12-Mar-2020 16:26
LMW-8-0320	20C0167-14	Water	11-Mar-2020 10:50	12-Mar-2020 16:26
LMW-3-0320	20C0167-15	Water	12-Mar-2020 12:30	12-Mar-2020 16:26
LMW-3-0320	20C0167-16	Water	11-Mar-2020 12:30	12-Mar-2020 16:26
LMW-5-0320	20C0167-17	Water	12-Mar-2020 13:50	12-Mar-2020 16:26
LMW-5-0320	20C0167-18	Water	11-Mar-2020 13:50	12-Mar-2020 16:26
LMW-9-0320	20C0167-19	Water	12-Mar-2020 15:05	12-Mar-2020 16:26
LMW-9-0320	20C0167-20	Water	11-Mar-2020 15:05	12-Mar-2020 16:26
TripBlank-0320	20C0167-21	Water	11-Mar-2020 09:05	12-Mar-2020 16:26



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

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

Reported:
06-Apr-2020 09:12

Work Order Case Narrative

Pesticides - EPA Method SW8081B

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 LCS/LCSD percent recoveries and RPD were within control limits.

Due to laboratory error matrix spike/matrix spike duplicate were not analyzed. A LCS/LCSD was extracted and analyzed.

PCB Aroclors - EPA Method SW8082A

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 except Tetrachlorometaxylene which was out of control low on both columns for sample 20C0167-13 and has been flagged.

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

The LCS percent recoveries were within control limits.

Due to laboratory error matrix spike/matrix spike duplicate were not analyzed. A LCS/LCSD was extracted and analyzed.

Volatiles - EPA Method SW8260C

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.



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06-Apr-2020 09:12

The LCS/LCSD percent recoveries and RPD were within control limits.

Sample specific QC was performed in association with sample 20C0167 in batch BIC0344. The matrix spike/matrix spike duplicate percent recoveries and RPD were within control limits with the exception of analytes flagged within the QC section of this report which were out of control low.

1,4-Dioxane- EPA Method SW8270D

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 LCS/LCSD percent recoveries and RPD were within control limits.

Due to laboratory error matrix spike/matrix spike duplicate were not analyzed. A LCS/LCSD was extracted and analyzed.

Semivolatiles - EPA Method SW8270D

The sample(s) were originally extracted and analyzed within the recommended holding times. Sample 20C0167-13 was re-extracted and re-analyzed to verify possible lab contamination. Both runs have been reported.

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 LCS percent recoveries were within control limits.

Due to laboratory error matrix spike/matrix spike duplicate were not analyzed. A LCS/LCSD was extracted and analyzed.

Total Metals - EPA Method 200.8

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



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06-Apr-2020 09:12

Initial and continuing calibrations were within method requirements.

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

The LCS percent recoveries were within control limits.

Sample specific QC was performed in association with sample 20C0167-01 in batch BIC0424. The duplicate RPD were within control limits. The matrix spike/matrix spike duplicate percent recoveries and RPD were within control limits.

Total and Dissolved Metals - EPA Method 6010C

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 LCS percent recoveries were within control limits.

Sample specific QC was performed in association with sample 20C0167-01 in batch BIC0427. The duplicate RPD were within control limits. The matrix spike/matrix spike duplicate percent recoveries and RPD were within control limits.

Total Hg - EPA Method 7470/7471

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 LCS percent recoveries were within control limits.

Sample specific QC was performed in association with sample 20C0167-01 in batch BIC0312. The duplicate RPD was within control limits. The matrix spike/matrix spike duplicate percent recoveries and RPD were within 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.



Golder Associates

18300 NE Union Hill Road Suite 200

Redmond WA, 98052-3333

Project: Landsburg

Project Number: Landsburg

Project Manager: Gary Zimmerman

Reported:

06-Apr-2020 09:12

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

The LCS percent recoveries were within control limits.



WORK ORDER

20C0167

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

Preservation Confirmation

Container ID	Container Type	pH
20C0167-01 A	Glass NM, Amber, 1000 mL	
20C0167-01 AA	Glass NM, Amber, 500 mL	
20C0167-01 AB	Glass NM, Amber, 500 mL	
20C0167-01 AC	Glass NM, Amber, 500 mL	
20C0167-01 AD	Glass NM, Amber, 500 mL	
20C0167-01 AE	Glass NM, Amber, 500 mL	
20C0167-01 AF	Glass NM, Amber, 500 mL	
20C0167-01 AG	Glass NM, Amber, 500 mL	
20C0167-01 AH	Glass NM, Amber, 500 mL	
20C0167-01 AI	Glass NM, Amber, 500 mL	
20C0167-01 AJ	Glass NM, Amber, 500 mL	
20C0167-01 AK	HDPE NM, 500 mL, 1:1 HNO3	<2
20C0167-01 AL	HDPE NM, 500 mL, 1:1 HNO3	<2
20C0167-01 AM	HDPE NM, 500 mL, 1:1 HNO3	<2
20C0167-01 AN	VOA Vial, Clear, 40 mL, HCL	
20C0167-01 AO	VOA Vial, Clear, 40 mL, HCL	
20C0167-01 AP	VOA Vial, Clear, 40 mL, HCL	
20C0167-01 AQ	VOA Vial, Clear, 40 mL, HCL	
20C0167-01 AR	VOA Vial, Clear, 40 mL, HCL	
20C0167-01 AS	VOA Vial, Clear, 40 mL, HCL	
20C0167-01 AT	VOA Vial, Clear, 40 mL, HCL	
20C0167-01 AU	VOA Vial, Clear, 40 mL, HCL	
20C0167-01 AV	VOA Vial, Clear, 40 mL, HCL	
20C0167-01 AW	VOA Vial, Clear, 40 mL, HCL	
20C0167-01 AX	VOA Vial, Clear, 40 mL, HCL	
20C0167-01 AY	VOA Vial, Clear, 40 mL, HCL	
20C0167-01 AZ	VOA Vial, Clear, 40 mL, HCL	
20C0167-01 B	Glass NM, Amber, 1000 mL	
20C0167-01 BA	VOA Vial, Clear, 40 mL, HCL	
20C0167-01 BB	VOA Vial, Clear, 40 mL, HCL	
20C0167-01 C	Glass NM, Amber, 1000 mL	
20C0167-01 D	Glass NM, Amber, 1000 mL	
20C0167-01 E	Glass NM, Amber, 1000 mL	
20C0167-01 F	Glass NM, Amber, 1000 mL	
20C0167-01 G	Glass NM, Amber, 1000 mL	

Pass
Pass
Pass



WORK ORDER

20C0167

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

20C0167-01 H	Glass NM, Amber, 1000 mL		
20C0167-01 I	Glass NM, Amber, 1000 mL		
20C0167-01 J	Glass NM, Amber, 1000 mL		
20C0167-01 K	Glass NM, Amber, 1000 mL		
20C0167-01 L	Glass NM, Amber, 1000 mL		
20C0167-01 M	Glass NM, Amber, 1000 mL		
20C0167-01 N	Glass NM, Amber, 1000 mL		
20C0167-01 O	Glass NM, Amber, 1000 mL		
20C0167-01 P	Glass NM, Amber, 1000 mL		
20C0167-01 Q	Glass NM, Amber, 1000 mL		
20C0167-01 R	Glass NM, Amber, 1000 mL		
20C0167-01 S	Glass NM, Amber, 500 mL		
20C0167-01 T	Glass NM, Amber, 500 mL		
20C0167-01 U	Glass NM, Amber, 500 mL		
20C0167-01 V	Glass NM, Amber, 500 mL		
20C0167-01 W	Glass NM, Amber, 500 mL		
20C0167-01 X	Glass NM, Amber, 500 mL		
20C0167-01 Y	Glass NM, Amber, 500 mL		
20C0167-01 Z	Glass NM, Amber, 500 mL		
20C0167-02 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
20C0167-02 B	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
20C0167-02 C	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
20C0167-03 A	Glass NM, Amber, 1000 mL		
20C0167-03 B	Glass NM, Amber, 1000 mL		
20C0167-03 C	Glass NM, Amber, 1000 mL		
20C0167-03 D	Glass NM, Amber, 1000 mL		
20C0167-03 E	Glass NM, Amber, 1000 mL		
20C0167-03 F	Glass NM, Amber, 1000 mL		
20C0167-03 G	Glass NM, Amber, 500 mL		
20C0167-03 H	Glass NM, Amber, 500 mL		
20C0167-03 I	Glass NM, Amber, 500 mL		
20C0167-03 J	Glass NM, Amber, 500 mL		
20C0167-03 K	Glass NM, Amber, 500 mL		
20C0167-03 L	Glass NM, Amber, 500 mL		
20C0167-03 M	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
20C0167-03 N	VOA Vial, Clear, 40 mL, HCL		
20C0167-03 O	VOA Vial, Clear, 40 mL, HCL		



WORK ORDER

20C0167

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

20C0167-03 P	VOA Vial, Clear, 40 mL, HCL		
20C0167-03 Q	VOA Vial, Clear, 40 mL, HCL		
20C0167-03 R	VOA Vial, Clear, 40 mL, HCL		
20C0167-04 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2	Pass
20C0167-05 A	Glass NM, Amber, 1000 mL		
20C0167-05 B	Glass NM, Amber, 1000 mL		
20C0167-05 C	Glass NM, Amber, 1000 mL		
20C0167-05 D	Glass NM, Amber, 1000 mL		
20C0167-05 E	Glass NM, Amber, 1000 mL		
20C0167-05 F	Glass NM, Amber, 1000 mL		
20C0167-05 G	Glass NM, Amber, 500 mL		
20C0167-05 H	Glass NM, Amber, 500 mL		
20C0167-05 I	Glass NM, Amber, 500 mL		
20C0167-05 J	Glass NM, Amber, 500 mL		
20C0167-05 K	Glass NM, Amber, 500 mL		
20C0167-05 L	Glass NM, Amber, 500 mL		
20C0167-05 M	HDPE NM, 500 mL, 1:1 HNO3	L2	Pass
20C0167-05 N	VOA Vial, Clear, 40 mL, HCL		
20C0167-05 O	VOA Vial, Clear, 40 mL, HCL		
20C0167-05 P	VOA Vial, Clear, 40 mL, HCL		
20C0167-05 Q	VOA Vial, Clear, 40 mL, HCL		
20C0167-05 R	VOA Vial, Clear, 40 mL, HCL		
20C0167-06 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2	Pass
20C0167-07 A	Glass NM, Amber, 1000 mL		
20C0167-07 B	Glass NM, Amber, 1000 mL		
20C0167-07 C	Glass NM, Amber, 1000 mL		
20C0167-07 D	Glass NM, Amber, 1000 mL		
20C0167-07 E	Glass NM, Amber, 1000 mL		
20C0167-07 F	Glass NM, Amber, 1000 mL		
20C0167-07 G	Glass NM, Amber, 500 mL		
20C0167-07 H	Glass NM, Amber, 500 mL		
20C0167-07 I	Glass NM, Amber, 500 mL		
20C0167-07 J	Glass NM, Amber, 500 mL		
20C0167-07 K	Glass NM, Amber, 500 mL		
20C0167-07 L	Glass NM, Amber, 500 mL		
20C0167-07 M	HDPE NM, 500 mL, 1:1 HNO3	L2	Pass
20C0167-07 N	VOA Vial, Clear, 40 mL, HCL		



WORK ORDER

20C0167

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

20C0167-07 O	VOA Vial, Clear, 40 mL, HCL		
20C0167-07 P	VOA Vial, Clear, 40 mL, HCL		
20C0167-07 Q	VOA Vial, Clear, 40 mL, HCL		
20C0167-07 R	VOA Vial, Clear, 40 mL, HCL		
20C0167-08 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LD	Pass
20C0167-09 A	Glass NM, Amber, 1000 mL		
20C0167-09 B	Glass NM, Amber, 1000 mL		
20C0167-09 C	Glass NM, Amber, 1000 mL		
20C0167-09 D	Glass NM, Amber, 1000 mL		
20C0167-09 E	Glass NM, Amber, 1000 mL		
20C0167-09 F	Glass NM, Amber, 1000 mL		
20C0167-09 G	Glass NM, Amber, 500 mL		
20C0167-09 H	Glass NM, Amber, 500 mL		
20C0167-09 I	Glass NM, Amber, 500 mL		
20C0167-09 J	Glass NM, Amber, 500 mL		
20C0167-09 K	Glass NM, Amber, 500 mL		
20C0167-09 L	Glass NM, Amber, 500 mL		
20C0167-09 M	HDPE NM, 500 mL, 1:1 HNO3	LD	Pass
20C0167-09 N	VOA Vial, Clear, 40 mL, HCL		
20C0167-09 O	VOA Vial, Clear, 40 mL, HCL		
20C0167-09 P	VOA Vial, Clear, 40 mL, HCL		
20C0167-09 Q	VOA Vial, Clear, 40 mL, HCL		
20C0167-09 R	VOA Vial, Clear, 40 mL, HCL		
20C0167-10 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LD	Pass
20C0167-11 A	Glass NM, Amber, 1000 mL		
20C0167-11 B	Glass NM, Amber, 1000 mL		
20C0167-11 C	Glass NM, Amber, 1000 mL		
20C0167-11 D	Glass NM, Amber, 1000 mL		
20C0167-11 E	Glass NM, Amber, 1000 mL		
20C0167-11 F	Glass NM, Amber, 1000 mL		
20C0167-11 G	Glass NM, Amber, 500 mL		
20C0167-11 H	Glass NM, Amber, 500 mL		
20C0167-11 I	Glass NM, Amber, 500 mL		
20C0167-11 J	Glass NM, Amber, 500 mL		
20C0167-11 K	Glass NM, Amber, 500 mL		
20C0167-11 L	Glass NM, Amber, 500 mL		
20C0167-11 M	HDPE NM, 500 mL, 1:1 HNO3	LD	Pass



WORK ORDER

20C0167

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

20C0167-11 N	VOA Vial, Clear, 40 mL, HCL		
20C0167-11 O	VOA Vial, Clear, 40 mL, HCL		
20C0167-11 P	VOA Vial, Clear, 40 mL, HCL		
20C0167-11 Q	VOA Vial, Clear, 40 mL, HCL		
20C0167-11 R	VOA Vial, Clear, 40 mL, HCL		
20C0167-12 A	HDPE NM, 500 mL, 1:1 HNO ₃ (FF)	<2	Pass
20C0167-13 A	Glass NM, Amber, 1000 mL		
20C0167-13 B	Glass NM, Amber, 1000 mL		
20C0167-13 C	Glass NM, Amber, 1000 mL		
20C0167-13 D	Glass NM, Amber, 1000 mL		
20C0167-13 E	Glass NM, Amber, 1000 mL		
20C0167-13 F	Glass NM, Amber, 1000 mL		
20C0167-13 G	Glass NM, Amber, 500 mL		
20C0167-13 H	Glass NM, Amber, 500 mL		
20C0167-13 I	Glass NM, Amber, 500 mL		
20C0167-13 J	Glass NM, Amber, 500 mL		
20C0167-13 K	Glass NM, Amber, 500 mL		
20C0167-13 L	Glass NM, Amber, 500 mL		
20C0167-13 M	HDPE NM, 500 mL, 1:1 HNO ₃	<2	Pass
20C0167-13 N	VOA Vial, Clear, 40 mL, HCL		
20C0167-13 O	VOA Vial, Clear, 40 mL, HCL		
20C0167-13 P	VOA Vial, Clear, 40 mL, HCL		
20C0167-13 Q	VOA Vial, Clear, 40 mL, HCL		
20C0167-13 R	VOA Vial, Clear, 40 mL, HCL		
20C0167-14 A	HDPE NM, 500 mL, 1:1 HNO ₃ (FF)	<2	Pass
20C0167-15 A	Glass NM, Amber, 1000 mL		
20C0167-15 B	Glass NM, Amber, 1000 mL		
20C0167-15 C	Glass NM, Amber, 1000 mL		
20C0167-15 D	Glass NM, Amber, 1000 mL		
20C0167-15 E	Glass NM, Amber, 1000 mL		
20C0167-15 F	Glass NM, Amber, 1000 mL		
20C0167-15 G	Glass NM, Amber, 500 mL		
20C0167-15 H	Glass NM, Amber, 500 mL		
20C0167-15 I	Glass NM, Amber, 500 mL		
20C0167-15 J	Glass NM, Amber, 500 mL		
20C0167-15 K	Glass NM, Amber, 500 mL		
20C0167-15 L	Glass NM, Amber, 500 mL		



WORK ORDER

20C0167

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

20C0167-15 M	HDPE NM, 500 mL, 1:1 HNO3	LD	Pass
20C0167-15 N	VOA Vial, Clear, 40 mL, HCL		
20C0167-15 O	VOA Vial, Clear, 40 mL, HCL		
20C0167-15 P	VOA Vial, Clear, 40 mL, HCL		
20C0167-15 Q	VOA Vial, Clear, 40 mL, HCL		
20C0167-15 R	VOA Vial, Clear, 40 mL, HCL		
20C0167-16 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LD	Pass
20C0167-17 A	Glass NM, Amber, 1000 mL		
20C0167-17 B	Glass NM, Amber, 1000 mL		
20C0167-17 C	Glass NM, Amber, 1000 mL		
20C0167-17 D	Glass NM, Amber, 1000 mL		
20C0167-17 E	Glass NM, Amber, 1000 mL		
20C0167-17 F	Glass NM, Amber, 1000 mL		
20C0167-17 G	Glass NM, Amber, 500 mL		
20C0167-17 H	Glass NM, Amber, 500 mL		
20C0167-17 I	Glass NM, Amber, 500 mL		
20C0167-17 J	Glass NM, Amber, 500 mL		
20C0167-17 K	Glass NM, Amber, 500 mL		
20C0167-17 L	Glass NM, Amber, 500 mL		
20C0167-17 M	HDPE NM, 500 mL, 1:1 HNO3	LD	Pass
20C0167-17 N	VOA Vial, Clear, 40 mL, HCL		
20C0167-17 O	VOA Vial, Clear, 40 mL, HCL		
20C0167-17 P	VOA Vial, Clear, 40 mL, HCL		
20C0167-17 Q	VOA Vial, Clear, 40 mL, HCL		
20C0167-17 R	VOA Vial, Clear, 40 mL, HCL		
20C0167-18 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LD	Pass
20C0167-19 A	Glass NM, Amber, 1000 mL		
20C0167-19 B	Glass NM, Amber, 1000 mL		
20C0167-19 C	Glass NM, Amber, 1000 mL		
20C0167-19 D	Glass NM, Amber, 1000 mL		
20C0167-19 E	Glass NM, Amber, 1000 mL		
20C0167-19 F	Glass NM, Amber, 1000 mL		
20C0167-19 G	Glass NM, Amber, 500 mL		
20C0167-19 H	Glass NM, Amber, 500 mL		
20C0167-19 I	Glass NM, Amber, 500 mL		
20C0167-19 J	Glass NM, Amber, 500 mL		
20C0167-19 K	Glass NM, Amber, 500 mL		



WORK ORDER

20C0167

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

20C0167-19 L	Glass NM, Amber, 500 mL		
20C0167-19 M	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
20C0167-19 N	VOA Vial, Clear, 40 mL, HCL		
20C0167-19 O	VOA Vial, Clear, 40 mL, HCL		
20C0167-19 P	VOA Vial, Clear, 40 mL, HCL		
20C0167-19 Q	VOA Vial, Clear, 40 mL, HCL		
20C0167-19 R	VOA Vial, Clear, 40 mL, HCL		
20C0167-20 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	<2	Pass
20C0167-21 A	VOA Vial, Clear, 40 mL, HCL		
20C0167-21 B	VOA Vial, Clear, 40 mL, HCL		
20C0167-21 C	VOA Vial, Clear, 40 mL, HCL		

J3w
Preservation Confirmed By

03/13/2020
Date



Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Golder

COC No(s): _____ (NA)

Assigned ARI Job No: 2000167

Project Name: Landsburg

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

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 1626

See extra page for Temps.

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

Temp Gun ID#: DOO5206

Cooler Accepted by: KD

Date: 3/12/20

Time: 1626

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 ☒

Were the sample(s) split by ARI? NA

YES

Date/Time: _____

Equipment: _____

Split by: _____

Samples Logged by: JSW

Date: 03/13/2020

Time: 1245

Labels checked by: JSW

**** 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:

By: _____

Date: _____

Cooler Temps

4.8°C 1

5.8°C 2

0.3°C 3

5.9°C 4

4.2°C 5

3.6°C 6

3.7°C 7

2.7°C 8

2.1°C 9

1.5°C 10

1.8°C 11

1.9°C 12



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

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

Reported:
06-Apr-2020 09:12

LMW-2-0320
20C0167-01 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/11/2020 09:05

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 18:20

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 20C0167-01 AP

Preparation Batch: BIC0344

Sample Size: 10 mL

Prepared: 03/17/2020

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	2.50	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
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	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	0.10	0.23	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	0.10	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	0.50	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:
06-Apr-2020 09:12

LMW-2-0320
20C0167-01 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/11/2020 09:05

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 18:20

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
1,1,1,2-Tetrachloroethane	79-34-5	1	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	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	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			80-120 %	107	%	
Surrogate: 1,2-Dichloroethane-d4			80-129 %	114	%	



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Reported:
06-Apr-2020 09:12

LMW-2-0320
20C0167-01 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/11/2020 09:05

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 18:20

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	97.8	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	92.2	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	98.6	%	



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Reported:
06-Apr-2020 09:12

LMW-2-0320
20C0167-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Sampled: 03/11/2020 09:05

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2020 18:13

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 20C0167-01 AD 01

Preparation Batch: BIC0276

Sample Size: 500 mL

Prepared: 03/17/2020

Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U



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

Reported:
06-Apr-2020 09:12

LMW-2-0320
20C0167-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Sampled: 03/11/2020 09:05

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2020 18:13

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			33-120 %	67.0	%	
Surrogate: Phenol-d5			38-120 %	69.0	%	
Surrogate: 2-Chlorophenol-d4			41-120 %	69.5	%	
Surrogate: 1,2-Dichlorobenzene-d4			20-120 %	59.7	%	
Surrogate: Nitrobenzene-d5			27-120 %	68.9	%	
Surrogate: 2-Fluorobiphenyl			33-120 %	63.5	%	
Surrogate: 2,4,6-Tribromophenol			52-120 %	69.5	%	
Surrogate: p-Terphenyl-d14			28-120 %	66.8	%	



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Reported:
06-Apr-2020 09:12

LMW-2-0320
20C0167-01 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM	Sampled: 03/11/2020 09:05	
Instrument: NT6 Analyst: JZ	Analyzed: 03/26/2020 12:44	
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)	Extract ID: 20C0167-01 AE 01
	Preparation Batch: BIC0277	Sample Size: 500 mL
	Prepared: 03/18/2020	Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	1.6	ug/L	
Surrogate: 1,4-Dioxane-d8			33.6-120 %	63.2	%	



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Reported:
06-Apr-2020 09:12

LMW-2-0320
20C0167-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID

Sampled: 03/11/2020 09:05

Instrument: FID4 Analyst: CTO

Analyzed: 03/16/2020 12:21

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20C0167-01 AA 01

Preparation Batch: BIC0272

Sample Size: 500 mL

Prepared: 03/13/2020

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 %	85.2	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	82.1	%	



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Reported:
06-Apr-2020 09:12

LMW-2-0320
20C0167-01 (Water)

Chlorinated Pesticides

Method: EPA 8081B
Instrument: ECD6 Analyst: YZ/JGR

Sampled: 03/11/2020 09:05

Analyzed: 03/21/2020 18:31

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0278
Prepared: 03/18/2020

Extract ID: 20C0167-01 AF 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			11-144 %	84.3	%	
Surrogate: Decachlorobiphenyl [2C]			11-144 %	88.2	%	
Surrogate: Tetrachlorometaxylene			30-120 %	66.9	%	
Surrogate: Tetrachlorometaxylene [2C]			30-120 %	78.8	%	



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Reported:
06-Apr-2020 09:12

LMW-2-0320
20C0167-01 (Water)

Aroclor PCB

Method: EPA 8082A			Sampled: 03/11/2020 09:05
Instrument: ECD7 Analyst: JGR			Analyzed: 03/18/2020 17:43
Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 20C0167-01 A 01
	Preparation Batch: BIC0275		
	Prepared: 03/17/2020		
	Sample Size: 1000 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20C0167-01 A 01
	Cleanup Batch: CIC0102		
	Cleaned: 18-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20C0167-01 A 01
	Cleanup Batch: CIC0100		
	Cleaned: 18-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20C0167-01 A 01
	Cleanup Batch: CIC0101		
	Cleaned: 18-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			29-120 %	51.5	%	
Surrogate: Tetrachlorometaxylene			32-120 %	40.6	%	
Surrogate: Decachlorobiphenyl [2C]			29-120 %	50.0	%	
Surrogate: Tetrachlorometaxylene [2C]			32-120 %	36.7	%	



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Project Manager: Gary Zimmerman

Reported:
06-Apr-2020 09:12

LMW-2-0320
20C0167-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 03/11/2020 09:05

Instrument: ICPMS1 Analyst: TCH

Analyzed: 03/20/2020 22:07

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0167-01 AK 01

Preparation Batch: BIC0424

Sample Size: 25 mL

Prepared: 03/20/2020

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	2	0.0200	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-2-0320
20C0167-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 03/11/2020 09:05

Instrument: ICPMS1 Analyst: TCH

Analyzed: 03/20/2020 22:07

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 20C0167-01 AK 01

Preparation Batch: BIC0424

Sample Size: 25 mL

Prepared: 03/20/2020

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-2-0320
20C0167-01 (Water)

Metals and Metallic Compounds

Method: EPA 6010C

Sampled: 03/11/2020 09:05

Instrument: ICP2 Analyst: TCH

Analyzed: 03/23/2020 13:51

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 20C0167-01 AK 02

Preparation Batch: BIC0427

Sample Size: 25 mL

Prepared: 03/20/2020

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	109	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	69.8	mg/L	
Manganese	7439-96-5	1	0.0100	0.199	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	3.47	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	19.1	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-2-0320
20C0167-01 (Water)

Metals and Metallic Compounds

Method: EPA 7470A	Sampled: 03/11/2020 09:05
Instrument: HYDRA Analyst: BLC	Analyzed: 03/17/2020 16:20
Sample Preparation:	Extract ID: 20C0167-01 AK
Preparation Method: TWM EPA 7470A	
Preparation Batch: BIC0312	Sample Size: 20 mL
Prepared: 03/16/2020	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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Reported:
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LMW-FB-0320
20C0167-03 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/11/2020 10:20

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 15:59

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 20C0167-03 Q

Preparation Batch: BIC0344

Sample Size: 10 mL

Prepared: 03/17/2020

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	2.50	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
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	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	0.10	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	0.10	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	0.50	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-FB-0320
20C0167-03 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/11/2020 10:20

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 15:59

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	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	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	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			80-120 %	97.9	%	
Surrogate: 1,2-Dichloroethane-d4			80-129 %	102	%	



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LMW-FB-0320
20C0167-03 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/11/2020 10:20

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 15:59

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	96.4	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	95.4	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	102	%	



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LMW-FB-0320
20C0167-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Sampled: 03/11/2020 10:20

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2020 18:46

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 20C0167-03 H 01

Preparation Batch: BIC0276

Sample Size: 500 mL

Prepared: 03/17/2020

Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U



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Reported:
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LMW-FB-0320
20C0167-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Sampled: 03/11/2020 10:20

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2020 18:46

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzofluoranthenes, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorophenol</i>			33-120 %	69.2	%	
<i>Surrogate: Phenol-d5</i>			38-120 %	71.9	%	
<i>Surrogate: 2-Chlorophenol-d4</i>			41-120 %	71.9	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			20-120 %	63.4	%	
<i>Surrogate: Nitrobenzene-d5</i>			27-120 %	72.4	%	
<i>Surrogate: 2-Fluorobiphenyl</i>			33-120 %	67.4	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			52-120 %	72.9	%	
<i>Surrogate: p-Terphenyl-d14</i>			28-120 %	71.2	%	



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LMW-FB-0320
20C0167-03 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM

Sampled: 03/11/2020 10:20

Instrument: NT6 Analyst: JZ

Analyzed: 03/26/2020 13:09

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 20C0167-03 I 01

Preparation Batch: BIC0277

Sample Size: 500 mL

Prepared: 03/18/2020

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 %	58.0	%	



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LMW-FB-0320
20C0167-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4 Analyst: CTO

Sampled: 03/11/2020 10:20

Analyzed: 03/16/2020 13:20

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0272 Sample Size: 500 mL
Prepared: 03/13/2020 Final Volume: 1 mL

Extract ID: 20C0167-03 G 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
<i>Surrogate: o-Terphenyl</i>			50-150 %	82.7	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	85.7	%	



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Reported:
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LMW-FB-0320
20C0167-03 (Water)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 03/11/2020 10:20

Instrument: ECD6 Analyst: YZ/JGR

Analyzed: 03/21/2020 18:49

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20C0167-03 J 01

Preparation Batch: BIC0278

Sample Size: 500 mL

Prepared: 03/18/2020

Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			11-144 %	59.2	%	
Surrogate: Decachlorobiphenyl [2C]			11-144 %	55.9	%	
Surrogate: Tetrachlorometaxylene			30-120 %	68.1	%	
Surrogate: Tetrachlorometaxylene [2C]			30-120 %	73.9	%	



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

Reported:
06-Apr-2020 09:12

LMW-FB-0320
20C0167-03 (Water)

Aroclor PCB

Method: EPA 8082A			Sampled: 03/11/2020 10:20
Instrument: ECD7 Analyst: JGR			Analyzed: 03/18/2020 18:04
Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 20C0167-03 A 01
	Preparation Batch: BIC0275		
	Prepared: 03/17/2020		
	Sample Size: 1000 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20C0167-03 A 01
	Cleanup Batch: CIC0102		
	Cleaned: 18-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20C0167-03 A 01
	Cleanup Batch: CIC0100		
	Cleaned: 18-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20C0167-03 A 01
	Cleanup Batch: CIC0101		
	Cleaned: 18-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			29-120 %	43.1	%	
Surrogate: Tetrachlorometaxylene			32-120 %	46.5	%	
Surrogate: Decachlorobiphenyl [2C]			29-120 %	41.2	%	
Surrogate: Tetrachlorometaxylene [2C]			32-120 %	41.9	%	



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Reported:
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LMW-FB-0320
20C0167-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 03/11/2020 10:20

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/24/2020 00:00

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0167-03 M 01

Preparation Batch: BIC0424

Sample Size: 25 mL

Prepared: 03/20/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	2	0.00600	ND	mg/L	U
Lead	7439-92-1	2	0.0200	ND	mg/L	U
Thallium	7440-28-0	2	0.00400	ND	mg/L	U



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LMW-FB-0320
20C0167-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 03/11/2020 10:20

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/24/2020 00:00

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 20C0167-03 M 01

Preparation Batch: BIC0424

Sample Size: 25 mL

Prepared: 03/20/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.00600	ND	mg/L	U
Selenium	7782-49-2	2	0.0500	ND	mg/L	U



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Reported:
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LMW-FB-0320
20C0167-03 (Water)

Metals and Metallic Compounds

Method: EPA 6010C

Sampled: 03/11/2020 10:20

Instrument: ICP2 Analyst: TCH

Analyzed: 03/23/2020 14:41

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 20C0167-03 M 02

Preparation Batch: BIC0427

Sample Size: 25 mL

Prepared: 03/20/2020

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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Reported:
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LMW-FB-0320
20C0167-03 (Water)

Metals and Metallic Compounds

Method: EPA 7470A	Sampled: 03/11/2020 10:20
Instrument: HYDRA Analyst: BLC	Analyzed: 03/17/2020 16:50
Sample Preparation:	Extract ID: 20C0167-03 M
Preparation Method: TWM EPA 7470A	
Preparation Batch: BIC0312	Sample Size: 20 mL
Prepared: 03/16/2020	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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Reported:
06-Apr-2020 09:12

LMW-6-0320
20C0167-05 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/11/2020 12:00

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 18:41

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 20C0167-05 Q

Preparation Batch: BIC0344

Sample Size: 10 mL

Prepared: 03/17/2020

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	2.50	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
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	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	0.10	0.14	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	0.10	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	0.50	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-6-0320
20C0167-05 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/11/2020 12:00

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 18:41

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
1,1,1,2-Tetrachloroethane	79-34-5	1	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	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	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			80-120 %	101	%	
Surrogate: 1,2-Dichloroethane-d4			80-129 %	109	%	



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Reported:
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LMW-6-0320
20C0167-05 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/11/2020 12:00

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 18:41

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	98.4	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	93.2	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	99.4	%	



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Reported:
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LMW-6-0320
20C0167-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6 Analyst: JZ

Sampled: 03/11/2020 12:00

Analyzed: 03/19/2020 19:19

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BIC0276
Prepared: 03/17/2020

Sample Size: 500 mL
Final Volume: 0.5 mL

Extract ID: 20C0167-05 H 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U



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Reported:
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LMW-6-0320
20C0167-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Sampled: 03/11/2020 12:00

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2020 19:19

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorophenol</i>			33-120 %	72.9	%	
<i>Surrogate: Phenol-d5</i>			38-120 %	74.7	%	
<i>Surrogate: 2-Chlorophenol-d4</i>			41-120 %	76.4	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			20-120 %	64.9	%	
<i>Surrogate: Nitrobenzene-d5</i>			27-120 %	75.1	%	
<i>Surrogate: 2-Fluorobiphenyl</i>			33-120 %	69.9	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			52-120 %	73.0	%	
<i>Surrogate: p-Terphenyl-d14</i>			28-120 %	74.7	%	



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Reported:
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LMW-6-0320
20C0167-05 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM	Sampled: 03/11/2020 12:00	
Instrument: NT6 Analyst: JZ	Analyzed: 03/26/2020 13:34	
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)	Extract ID: 20C0167-05 I 01
	Preparation Batch: BIC0277	Sample Size: 500 mL
	Prepared: 03/18/2020	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 %	54.7	%	



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Reported:
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LMW-6-0320
20C0167-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4 Analyst: CTO

Sampled: 03/11/2020 12:00

Analyzed: 03/16/2020 13:39

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0272 Sample Size: 500 mL
Prepared: 03/13/2020 Final Volume: 1 mL

Extract ID: 20C0167-05 G 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 %	85.0	%	
Surrogate: n-Triacontane			50-150 %	84.9	%	



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Reported:
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LMW-6-0320
20C0167-05 (Water)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 03/11/2020 12:00

Instrument: ECD6 Analyst: YZ/JGR

Analyzed: 03/21/2020 19:07

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20C0167-05 J 01

Preparation Batch: BIC0278

Sample Size: 500 mL

Prepared: 03/18/2020

Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			11-144 %	73.4	%	
Surrogate: Decachlorobiphenyl [2C]			11-144 %	75.0	%	
Surrogate: Tetrachlorometaxylene			30-120 %	69.1	%	
Surrogate: Tetrachlorometaxylene [2C]			30-120 %	77.0	%	



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Reported:
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LMW-6-0320
20C0167-05 (Water)

Aroclor PCB

Method: EPA 8082A			Sampled: 03/11/2020 12:00
Instrument: ECD7 Analyst: JGR			Analyzed: 03/18/2020 18:25
Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 20C0167-05 A 01
	Preparation Batch: BIC0275		
	Prepared: 03/17/2020		
	Sample Size: 1000 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20C0167-05 A 01
	Cleanup Batch: CIC0102		
	Cleaned: 18-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20C0167-05 A 01
	Cleanup Batch: CIC0100		
	Cleaned: 18-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20C0167-05 A 01
	Cleanup Batch: CIC0101		
	Cleaned: 18-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			29-120 %	43.5	%	
Surrogate: Tetrachlorometaxylene			32-120 %	45.3	%	
Surrogate: Decachlorobiphenyl [2C]			29-120 %	41.2	%	
Surrogate: Tetrachlorometaxylene [2C]			32-120 %	41.3	%	



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LMW-6-0320
20C0167-05 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 03/11/2020 12:00

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/24/2020 00:04

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0167-05 M 01

Preparation Batch: BIC0424

Sample Size: 25 mL

Prepared: 03/20/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	2	0.00600	ND	mg/L	U
Lead	7439-92-1	2	0.0200	ND	mg/L	U
Thallium	7440-28-0	2	0.00400	ND	mg/L	U



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LMW-6-0320
20C0167-05 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 03/11/2020 12:00

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/24/2020 00:04

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0167-05 M 01

Preparation Batch: BIC0424

Sample Size: 25 mL

Prepared: 03/20/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.00600	ND	mg/L	U
Selenium	7782-49-2	2	0.0500	ND	mg/L	U



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LMW-6-0320
20C0167-05 (Water)

Metals and Metallic Compounds

Method: EPA 6010C

Sampled: 03/11/2020 12:00

Instrument: ICP2 Analyst: TCH

Analyzed: 03/23/2020 14:45

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 20C0167-05 M 02

Preparation Batch: BIC0427

Sample Size: 25 mL

Prepared: 03/20/2020

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	24.8	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	2.06	mg/L	
Magnesium	7439-95-4	1	0.500	12.7	mg/L	
Manganese	7439-96-5	1	0.0100	0.0309	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	0.654	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-6-0320
20C0167-05 (Water)

Metals and Metallic Compounds

Method: EPA 7470A	Sampled: 03/11/2020 12:00
Instrument: HYDRA Analyst: BLC	Analyzed: 03/17/2020 16:52
Sample Preparation:	Extract ID: 20C0167-05 M
Preparation Method: TWM EPA 7470A	
Preparation Batch: BIC0312	Sample Size: 20 mL
Prepared: 03/16/2020	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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Reported:
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LMW-14-0320
20C0167-07 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/11/2020 13:05

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 19:01

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 20C0167-07 Q

Preparation Batch: BIC0344

Sample Size: 10 mL

Prepared: 03/17/2020

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	2.50	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
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	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	0.10	0.11	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	0.10	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	0.23	ug/L	
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	0.50	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-14-0320
20C0167-07 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/11/2020 13:05

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 19:01

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	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	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	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			80-120 %	102	%	
Surrogate: 1,2-Dichloroethane-d4			80-129 %	112	%	



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Reported:
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LMW-14-0320
20C0167-07 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/11/2020 13:05

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 19:01

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	98.8	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	92.3	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	101	%	



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LMW-14-0320
20C0167-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Sampled: 03/11/2020 13:05

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2020 19:52

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 20C0167-07 H 01

Preparation Batch: BIC0276

Sample Size: 500 mL

Prepared: 03/17/2020

Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	3.3	ug/L	
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U



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

Reported:
06-Apr-2020 09:12

LMW-14-0320
20C0167-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Sampled: 03/11/2020 13:05

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2020 19:52

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			33-120 %	71.3	%	
Surrogate: Phenol-d5			38-120 %	73.0	%	
Surrogate: 2-Chlorophenol-d4			41-120 %	73.4	%	
Surrogate: 1,2-Dichlorobenzene-d4			20-120 %	61.0	%	
Surrogate: Nitrobenzene-d5			27-120 %	73.8	%	
Surrogate: 2-Fluorobiphenyl			33-120 %	67.6	%	
Surrogate: 2,4,6-Tribromophenol			52-120 %	77.1	%	
Surrogate: p-Terphenyl-d14			28-120 %	73.9	%	



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Reported:
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LMW-14-0320
20C0167-07 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM

Sampled: 03/11/2020 13:05

Instrument: NT6 Analyst: JZ

Analyzed: 03/26/2020 13:58

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 20C0167-07 I 01

Preparation Batch: BIC0277

Sample Size: 500 mL

Prepared: 03/18/2020

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 %	54.0	%	



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Reported:
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LMW-14-0320
20C0167-07 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4 Analyst: CTO

Sampled: 03/11/2020 13:05

Analyzed: 03/16/2020 13:59

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0272 Sample Size: 500 mL
Prepared: 03/13/2020 Final Volume: 1 mL

Extract ID: 20C0167-07 G 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
<i>Surrogate: o-Terphenyl</i>			50-150 %	85.3	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	92.0	%	



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Reported:
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LMW-14-0320
20C0167-07 (Water)

Chlorinated Pesticides

Method: EPA 8081B
Instrument: ECD6 Analyst: YZ/JGR

Sampled: 03/11/2020 13:05

Analyzed: 03/21/2020 19:25

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0278 Sample Size: 500 mL
Prepared: 03/18/2020 Final Volume: 5 mL

Extract ID: 20C0167-07 J 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			11-144 %	75.9	%	
Surrogate: Decachlorobiphenyl [2C]			11-144 %	73.7	%	
Surrogate: Tetrachlorometaxylene			30-120 %	71.3	%	
Surrogate: Tetrachlorometaxylene [2C]			30-120 %	78.3	%	



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Reported:
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LMW-14-0320
20C0167-07 (Water)

Aroclor PCB

Method: EPA 8082A			Sampled: 03/11/2020 13:05
Instrument: ECD7 Analyst: JGR			Analyzed: 03/18/2020 18:46
Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 20C0167-07 A 01
	Preparation Batch: BIC0275		
	Prepared: 03/17/2020		
Sample Cleanup:	Sample Size: 1000 mL		Extract ID: 20C0167-07 A 01
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20C0167-07 A 01
	Cleanup Batch: CIC0102		
	Cleaned: 18-Mar-2020		
Sample Cleanup:	Initial Volume: 0.5 mL		Extract ID: 20C0167-07 A 01
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID: 20C0167-07 A 01
	Cleanup Batch: CIC0100		
	Cleaned: 18-Mar-2020		
Sample Cleanup:	Initial Volume: 0.5 mL		Extract ID: 20C0167-07 A 01
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID: 20C0167-07 A 01
	Cleanup Batch: CIC0101		
	Cleaned: 18-Mar-2020		
Sample Cleanup:	Initial Volume: 0.5 mL		Extract ID: 20C0167-07 A 01
	Final Volume: 0.5 mL		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
<i>Surrogate: Decachlorobiphenyl</i>			29-120 %	42.7	%	
<i>Surrogate: Tetrachlorometaxylene</i>			32-120 %	48.6	%	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			29-120 %	41.2	%	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			32-120 %	43.9	%	



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Reported:
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LMW-14-0320
20C0167-07 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 03/11/2020 13:05

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/24/2020 00:08

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0167-07 M 01

Preparation Batch: BIC0424

Sample Size: 25 mL

Prepared: 03/20/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	2	0.00600	ND	mg/L	U
Lead	7439-92-1	2	0.0200	ND	mg/L	U
Thallium	7440-28-0	2	0.00400	ND	mg/L	U



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LMW-14-0320
20C0167-07 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 03/11/2020 13:05

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/24/2020 00:08

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0167-07 M 01

Preparation Batch: BIC0424

Sample Size: 25 mL

Prepared: 03/20/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.00600	ND	mg/L	U
Selenium	7782-49-2	2	0.0500	ND	mg/L	U



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LMW-14-0320
20C0167-07 (Water)

Metals and Metallic Compounds

Method: EPA 6010C

Sampled: 03/11/2020 13:05

Instrument: ICP2 Analyst: TCH

Analyzed: 03/23/2020 14:50

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 20C0167-07 M 02

Preparation Batch: BIC0427

Sample Size: 25 mL

Prepared: 03/20/2020

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	294	mg/L	
Chromium	7440-47-3	1	0.0100	ND	mg/L	U
Cobalt	7440-48-4	1	0.0100	0.0515	mg/L	
Copper	7440-50-8	1	0.0030	ND	mg/L	U
Iron	7439-89-6	1	0.200	53.6	mg/L	
Magnesium	7439-95-4	1	0.500	188	mg/L	
Manganese	7439-96-5	1	0.0100	1.16	mg/L	
Nickel	7440-02-0	1	0.0100	0.0231	mg/L	
Potassium	7440-09-7	1	0.500	5.94	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	29.9	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-14-0320
20C0167-07 (Water)

Metals and Metallic Compounds

Method: EPA 7470A	Sampled: 03/11/2020 13:05
Instrument: HYDRA Analyst: BLC	Analyzed: 03/17/2020 16:54
Sample Preparation:	Extract ID: 20C0167-07 M
Preparation Method: TWM EPA 7470A	
Preparation Batch: BIC0312	Sample Size: 20 mL
Prepared: 03/16/2020	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-14-0320
20C0167-07RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6010C

Sampled: 03/11/2020 13:05

Instrument: ICP2 Analyst: SKM

Analyzed: 03/31/2020 16:00

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 20C0167-07RE1 M 03

Preparation Batch: BIC0638

Sample Size: 25 mL

Prepared: 03/30/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Cobalt	7440-48-4	1	0.0100	0.0526	mg/L	
Iron	7439-89-6	1	0.200	55.0	mg/L	
Manganese	7439-96-5	1	0.0100	1.20	mg/L	



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Reported:
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LMW-14-0320
20C0167-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010C	Sampled: 03/11/2020 13:05
Instrument: ICP2 Analyst: SKM	Analyzed: 03/31/2020 13:47
Sample Preparation:	Preparation Method: WMN (No Prep)
	Preparation Batch: BIC0637
	Prepared: 03/30/2020
	Sample Size: 25 mL
	Final Volume: 25 mL
	Extract ID: 20C0167-08 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Cobalt, Dissolved	7440-48-4	1	0.0100	0.0530	mg/L	
Iron, Dissolved	7439-89-6	1	0.200	53.4	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0100	1.17	mg/L	



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Reported:
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LMW-11-0320
20C0167-09 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/11/2020 14:35

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 19:21

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 20C0167-09 P

Preparation Batch: BIC0344

Sample Size: 10 mL

Prepared: 03/17/2020

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	2.50	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
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	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	0.10	0.14	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	0.10	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	0.50	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-11-0320
20C0167-09 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/11/2020 14:35

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 19:21

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	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	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	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			80-120 %	104	%	
Surrogate: 1,2-Dichloroethane-d4			80-129 %	111	%	



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Reported:
06-Apr-2020 09:12

LMW-11-0320
20C0167-09 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/11/2020 14:35

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 19:21

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	97.2	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	91.7	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	101	%	



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LMW-11-0320
20C0167-09 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Sampled: 03/11/2020 14:35

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2020 20:25

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 20C0167-09 H 01

Preparation Batch: BIC0276

Sample Size: 500 mL

Prepared: 03/17/2020

Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U



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Reported:
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LMW-11-0320
20C0167-09 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Sampled: 03/11/2020 14:35

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2020 20:25

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorophenol</i>			33-120 %	64.4	%	
<i>Surrogate: Phenol-d5</i>			38-120 %	66.2	%	
<i>Surrogate: 2-Chlorophenol-d4</i>			41-120 %	66.6	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			20-120 %	57.6	%	
<i>Surrogate: Nitrobenzene-d5</i>			27-120 %	67.4	%	
<i>Surrogate: 2-Fluorobiphenyl</i>			33-120 %	62.7	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			52-120 %	69.6	%	
<i>Surrogate: p-Terphenyl-d14</i>			28-120 %	68.8	%	



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Reported:
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LMW-11-0320
20C0167-09 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM	Sampled: 03/11/2020 14:35	
Instrument: NT6 Analyst: JZ	Analyzed: 03/26/2020 14:23	
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)	Extract ID: 20C0167-09 I 01
	Preparation Batch: BIC0277	Sample Size: 500 mL
	Prepared: 03/18/2020	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 %	59.3	%	



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LMW-11-0320
20C0167-09 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4 Analyst: CTO

Sampled: 03/11/2020 14:35

Analyzed: 03/16/2020 14:18

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0272 Sample Size: 500 mL
Prepared: 03/13/2020 Final Volume: 1 mL

Extract ID: 20C0167-09 G 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 %	81.8	%	
Surrogate: n-Triacontane			50-150 %	80.5	%	



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LMW-11-0320
20C0167-09 (Water)

Chlorinated Pesticides

Method: EPA 8081B
Instrument: ECD6 Analyst: YZ/JGR

Sampled: 03/11/2020 14:35

Analyzed: 03/21/2020 19:43

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0278
Prepared: 03/18/2020

Sample Size: 500 mL
Final Volume: 5 mL

Extract ID: 20C0167-09 J 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			11-144 %	87.4	%	
Surrogate: Decachlorobiphenyl [2C]			11-144 %	82.9	%	
Surrogate: Tetrachlorometaxylene			30-120 %	64.0	%	
Surrogate: Tetrachlorometaxylene [2C]			30-120 %	68.8	%	



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Reported:
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LMW-11-0320
20C0167-09 (Water)

Aroclor PCB

Method: EPA 8082A			Sampled: 03/11/2020 14:35
Instrument: ECD7 Analyst: JGR			Analyzed: 03/18/2020 19:07
Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 20C0167-09 A 01
	Preparation Batch: BIC0275		
	Prepared: 03/17/2020		
	Sample Size: 1000 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20C0167-09 A 01
	Cleanup Batch: CIC0102		
	Cleaned: 18-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20C0167-09 A 01
	Cleanup Batch: CIC0100		
	Cleaned: 18-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20C0167-09 A 01
	Cleanup Batch: CIC0101		
	Cleaned: 18-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			29-120 %	58.7	%	
Surrogate: Tetrachlorometaxylene			32-120 %	49.4	%	
Surrogate: Decachlorobiphenyl [2C]			29-120 %	55.2	%	
Surrogate: Tetrachlorometaxylene [2C]			32-120 %	44.6	%	



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LMW-11-0320
20C0167-09 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 03/11/2020 14:35

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/24/2020 00:13

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 20C0167-09 M 01

Preparation Batch: BIC0424

Sample Size: 25 mL

Prepared: 03/20/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	2	0.00600	ND	mg/L	U
Lead	7439-92-1	2	0.0200	ND	mg/L	U
Thallium	7440-28-0	2	0.00400	ND	mg/L	U



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LMW-11-0320
20C0167-09 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 03/11/2020 14:35

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/24/2020 00:13

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 20C0167-09 M 01

Preparation Batch: BIC0424

Sample Size: 25 mL

Prepared: 03/20/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.00600	0.00838	mg/L	D
Selenium	7782-49-2	2	0.0500	ND	mg/L	U



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LMW-11-0320
20C0167-09 (Water)

Metals and Metallic Compounds

Method: EPA 6010C

Sampled: 03/11/2020 14:35

Instrument: ICP2 Analyst: TCH

Analyzed: 03/23/2020 14:54

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 20C0167-09 M 02

Preparation Batch: BIC0427

Sample Size: 25 mL

Prepared: 03/20/2020

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	57.4	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	0.554	mg/L	
Magnesium	7439-95-4	1	0.500	26.7	mg/L	
Manganese	7439-96-5	1	0.0100	0.170	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	2.08	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	25.0	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-11-0320
20C0167-09 (Water)

Metals and Metallic Compounds

Method: EPA 7470A	Sampled: 03/11/2020 14:35
Instrument: HYDRA Analyst: BLC	Analyzed: 03/17/2020 16:57
Sample Preparation:	Extract ID: 20C0167-09 M
Preparation Method: TWM EPA 7470A	
Preparation Batch: BIC0312	Sample Size: 20 mL
Prepared: 03/16/2020	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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Reported:
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LMW-15-0320
20C0167-11 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/11/2020 15:55

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 19:41

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 20C0167-11 P

Preparation Batch: BIC0344

Sample Size: 10 mL

Prepared: 03/17/2020

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	2.50	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
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	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	0.10	0.35	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	0.10	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	0.50	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
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Reported:
06-Apr-2020 09:12

LMW-15-0320
20C0167-11 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/11/2020 15:55

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 19:41

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
1,1,1,2-Tetrachloroethane	79-34-5	1	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	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	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			80-120 %	106	%	
Surrogate: 1,2-Dichloroethane-d4			80-129 %	112	%	



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LMW-15-0320
20C0167-11 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/11/2020 15:55

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 19:41

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	97.7	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	90.0	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	103	%	



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LMW-15-0320
20C0167-11 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6 Analyst: JZ

Sampled: 03/11/2020 15:55

Analyzed: 03/19/2020 20:57

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BIC0276 Sample Size: 500 mL
Prepared: 03/17/2020 Final Volume: 0.5 mL

Extract ID: 20C0167-11 H 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U



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LMW-15-0320
20C0167-11 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Sampled: 03/11/2020 15:55

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2020 20:57

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			33-120 %	66.4	%	
Surrogate: Phenol-d5			38-120 %	69.3	%	
Surrogate: 2-Chlorophenol-d4			41-120 %	69.2	%	
Surrogate: 1,2-Dichlorobenzene-d4			20-120 %	58.5	%	
Surrogate: Nitrobenzene-d5			27-120 %	68.5	%	
Surrogate: 2-Fluorobiphenyl			33-120 %	63.8	%	
Surrogate: 2,4,6-Tribromophenol			52-120 %	70.5	%	
Surrogate: p-Terphenyl-d14			28-120 %	68.7	%	



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LMW-15-0320
20C0167-11 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM

Sampled: 03/11/2020 15:55

Instrument: NT6 Analyst: JZ

Analyzed: 03/26/2020 14:48

Sample Preparation:

Preparation Method: EPA 3520C (Liq Liq)

Extract ID: 20C0167-11 I 01

Preparation Batch: BIC0277

Sample Size: 500 mL

Prepared: 03/18/2020

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 %	55.4	%	



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LMW-15-0320
20C0167-11 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4 Analyst: CTO

Sampled: 03/11/2020 15:55

Analyzed: 03/16/2020 14:38

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0272 Sample Size: 500 mL
Prepared: 03/13/2020 Final Volume: 1 mL

Extract ID: 20C0167-11 G 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 %	84.0	%	
Surrogate: n-Triacontane			50-150 %	81.5	%	



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LMW-15-0320
20C0167-11 (Water)

Chlorinated Pesticides

Method: EPA 8081B
Instrument: ECD6 Analyst: YZ/JGR

Sampled: 03/11/2020 15:55

Analyzed: 03/21/2020 20:01

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0278 Sample Size: 500 mL
Prepared: 03/18/2020 Final Volume: 5 mL

Extract ID: 20C0167-11 J 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			11-144 %	81.6	%	
Surrogate: Decachlorobiphenyl [2C]			11-144 %	82.7	%	
Surrogate: Tetrachlorometaxylene			30-120 %	78.8	%	
Surrogate: Tetrachlorometaxylene [2C]			30-120 %	76.3	%	



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LMW-15-0320
20C0167-11 (Water)

Aroclor PCB

Method: EPA 8082A			Sampled: 03/11/2020 15:55
Instrument: ECD7 Analyst: JGR			Analyzed: 03/18/2020 19:27
Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 20C0167-11 A 01
	Preparation Batch: BIC0275		
	Prepared: 03/17/2020		
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20C0167-11 A 01
	Cleanup Batch: CIC0102		
	Cleaned: 18-Mar-2020		
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20C0167-11 A 01
	Cleanup Batch: CIC0100		
	Cleaned: 18-Mar-2020		
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20C0167-11 A 01
	Cleanup Batch: CIC0101		
	Cleaned: 18-Mar-2020		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			29-120 %	50.9	%	
Surrogate: Tetrachlorometaxylene			32-120 %	46.4	%	
Surrogate: Decachlorobiphenyl [2C]			29-120 %	49.9	%	
Surrogate: Tetrachlorometaxylene [2C]			32-120 %	40.3	%	



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LMW-15-0320
20C0167-11 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 03/11/2020 15:55

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/24/2020 00:36

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0167-11 M 01

Preparation Batch: BIC0424

Sample Size: 25 mL

Prepared: 03/20/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	2	0.00600	ND	mg/L	U
Lead	7439-92-1	2	0.0200	ND	mg/L	U
Thallium	7440-28-0	2	0.00400	ND	mg/L	U



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LMW-15-0320
20C0167-11 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 03/11/2020 15:55

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/24/2020 00:36

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 20C0167-11 M 01

Preparation Batch: BIC0424

Sample Size: 25 mL

Prepared: 03/20/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.00600	ND	mg/L	U
Selenium	7782-49-2	2	0.0500	ND	mg/L	U



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LMW-15-0320
20C0167-11 (Water)

Metals and Metallic Compounds

Method: EPA 6010C

Sampled: 03/11/2020 15:55

Instrument: ICP2 Analyst: TCH

Analyzed: 03/23/2020 14:59

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 20C0167-11 M 02

Preparation Batch: BIC0427

Sample Size: 25 mL

Prepared: 03/20/2020

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	58.2	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	0.0037	mg/L	
Iron	7439-89-6	1	0.200	3.13	mg/L	
Magnesium	7439-95-4	1	0.500	26.2	mg/L	
Manganese	7439-96-5	1	0.0100	0.368	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	2.23	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	15.8	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-15-0320
20C0167-11 (Water)

Metals and Metallic Compounds

Method: EPA 7470A	Sampled: 03/11/2020 15:55
Instrument: HYDRA Analyst: BLC	Analyzed: 03/17/2020 16:59
Sample Preparation:	Extract ID: 20C0167-11 M
Preparation Method: TWM EPA 7470A	
Preparation Batch: BIC0312	Sample Size: 20 mL
Prepared: 03/16/2020	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-8-0320
20C0167-13 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/12/2020 10:50

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 20:01

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 20C0167-13 Q

Preparation Batch: BIC0344

Sample Size: 10 mL

Prepared: 03/17/2020

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	2.50	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
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	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	0.10	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	0.10	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	0.50	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:
06-Apr-2020 09:12

LMW-8-0320
20C0167-13 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/12/2020 10:50

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 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	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	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	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			80-120 %	106	%	
Surrogate: 1,2-Dichloroethane-d4			80-129 %	112	%	



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LMW-8-0320
20C0167-13 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/12/2020 10:50

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 20:01

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	97.0	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	91.8	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	104	%	



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Reported:
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LMW-8-0320
20C0167-13 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6 Analyst: JZ

Sampled: 03/12/2020 10:50

Analyzed: 03/19/2020 21:30

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BIC0276 Sample Size: 500 mL
Prepared: 03/17/2020 Final Volume: 0.5 mL

Extract ID: 20C0167-13 H 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U



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LMW-8-0320
20C0167-13 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Sampled: 03/12/2020 10:50

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2020 21:30

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	34.2	ug/L	
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzofluoranthenes, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			33-120 %	65.9	%	
Surrogate: Phenol-d5			38-120 %	69.8	%	
Surrogate: 2-Chlorophenol-d4			41-120 %	69.1	%	
Surrogate: 1,2-Dichlorobenzene-d4			20-120 %	57.4	%	
Surrogate: Nitrobenzene-d5			27-120 %	69.1	%	
Surrogate: 2-Fluorobiphenyl			33-120 %	64.9	%	
Surrogate: 2,4,6-Tribromophenol			52-120 %	72.1	%	
Surrogate: p-Terphenyl-d14			28-120 %	70.1	%	



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LMW-8-0320
20C0167-13 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM	Sampled: 03/12/2020 10:50	
Instrument: NT6 Analyst: JZ	Analyzed: 03/26/2020 15:12	
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)	Extract ID: 20C0167-13 I 01
	Preparation Batch: BIC0277	Sample Size: 500 mL
	Prepared: 03/18/2020	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 %	58.3	%	



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Reported:
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LMW-8-0320
20C0167-13 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4 Analyst: CTO

Sampled: 03/12/2020 10:50

Analyzed: 03/16/2020 14:57

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0272 Sample Size: 500 mL
Prepared: 03/13/2020 Final Volume: 1 mL

Extract ID: 20C0167-13 G 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
<i>Surrogate: o-Terphenyl</i>			50-150 %	77.9	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	86.2	%	



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LMW-8-0320
20C0167-13 (Water)

Chlorinated Pesticides

Method: EPA 8081B

Sampled: 03/12/2020 10:50

Instrument: ECD6 Analyst: YZ/JGR

Analyzed: 03/21/2020 20:18

Sample Preparation:

Preparation Method: EPA 3510C SepF

Extract ID: 20C0167-13 J 01

Preparation Batch: BIC0278

Sample Size: 500 mL

Prepared: 03/18/2020

Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			11-144 %	74.4	%	
Surrogate: Decachlorobiphenyl [2C]			11-144 %	72.7	%	
Surrogate: Tetrachlorometaxylene			30-120 %	67.6	%	
Surrogate: Tetrachlorometaxylene [2C]			30-120 %	74.1	%	



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Reported:
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LMW-8-0320
20C0167-13 (Water)

Aroclor PCB

Method: EPA 8082A			Sampled: 03/12/2020 10:50
Instrument: ECD7 Analyst: JGR			Analyzed: 03/18/2020 19:48
Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 20C0167-13 A 01
	Preparation Batch: BIC0275		
	Prepared: 03/17/2020		
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20C0167-13 A 01
	Cleanup Batch: CIC0102		
	Cleaned: 18-Mar-2020		
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20C0167-13 A 01
	Cleanup Batch: CIC0100		
	Cleaned: 18-Mar-2020		
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20C0167-13 A 01
	Cleanup Batch: CIC0101		
	Cleaned: 18-Mar-2020		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			29-120 %	32.7	%	
Surrogate: Tetrachlorometaxylene			32-120 %	31.5	%	*
Surrogate: Decachlorobiphenyl [2C]			29-120 %	31.9	%	
Surrogate: Tetrachlorometaxylene [2C]			32-120 %	29.0	%	*



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Reported:
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LMW-8-0320
20C0167-13 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 03/12/2020 10:50

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/24/2020 00:41

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0167-13 M 01

Preparation Batch: BIC0424

Sample Size: 25 mL

Prepared: 03/20/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	2	0.00600	ND	mg/L	U
Lead	7439-92-1	2	0.0200	ND	mg/L	U
Thallium	7440-28-0	2	0.00400	ND	mg/L	U



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LMW-8-0320
20C0167-13 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 03/12/2020 10:50

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/24/2020 00:41

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0167-13 M 01

Preparation Batch: BIC0424

Sample Size: 25 mL

Prepared: 03/20/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.00600	ND	mg/L	U
Selenium	7782-49-2	2	0.0500	ND	mg/L	U



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LMW-8-0320
20C0167-13 (Water)

Metals and Metallic Compounds

Method: EPA 6010C

Sampled: 03/12/2020 10:50

Instrument: ICP2 Analyst: TCH

Analyzed: 03/23/2020 15:13

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 20C0167-13 M 02

Preparation Batch: BIC0427

Sample Size: 25 mL

Prepared: 03/20/2020

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	53.6	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	12.8	mg/L	
Magnesium	7439-95-4	1	0.500	29.2	mg/L	
Manganese	7439-96-5	1	0.0100	0.394	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	1.70	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	9.41	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:
06-Apr-2020 09:12

LMW-8-0320
20C0167-13 (Water)

Metals and Metallic Compounds

Method: EPA 7470A	Sampled: 03/12/2020 10:50
Instrument: HYDRA Analyst: BLC	Analyzed: 03/17/2020 17:01
Sample Preparation:	Extract ID: 20C0167-13 M
Preparation Method: TWM EPA 7470A	
Preparation Batch: BIC0312	Sample Size: 20 mL
Prepared: 03/16/2020	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-8-0320
20C0167-13RE1 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6 Analyst: VAN/JZ

Sampled: 03/12/2020 10:50

Analyzed: 03/28/2020 13:08

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BIC0608
Prepared: 03/27/2020

Sample Size: 500 mL

Final Volume: 0.5 mL

Extract ID: 20C0167-13RE1 L 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	H, U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	H, U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	H, U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	H, U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	H, U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	H, U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	H, U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	H, U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	H, U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	H, U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	H, U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	H, U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	H, U
Isophorone	78-59-1	1	1.0	ND	ug/L	H, U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	H, U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	H, U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	H, U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	H, U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	H, U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	H, U
Naphthalene	91-20-3	1	1.0	ND	ug/L	H, U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	H, U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	H, U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	H, U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	H, U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	H, U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	H, U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	H, U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	H, U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	H, U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	H, U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	H, U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	H, U
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	H, U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	H, U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	H, U



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LMW-8-0320
20C0167-13RE1 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Sampled: 03/12/2020 10:50

Instrument: NT6 Analyst: VAN/JZ

Analyzed: 03/28/2020 13:08

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	H, U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	H, U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	H, U
Fluorene	86-73-7	1	1.0	ND	ug/L	H, U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	H, U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	H, U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	H, U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	H, U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	H, U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	H, U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	H, U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	H, U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	H, U
Anthracene	120-12-7	1	1.0	ND	ug/L	H, U
Carbazole	86-74-8	1	1.0	ND	ug/L	H, U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	H, U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	H, U
Pyrene	129-00-0	1	1.0	ND	ug/L	H, U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	H, U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	H, U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	H, U
Chrysene	218-01-9	1	1.0	ND	ug/L	H, U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	H, U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	H, U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	H, U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	H, U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	H, U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	H, U
Benzo(a)fluoranthene, Total		1	2.0	ND	ug/L	H, U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	H, U
Surrogate: 2-Fluorophenol			33-120 %	65.6	%	H
Surrogate: Phenol-d5			38-120 %	67.8	%	H
Surrogate: 2-Chlorophenol-d4			41-120 %	67.8	%	H
Surrogate: 1,2-Dichlorobenzene-d4			20-120 %	61.0	%	H
Surrogate: Nitrobenzene-d5			27-120 %	66.4	%	H
Surrogate: 2-Fluorobiphenyl			33-120 %	63.8	%	H
Surrogate: 2,4,6-Tribromophenol			52-120 %	70.2	%	H
Surrogate: p-Terphenyl-d14			28-120 %	64.6	%	H



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LMW-8-0320
20C0167-13RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6010C	Sampled: 03/12/2020 10:50
Instrument: ICP2 Analyst: SKM	Analyzed: 04/01/2020 14:31
Sample Preparation:	Preparation Method: TWC EPA 3010A
	Preparation Batch: BIC0638
	Prepared: 03/30/2020
	Sample Size: 25 mL
	Final Volume: 25 mL
	Extract ID: 20C0167-13RE1 M 03

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	0.200	13.7	mg/L	



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Reported:
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LMW-8-0320
20C0167-14 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010C	Sampled: 03/11/2020 10:50
Instrument: ICP2 Analyst: SKM	Analyzed: 03/31/2020 13:38
Sample Preparation:	Preparation Method: WMN (No Prep)
	Preparation Batch: BIC0637
	Prepared: 03/30/2020
	Sample Size: 25 mL
	Final Volume: 25 mL
	Extract ID: 20C0167-14 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron, Dissolved	7439-89-6	1	0.200	12.3	mg/L	



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Reported:
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LMW-3-0320
20C0167-15 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2 Analyst: PKC

Sampled: 03/12/2020 12:30

Analyzed: 03/17/2020 20:22

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BIC0344 Sample Size: 10 mL
Prepared: 03/17/2020 Final Volume: 10 mL

Extract ID: 20C0167-15 Q

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	2.50	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
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	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	0.10	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	0.10	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	0.50	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-3-0320
20C0167-15 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/12/2020 12:30

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 20:22

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	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	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	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			80-120 %	105	%	
Surrogate: 1,2-Dichloroethane-d4			80-129 %	113	%	



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LMW-3-0320
20C0167-15 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/12/2020 12:30

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 20:22

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	97.5	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	92.4	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	103	%	



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LMW-3-0320
20C0167-15 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6 Analyst: JZ

Sampled: 03/12/2020 12:30

Analyzed: 03/19/2020 22:03

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BIC0276 Sample Size: 500 mL
Prepared: 03/17/2020 Final Volume: 0.5 mL

Extract ID: 20C0167-15 H 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U



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LMW-3-0320
20C0167-15 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Sampled: 03/12/2020 12:30

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2020 22:03

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorophenol</i>			33-120 %	73.6	%	
<i>Surrogate: Phenol-d5</i>			38-120 %	76.3	%	
<i>Surrogate: 2-Chlorophenol-d4</i>			41-120 %	76.4	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			20-120 %	63.3	%	
<i>Surrogate: Nitrobenzene-d5</i>			27-120 %	76.7	%	
<i>Surrogate: 2-Fluorobiphenyl</i>			33-120 %	70.7	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			52-120 %	76.1	%	
<i>Surrogate: p-Terphenyl-d14</i>			28-120 %	76.8	%	



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Reported:
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LMW-3-0320
20C0167-15 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM	Sampled: 03/12/2020 12:30
Instrument: NT6 Analyst: JZ	Analyzed: 03/26/2020 15:37
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)
	Preparation Batch: BIC0277
	Prepared: 03/18/2020
	Sample Size: 500 mL
	Final Volume: 1 mL
	Extract ID: 20C0167-15 I 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 %	59.4	%	



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Project Manager: Gary Zimmerman

Reported:
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LMW-3-0320
20C0167-15 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4 Analyst: CTO

Sampled: 03/12/2020 12:30

Analyzed: 03/16/2020 15:17

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0272 Sample Size: 500 mL
Prepared: 03/13/2020 Final Volume: 1 mL

Extract ID: 20C0167-15 G 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 %	77.3	%	
Surrogate: n-Triacontane			50-150 %	82.7	%	



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Reported:
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LMW-3-0320
20C0167-15 (Water)

Chlorinated Pesticides

Method: EPA 8081B
Instrument: ECD6 Analyst: YZ/JGR

Sampled: 03/12/2020 12:30

Analyzed: 03/21/2020 20:36

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0278 Sample Size: 500 mL
Prepared: 03/18/2020 Final Volume: 5 mL

Extract ID: 20C0167-15 J 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			11-144 %	77.0	%	
Surrogate: Decachlorobiphenyl [2C]			11-144 %	72.5	%	
Surrogate: Tetrachlorometaxylene			30-120 %	70.2	%	
Surrogate: Tetrachlorometaxylene [2C]			30-120 %	79.1	%	



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Reported:
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LMW-3-0320
20C0167-15 (Water)

Aroclor PCB

Method: EPA 8082A			Sampled: 03/12/2020 12:30
Instrument: ECD7 Analyst: JGR			Analyzed: 03/18/2020 20:09
Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 20C0167-15 A 01
	Preparation Batch: BIC0275		
	Prepared: 03/17/2020		
	Sample Size: 1000 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20C0167-15 A 01
	Cleanup Batch: CIC0102		
	Cleaned: 18-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20C0167-15 A 01
	Cleanup Batch: CIC0100		
	Cleaned: 18-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20C0167-15 A 01
	Cleanup Batch: CIC0101		
	Cleaned: 18-Mar-2020		
	Initial Volume: 0.5 mL		
	Final Volume: 0.5 mL		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			29-120 %	52.1	%	
Surrogate: Tetrachlorometaxylene			32-120 %	47.3	%	
Surrogate: Decachlorobiphenyl [2C]			29-120 %	50.6	%	
Surrogate: Tetrachlorometaxylene [2C]			32-120 %	42.4	%	



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Reported:
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LMW-3-0320
20C0167-15 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 03/12/2020 12:30

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/24/2020 00:45

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0167-15 M 01

Preparation Batch: BIC0424

Sample Size: 25 mL

Prepared: 03/20/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	2	0.00600	ND	mg/L	U
Lead	7439-92-1	2	0.0200	ND	mg/L	U
Thallium	7440-28-0	2	0.00400	ND	mg/L	U



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Reported:
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LMW-3-0320
20C0167-15 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 03/12/2020 12:30

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/24/2020 00:45

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 20C0167-15 M 01

Preparation Batch: BIC0424

Sample Size: 25 mL

Prepared: 03/20/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.00600	ND	mg/L	U
Selenium	7782-49-2	2	0.0500	ND	mg/L	U



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LMW-3-0320
20C0167-15 (Water)

Metals and Metallic Compounds

Method: EPA 6010C
Instrument: ICP2 Analyst: TCH

Sampled: 03/12/2020 12:30

Analyzed: 03/23/2020 15:17

Sample Preparation: Preparation Method: TWC EPA 3010A
Preparation Batch: BIC0427
Prepared: 03/20/2020

Sample Size: 25 mL
Final Volume: 25 mL

Extract ID: 20C0167-15 M 02

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	34.8	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	ND	mg/L	U
Magnesium	7439-95-4	1	0.500	15.0	mg/L	
Manganese	7439-96-5	1	0.0100	0.0298	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	1.67	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	9.88	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-3-0320
20C0167-15 (Water)

Metals and Metallic Compounds

Method: EPA 7470A	Sampled: 03/12/2020 12:30
Instrument: HYDRA Analyst: BLC	Analyzed: 03/17/2020 17:04
Sample Preparation:	Extract ID: 20C0167-15 M
Preparation Method: TWM EPA 7470A	
Preparation Batch: BIC0312	Sample Size: 20 mL
Prepared: 03/16/2020	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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Reported:
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LMW-5-0320
20C0167-17 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/12/2020 13:50

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 20:42

Sample Preparation:

Preparation Method: EPA 5030 (Purge and Trap)

Extract ID: 20C0167-17 P

Preparation Batch: BIC0344

Sample Size: 10 mL

Prepared: 03/17/2020

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	2.50	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
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	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	0.10	0.18	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	0.10	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	0.50	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-5-0320
20C0167-17 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/12/2020 13:50

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 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	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	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	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			80-120 %	104	%	
Surrogate: 1,2-Dichloroethane-d4			80-129 %	112	%	



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Reported:
06-Apr-2020 09:12

LMW-5-0320
20C0167-17 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/12/2020 13:50

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 20:42

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	97.4	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	91.4	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	104	%	



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Reported:
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LMW-5-0320
20C0167-17 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6 Analyst: JZ

Sampled: 03/12/2020 13:50

Analyzed: 03/19/2020 22:35

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BIC0276 Sample Size: 500 mL
Prepared: 03/17/2020 Final Volume: 0.5 mL

Extract ID: 20C0167-17 H 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U



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Project: Landsburg
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Reported:
06-Apr-2020 09:12

LMW-5-0320
20C0167-17 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Sampled: 03/12/2020 13:50

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2020 22:35

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			33-120 %	62.3	%	
Surrogate: Phenol-d5			38-120 %	64.1	%	
Surrogate: 2-Chlorophenol-d4			41-120 %	63.5	%	
Surrogate: 1,2-Dichlorobenzene-d4			20-120 %	52.3	%	
Surrogate: Nitrobenzene-d5			27-120 %	64.1	%	
Surrogate: 2-Fluorobiphenyl			33-120 %	62.6	%	
Surrogate: 2,4,6-Tribromophenol			52-120 %	69.2	%	
Surrogate: p-Terphenyl-d14			28-120 %	69.4	%	



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LMW-5-0320
20C0167-17 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM	Sampled: 03/12/2020 13:50	
Instrument: NT6 Analyst: JZ	Analyzed: 03/26/2020 16:02	
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)	Extract ID: 20C0167-17 I 01
	Preparation Batch: BIC0277	Sample Size: 500 mL
	Prepared: 03/18/2020	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 %	56.8	%	



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Reported:
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LMW-5-0320
20C0167-17 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4 Analyst: CTO

Sampled: 03/12/2020 13:50

Analyzed: 03/16/2020 15:36

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0272 Sample Size: 500 mL
Prepared: 03/13/2020 Final Volume: 1 mL

Extract ID: 20C0167-17 G 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 %	78.8	%	
Surrogate: n-Triacontane			50-150 %	75.8	%	



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Reported:
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LMW-5-0320
20C0167-17 (Water)

Chlorinated Pesticides

Method: EPA 8081B
Instrument: ECD6 Analyst: YZ/JGR

Sampled: 03/12/2020 13:50

Analyzed: 03/21/2020 20:54

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0278 Sample Size: 500 mL
Prepared: 03/18/2020 Final Volume: 5 mL

Extract ID: 20C0167-17 J 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			11-144 %	89.3	%	
Surrogate: Decachlorobiphenyl [2C]			11-144 %	89.7	%	
Surrogate: Tetrachlorometaxylene			30-120 %	95.1	%	
Surrogate: Tetrachlorometaxylene [2C]			30-120 %	87.1	%	



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Reported:
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LMW-5-0320
20C0167-17 (Water)

Aroclor PCB

Method: EPA 8082A			Sampled: 03/12/2020 13:50
Instrument: ECD7 Analyst: JGR			Analyzed: 03/18/2020 20:30
Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 20C0167-17 A 01
	Preparation Batch: BIC0275		
	Prepared: 03/17/2020		
Sample Cleanup:	Sample Size: 1000 mL		Extract ID: 20C0167-17 A 01
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20C0167-17 A 01
	Cleanup Batch: CIC0102		
	Cleaned: 18-Mar-2020		
Sample Cleanup:	Initial Volume: 0.5 mL		Extract ID: 20C0167-17 A 01
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID: 20C0167-17 A 01
	Cleanup Batch: CIC0100		
	Cleaned: 18-Mar-2020		
Sample Cleanup:	Initial Volume: 0.5 mL		Extract ID: 20C0167-17 A 01
	Final Volume: 0.5 mL		
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID: 20C0167-17 A 01
	Cleanup Batch: CIC0101		
	Cleaned: 18-Mar-2020		
Sample Cleanup:	Initial Volume: 0.5 mL		Extract ID: 20C0167-17 A 01
	Final Volume: 0.5 mL		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
<i>Surrogate: Decachlorobiphenyl</i>			29-120 %	49.2	%	
<i>Surrogate: Tetrachlorometaxylene</i>			32-120 %	47.7	%	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			29-120 %	47.9	%	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			32-120 %	44.1	%	



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Reported:
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LMW-5-0320
20C0167-17 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 03/12/2020 13:50

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/24/2020 00:49

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0167-17 M 01

Preparation Batch: BIC0424

Sample Size: 25 mL

Prepared: 03/20/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	2	0.00600	ND	mg/L	U
Lead	7439-92-1	2	0.0200	ND	mg/L	U
Thallium	7440-28-0	2	0.00400	ND	mg/L	U



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Reported:
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LMW-5-0320
20C0167-17 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 03/12/2020 13:50

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/24/2020 00:49

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0167-17 M 01

Preparation Batch: BIC0424

Sample Size: 25 mL

Prepared: 03/20/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.00600	ND	mg/L	U
Selenium	7782-49-2	2	0.0500	ND	mg/L	U



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LMW-5-0320
20C0167-17 (Water)

Metals and Metallic Compounds

Method: EPA 6010C
Instrument: ICP2 Analyst: TCH

Sampled: 03/12/2020 13:50

Analyzed: 03/23/2020 15:22

Sample Preparation: Preparation Method: TWC EPA 3010A
Preparation Batch: BIC0427
Prepared: 03/20/2020

Sample Size: 25 mL
Final Volume: 25 mL

Extract ID: 20C0167-17 M 02

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	80.0	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	45.8	mg/L	
Manganese	7439-96-5	1	0.0100	0.212	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	2.48	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	13.9	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-5-0320
20C0167-17 (Water)

Metals and Metallic Compounds

Method: EPA 7470A

Sampled: 03/12/2020 13:50

Instrument: HYDRA Analyst: BLC

Analyzed: 03/17/2020 17:27

Sample Preparation:

Preparation Method: TWM EPA 7470A

Extract ID: 20C0167-17 M

Preparation Batch: BIC0312

Sample Size: 20 mL

Prepared: 03/16/2020

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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Reported:
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LMW-9-0320
20C0167-19 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2 Analyst: PKC

Sampled: 03/12/2020 15:05

Analyzed: 03/17/2020 21:02

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BIC0344 Sample Size: 10 mL
Prepared: 03/17/2020 Final Volume: 10 mL

Extract ID: 20C0167-19 N

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	2.50	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
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	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	0.10	0.13	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	0.10	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	0.50	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-9-0320
20C0167-19 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/12/2020 15:05

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 21:02

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	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	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	0.20	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			80-120 %	107	%	
Surrogate: 1,2-Dichloroethane-d4			80-129 %	115	%	



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Reported:
06-Apr-2020 09:12

LMW-9-0320
20C0167-19 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/12/2020 15:05

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 21:02

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	98.2	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	94.4	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	102	%	



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LMW-9-0320
20C0167-19 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D
Instrument: NT6 Analyst: JZ

Sampled: 03/12/2020 15:05

Analyzed: 03/20/2020 12:49

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BIC0276 Sample Size: 500 mL
Prepared: 03/17/2020 Final Volume: 0.5 mL

Extract ID: 20C0167-19 H 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	1.0	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	1.0	ND	ug/L	U
2-Chlorophenol	95-57-8	1	1.0	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	1.0	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	1.0	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	2.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	1.0	ND	ug/L	U
2-Methylphenol	95-48-7	1	1.0	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	1.0	ND	ug/L	U
4-Methylphenol	106-44-5	1	2.0	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	1.0	ND	ug/L	U
Hexachloroethane	67-72-1	1	2.0	ND	ug/L	U
Nitrobenzene	98-95-3	1	1.0	ND	ug/L	U
Isophorone	78-59-1	1	1.0	ND	ug/L	U
2-Nitrophenol	88-75-5	1	3.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	3.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	20.0	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	3.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	1.0	ND	ug/L	U
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	5.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	3.0	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	3.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	5.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	3.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	5.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	1.0	ND	ug/L	U
2-Nitroaniline	88-74-4	1	3.0	ND	ug/L	U
Dimethylphthalate	131-11-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	3.0	ND	ug/L	U
3-Nitroaniline	99-09-2	1	3.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U



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Reported:
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LMW-9-0320
20C0167-19 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D

Sampled: 03/12/2020 15:05

Instrument: NT6 Analyst: JZ

Analyzed: 03/20/2020 12:49

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
4-Nitrophenol	100-02-7	1	10.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	3.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Diethyl phthalate	84-66-2	1	1.0	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	1.0	ND	ug/L	U
4-Nitroaniline	100-01-6	1	3.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	1.0	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	1.0	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	5.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	2.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			33-120 %	70.3	%	
Surrogate: Phenol-d5			38-120 %	71.7	%	
Surrogate: 2-Chlorophenol-d4			41-120 %	72.1	%	
Surrogate: 1,2-Dichlorobenzene-d4			20-120 %	60.9	%	
Surrogate: Nitrobenzene-d5			27-120 %	71.3	%	
Surrogate: 2-Fluorobiphenyl			33-120 %	65.8	%	
Surrogate: 2,4,6-Tribromophenol			52-120 %	69.4	%	
Surrogate: p-Terphenyl-d14			28-120 %	69.7	%	



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LMW-9-0320
20C0167-19 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270D-SIM	Sampled: 03/12/2020 15:05	
Instrument: NT6 Analyst: JZ	Analyzed: 03/26/2020 17:17	
Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)	Extract ID: 20C0167-19 I 01
	Preparation Batch: BIC0277	Sample Size: 500 mL
	Prepared: 03/18/2020	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 %	47.9	%	



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LMW-9-0320
20C0167-19 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID
Instrument: FID4 Analyst: CTO

Sampled: 03/12/2020 15:05

Analyzed: 03/16/2020 15:56

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0272 Sample Size: 500 mL
Prepared: 03/13/2020 Final Volume: 1 mL

Extract ID: 20C0167-19 G 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 %	75.0	%	
Surrogate: n-Triacontane			50-150 %	80.6	%	



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LMW-9-0320
20C0167-19 (Water)

Chlorinated Pesticides

Method: EPA 8081B
Instrument: ECD6 Analyst: YZ/JGR

Sampled: 03/12/2020 15:05

Analyzed: 03/21/2020 21:12

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BIC0278 Sample Size: 500 mL
Prepared: 03/18/2020 Final Volume: 5 mL

Extract ID: 20C0167-19 J 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
alpha-BHC	319-84-6	1	0.025	ND	ug/L	U
beta-BHC	319-85-7	1	0.025	ND	ug/L	U
gamma-BHC (Lindane)	58-89-9	1	0.025	ND	ug/L	U
delta-BHC	319-86-8	1	0.025	ND	ug/L	U
Heptachlor	76-44-8	1	0.025	ND	ug/L	U
Aldrin	309-00-2	1	0.025	ND	ug/L	U
Heptachlor Epoxide	1024-57-3	1	0.050	ND	ug/L	U
trans-Chlordane (beta-Chlordane)	5103-74-2	1	0.025	ND	ug/L	U
cis-Chlordane (alpha-chlordane)	5103-71-9	1	0.025	ND	ug/L	U
Endosulfan I	959-98-8	1	0.025	ND	ug/L	U
4,4'-DDE	72-55-9	1	0.050	ND	ug/L	U
Dieldrin	60-57-1	1	0.050	ND	ug/L	U
Endrin	72-20-8	1	0.050	ND	ug/L	U
Endosulfan II	33213-65-9	1	0.050	ND	ug/L	U
4,4'-DDD	72-54-8	1	0.050	ND	ug/L	U
Endrin Aldehyde	7421-93-4	1	0.050	ND	ug/L	U
4,4'-DDT	50-29-3	1	0.050	ND	ug/L	U
Endosulfan Sulfate	1031-07-8	1	0.050	ND	ug/L	U
Endrin Ketone	53494-70-5	1	0.050	ND	ug/L	U
Methoxychlor	72-43-5	1	0.250	ND	ug/L	U
Toxaphene	8001-35-2	1	1.25	ND	ug/L	U
Surrogate: Decachlorobiphenyl			11-144 %	85.3	%	
Surrogate: Decachlorobiphenyl [2C]			11-144 %	81.1	%	
Surrogate: Tetrachlorometaxylene			30-120 %	72.4	%	
Surrogate: Tetrachlorometaxylene [2C]			30-120 %	79.3	%	



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LMW-9-0320
20C0167-19 (Water)

Aroclor PCB

Method: EPA 8082A			Sampled: 03/12/2020 15:05
Instrument: ECD7 Analyst: JGR			Analyzed: 03/18/2020 20:51
Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 20C0167-19 A 01
	Preparation Batch: BIC0275	Sample Size: 1000 mL	
	Prepared: 03/17/2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20C0167-19 A 01
	Cleanup Batch: CIC0102	Initial Volume: 0.5 mL	
	Cleaned: 18-Mar-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20C0167-19 A 01
	Cleanup Batch: CIC0100	Initial Volume: 0.5 mL	
	Cleaned: 18-Mar-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20C0167-19 A 01
	Cleanup Batch: CIC0101	Initial Volume: 0.5 mL	
	Cleaned: 18-Mar-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl			29-120 %	47.6	%	
Surrogate: Tetrachlorometaxylene			32-120 %	47.5	%	
Surrogate: Decachlorobiphenyl [2C]			29-120 %	46.4	%	
Surrogate: Tetrachlorometaxylene [2C]			32-120 %	42.7	%	



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LMW-9-0320
20C0167-19 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 03/12/2020 15:05

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/24/2020 00:54

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0167-19 M 01

Preparation Batch: BIC0424

Sample Size: 25 mL

Prepared: 03/20/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	2	0.00600	ND	mg/L	U
Lead	7439-92-1	2	0.0200	ND	mg/L	U
Thallium	7440-28-0	2	0.00400	ND	mg/L	U



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LMW-9-0320
20C0167-19 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 03/12/2020 15:05

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/24/2020 00:54

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix

Extract ID: 20C0167-19 M 01

Preparation Batch: BIC0424

Sample Size: 25 mL

Prepared: 03/20/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.00600	ND	mg/L	U
Selenium	7782-49-2	2	0.0500	ND	mg/L	U



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LMW-9-0320
20C0167-19 (Water)

Metals and Metallic Compounds

Method: EPA 6010C

Sampled: 03/12/2020 15:05

Instrument: ICP2 Analyst: TCH

Analyzed: 03/23/2020 15:26

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 20C0167-19 M 02

Preparation Batch: BIC0427

Sample Size: 25 mL

Prepared: 03/20/2020

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	74.6	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	1.42	mg/L	
Magnesium	7439-95-4	1	0.500	41.7	mg/L	
Manganese	7439-96-5	1	0.0100	0.164	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	2.35	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	13.6	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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LMW-9-0320
20C0167-19 (Water)

Metals and Metallic Compounds

Method: EPA 7470A	Sampled: 03/12/2020 15:05
Instrument: HYDRA Analyst: BLC	Analyzed: 03/17/2020 17:29
Sample Preparation:	Preparation Method: TWM EPA 7470A
	Preparation Batch: BIC0312
	Prepared: 03/16/2020
	Sample Size: 20 mL
	Final Volume: 20 mL
	Extract ID: 20C0167-19 M

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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TripBlank-0320
20C0167-21 (Water)

Volatile Organic Compounds

Method: EPA 8260C
Instrument: NT2 Analyst: PKC

Sampled: 03/11/2020 09:05

Analyzed: 03/17/2020 15:18

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BIC0344 Sample Size: 10 mL
Prepared: 03/17/2020 Final Volume: 10 mL

Extract ID: 20C0167-21 A

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	2.50	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
Bromoethane	74-96-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.50	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	0.10	0.11	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	0.10	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	0.50	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:
06-Apr-2020 09:12

TripBlank-0320
20C0167-21 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/11/2020 09:05

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 15:18

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	0.10	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.20	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	0.20	0.36	ug/L	
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.20	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
Surrogate: Dibromofluoromethane			80-120 %	99.7	%	
Surrogate: 1,2-Dichloroethane-d4			80-129 %	102	%	



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TripBlank-0320
20C0167-21 (Water)

Volatile Organic Compounds

Method: EPA 8260C

Sampled: 03/11/2020 09:05

Instrument: NT2 Analyst: PKC

Analyzed: 03/17/2020 15:18

Analyte	CAS Number	Recovery	Recovery	Units	Notes
		Limits			
Surrogate: Toluene-d8		80-120 %	98.4	%	
Surrogate: 4-Bromofluorobenzene		80-120 %	97.6	%	
Surrogate: 1,2-Dichlorobenzene-d4		80-120 %	100	%	



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Reported:
06-Apr-2020 09:12

Volatile Organic Compounds - Quality Control

Batch BIC0344 - EPA 5030 (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
Blank (BIC0344-BLK1)		Prepared: 17-Mar-2020 Analyzed: 17-Mar-2020 15:38								
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	2.50	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
Bromoethane	ND	0.20	ug/L							U
Iodomethane	ND	0.50	ug/L							U
Methylene Chloride	ND	1.00	ug/L							U
Acrylonitrile	ND	1.00	ug/L							U
Carbon Disulfide	ND	0.10	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	0.10	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	0.50	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



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Volatile Organic Compounds - Quality Control

Batch BIC0344 - EPA 5030 (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
Blank (BIC0344-BLK1)		Prepared: 17-Mar-2020 Analyzed: 17-Mar-2020 15:38								
trans-1,3-Dichloropropene	ND	0.20	ug/L							U
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	0.10	ug/L							U
1,2,3-Trichloropropane	ND	0.20	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	0.20	ug/L							U



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Volatile Organic Compounds - Quality Control

Batch BIC0344 - EPA 5030 (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
Blank (BIC0344-BLK1)		Prepared: 17-Mar-2020 Analyzed: 17-Mar-2020 15:38								
Naphthalene	ND	0.50	ug/L							U
1,2,3-Trichlorobenzene	ND	0.20	ug/L							U
Dichlorodifluoromethane	ND	0.20	ug/L							U
<i>Surrogate: Dibromofluoromethane</i>	4.77		ug/L	5.00		95.3	80-120			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.68		ug/L	5.00		93.6	80-129			
<i>Surrogate: Toluene-d8</i>	4.89		ug/L	5.00		97.8	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.77		ug/L	5.00		95.4	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	5.07		ug/L	5.00		101	80-120			
LCS (BIC0344-BS1)		Prepared: 17-Mar-2020 Analyzed: 17-Mar-2020 13:57								
Chloromethane	8.40	0.50	ug/L	10.0		84.0	60-138			
Vinyl Chloride	9.05	0.10	ug/L	10.0		90.5	66-133			
Bromomethane	9.22	1.00	ug/L	10.0		92.2	72-131			
Chloroethane	8.85	0.20	ug/L	10.0		88.5	60-155			
Trichlorofluoromethane	9.81	0.20	ug/L	10.0		98.1	80-129			
Acrolein	46.8	2.50	ug/L	50.0		93.7	52-144			
1,1,2-Trichloro-1,2,2-Trifluoroethane	9.62	0.20	ug/L	10.0		96.2	76-129			
Acetone	50.8	5.00	ug/L	50.0		102	58-142			
1,1-Dichloroethene	9.27	0.20	ug/L	10.0		92.7	69-135			
Bromoethane	9.34	0.20	ug/L	10.0		93.4	78-128			
Iodomethane	9.03	0.50	ug/L	10.0		90.3	56-147			
Methylene Chloride	8.90	1.00	ug/L	10.0		89.0	65-135			
Acrylonitrile	9.45	1.00	ug/L	10.0		94.5	64-134			
Carbon Disulfide	8.93	0.10	ug/L	10.0		89.3	78-125			
trans-1,2-Dichloroethene	9.15	0.20	ug/L	10.0		91.5	78-128			
Vinyl Acetate	9.47	0.20	ug/L	10.0		94.7	55-138			
1,1-Dichloroethane	9.20	0.20	ug/L	10.0		92.0	76-124			
2-Butanone	47.4	5.00	ug/L	50.0		94.7	61-140			
2,2-Dichloropropane	9.22	0.10	ug/L	10.0		92.2	78-125			
cis-1,2-Dichloroethene	8.95	0.20	ug/L	10.0		89.5	80-121			
Chloroform	8.84	0.20	ug/L	10.0		88.4	80-122			
Bromochloromethane	8.87	0.20	ug/L	10.0		88.7	80-121			
1,1,1-Trichloroethane	9.32	0.20	ug/L	10.0		93.2	79-123			
1,1-Dichloropropene	9.34	0.10	ug/L	10.0		93.4	80-120			
Carbon tetrachloride	9.61	0.20	ug/L	10.0		96.1	53-137			



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Reported:
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Volatile Organic Compounds - Quality Control

Batch BIC0344 - EPA 5030 (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
LCS (BIC0344-BS1)		Prepared: 17-Mar-2020 Analyzed: 17-Mar-2020 13:57								
1,2-Dichloroethane	9.00	0.20	ug/L	10.0		90.0	75-123			
Benzene	8.74	0.20	ug/L	10.0		87.4	80-120			
Trichloroethene	9.32	0.20	ug/L	10.0		93.2	80-120			
1,2-Dichloropropane	8.83	0.20	ug/L	10.0		88.3	80-120			
Bromodichloromethane	9.25	0.20	ug/L	10.0		92.5	80-121			
Dibromomethane	9.27	0.20	ug/L	10.0		92.7	80-120			
2-Chloroethyl vinyl ether	9.78	0.50	ug/L	10.0		97.8	74-127			
4-Methyl-2-Pentanone	47.9	2.50	ug/L	50.0		95.8	67-133			
cis-1,3-Dichloropropene	9.60	0.20	ug/L	10.0		96.0	80-124			
Toluene	8.86	0.20	ug/L	10.0		88.6	80-120			
trans-1,3-Dichloropropene	9.55	0.20	ug/L	10.0		95.5	71-127			
2-Hexanone	49.3	5.00	ug/L	50.0		98.7	69-133			
1,1,2-Trichloroethane	9.29	0.20	ug/L	10.0		92.9	80-121			
1,3-Dichloropropane	9.54	0.10	ug/L	10.0		95.4	80-120			
Tetrachloroethene	9.77	0.20	ug/L	10.0		97.7	80-120			
Dibromochloromethane	9.77	0.20	ug/L	10.0		97.7	65-135			
1,2-Dibromoethane	9.78	0.10	ug/L	10.0		97.8	80-121			
Chlorobenzene	9.17	0.20	ug/L	10.0		91.7	80-120			
Ethylbenzene	9.35	0.20	ug/L	10.0		93.5	80-120			
1,1,1,2-Tetrachloroethane	9.40	0.20	ug/L	10.0		94.0	80-120			
m,p-Xylene	19.3	0.40	ug/L	20.0		96.7	80-121			
o-Xylene	9.62	0.20	ug/L	10.0		96.2	80-121			
Xylenes, total	29.0	0.60	ug/L	30.0		96.6	76-127			
Styrene	9.53	0.20	ug/L	10.0		95.3	80-124			
Bromoform	9.43	0.20	ug/L	10.0		94.3	51-134			
1,1,2,2-Tetrachloroethane	9.59	0.10	ug/L	10.0		95.9	77-123			
1,2,3-Trichloropropane	9.63	0.20	ug/L	10.0		96.3	76-125			
trans-1,4-Dichloro 2-Butene	9.35	1.00	ug/L	10.0		93.5	55-129			
n-Propylbenzene	9.79	0.20	ug/L	10.0		97.9	78-130			
Bromobenzene	9.50	0.20	ug/L	10.0		95.0	80-120			
Isopropyl Benzene	10.1	0.20	ug/L	10.0		101	80-128			
2-Chlorotoluene	9.88	0.10	ug/L	10.0		98.8	78-122			
4-Chlorotoluene	10.1	0.20	ug/L	10.0		101	80-121			
t-Butylbenzene	10.1	0.20	ug/L	10.0		101	78-125			
1,3,5-Trimethylbenzene	10.3	0.20	ug/L	10.0		103	80-129			



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Reported:
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Volatile Organic Compounds - Quality Control

Batch BIC0344 - EPA 5030 (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
LCS (BIC0344-BS1)		Prepared: 17-Mar-2020 Analyzed: 17-Mar-2020 13:57								
1,2,4-Trimethylbenzene	10.2	0.20	ug/L	10.0		102	80-127			
s-Butylbenzene	10.4	0.20	ug/L	10.0		104	78-129			
4-Isopropyl Toluene	10.7	0.20	ug/L	10.0		107	79-130			
1,3-Dichlorobenzene	9.49	0.20	ug/L	10.0		94.9	80-120			
1,4-Dichlorobenzene	9.28	0.20	ug/L	10.0		92.8	80-120			
n-Butylbenzene	10.5	0.20	ug/L	10.0		105	74-129			
1,2-Dichlorobenzene	9.56	0.20	ug/L	10.0		95.6	80-120			
1,2-Dibromo-3-chloropropane	9.67	0.50	ug/L	10.0		96.7	62-123			
1,2,4-Trichlorobenzene	9.79	0.50	ug/L	10.0		97.9	64-124			
Hexachloro-1,3-Butadiene	10.7	0.20	ug/L	10.0		107	58-123			
Naphthalene	10.1	0.50	ug/L	10.0		101	50-134			
1,2,3-Trichlorobenzene	9.89	0.20	ug/L	10.0		98.9	49-133			
Dichlorodifluoromethane	9.33	0.20	ug/L	10.0		93.3	48-147			
<i>Surrogate: Dibromofluoromethane</i>	4.98		ug/L	5.00		99.6	80-120			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.06		ug/L	5.00		101	80-129			
<i>Surrogate: Toluene-d8</i>	5.04		ug/L	5.00		101	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	5.02		ug/L	5.00		100	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	5.04		ug/L	5.00		101	80-120			
LCS Dup (BIC0344-BS1)		Prepared: 17-Mar-2020 Analyzed: 17-Mar-2020 14:17								
Chloromethane	9.06	0.50	ug/L	10.0		90.6	60-138	7.63	30	
Vinyl Chloride	9.84	0.10	ug/L	10.0		98.4	66-133	8.32	30	
Bromomethane	10.1	1.00	ug/L	10.0		101	72-131	8.82	30	
Chloroethane	9.60	0.20	ug/L	10.0		96.0	60-155	8.19	30	
Trichlorofluoromethane	10.6	0.20	ug/L	10.0		106	80-129	7.73	30	
Acrolein	48.1	2.50	ug/L	50.0		96.1	52-144	2.58	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	10.1	0.20	ug/L	10.0		101	76-129	4.70	30	
Acetone	48.8	5.00	ug/L	50.0		97.7	58-142	3.85	30	
1,1-Dichloroethene	9.93	0.20	ug/L	10.0		99.3	69-135	6.81	30	
Bromoethane	10.1	0.20	ug/L	10.0		101	78-128	7.62	30	
Iodomethane	9.92	0.50	ug/L	10.0		99.2	56-147	9.38	30	
Methylene Chloride	9.60	1.00	ug/L	10.0		96.0	65-135	7.52	30	
Acrylonitrile	9.70	1.00	ug/L	10.0		97.0	64-134	2.63	30	
Carbon Disulfide	9.61	0.10	ug/L	10.0		96.1	78-125	7.36	30	
trans-1,2-Dichloroethene	9.69	0.20	ug/L	10.0		96.9	78-128	5.77	30	



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

Reported:
06-Apr-2020 09:12

Volatile Organic Compounds - Quality Control

Batch BIC0344 - EPA 5030 (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
LCS Dup (BIC0344-BSD1)		Prepared: 17-Mar-2020 Analyzed: 17-Mar-2020 14:17								
Vinyl Acetate	9.80	0.20	ug/L	10.0		98.0	55-138	3.43	30	
1,1-Dichloroethane	9.99	0.20	ug/L	10.0		99.9	76-124	8.19	30	
2-Butanone	48.5	5.00	ug/L	50.0		97.0	61-140	2.40	30	
2,2-Dichloropropane	10.0	0.10	ug/L	10.0		100	78-125	8.19	30	
cis-1,2-Dichloroethene	9.82	0.20	ug/L	10.0		98.2	80-121	9.25	30	
Chloroform	9.70	0.20	ug/L	10.0		97.0	80-122	9.28	30	
Bromochloromethane	9.77	0.20	ug/L	10.0		97.7	80-121	9.73	30	
1,1,1-Trichloroethane	10.0	0.20	ug/L	10.0		100	79-123	7.49	30	
1,1-Dichloropropene	10.0	0.10	ug/L	10.0		100	80-120	7.07	30	
Carbon tetrachloride	10.1	0.20	ug/L	10.0		101	53-137	4.75	30	
1,2-Dichloroethane	9.82	0.20	ug/L	10.0		98.2	75-123	8.65	30	
Benzene	9.56	0.20	ug/L	10.0		95.6	80-120	9.00	30	
Trichloroethene	10.1	0.20	ug/L	10.0		101	80-120	7.95	30	
1,2-Dichloropropane	9.99	0.20	ug/L	10.0		99.9	80-120	12.30	30	
Bromodichloromethane	10.3	0.20	ug/L	10.0		103	80-121	10.30	30	
Dibromomethane	10.1	0.20	ug/L	10.0		101	80-120	8.30	30	
2-Chloroethyl vinyl ether	10.4	0.50	ug/L	10.0		104	74-127	6.00	30	
4-Methyl-2-Pentanone	50.3	2.50	ug/L	50.0		101	67-133	4.83	30	
cis-1,3-Dichloropropene	10.5	0.20	ug/L	10.0		105	80-124	8.51	30	
Toluene	9.79	0.20	ug/L	10.0		97.9	80-120	9.96	30	
trans-1,3-Dichloropropene	10.6	0.20	ug/L	10.0		106	71-127	10.10	30	
2-Hexanone	51.1	5.00	ug/L	50.0		102	69-133	3.49	30	
1,1,2-Trichloroethane	10.2	0.20	ug/L	10.0		102	80-121	9.11	30	
1,3-Dichloropropane	10.4	0.10	ug/L	10.0		104	80-120	8.81	30	
Tetrachloroethene	10.0	0.20	ug/L	10.0		100	80-120	2.43	30	
Dibromochloromethane	10.7	0.20	ug/L	10.0		107	65-135	9.27	30	
1,2-Dibromoethane	10.7	0.10	ug/L	10.0		107	80-121	9.09	30	
Chlorobenzene	10.0	0.20	ug/L	10.0		100	80-120	8.91	30	
Ethylbenzene	10.1	0.20	ug/L	10.0		101	80-120	7.75	30	
1,1,1,2-Tetrachloroethane	10.4	0.20	ug/L	10.0		104	80-120	10.10	30	
m,p-Xylene	20.9	0.40	ug/L	20.0		105	80-121	7.82	30	
o-Xylene	10.3	0.20	ug/L	10.0		103	80-121	6.97	30	
Xylenes, total	31.2	0.60	ug/L	30.0		104	76-127	7.54	30	
Styrene	10.6	0.20	ug/L	10.0		106	80-124	10.70	30	
Bromoform	10.4	0.20	ug/L	10.0		104	51-134	9.66	30	



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

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06-Apr-2020 09:12

Volatile Organic Compounds - Quality Control

Batch BIC0344 - EPA 5030 (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
LCS Dup (BIC0344-BSD1)		Prepared: 17-Mar-2020 Analyzed: 17-Mar-2020 14:17								
1,1,2,2-Tetrachloroethane	9.94	0.10	ug/L	10.0		99.4	77-123	3.61	30	
1,2,3-Trichloropropane	10.3	0.20	ug/L	10.0		103	76-125	6.36	30	
trans-1,4-Dichloro 2-Butene	10.0	1.00	ug/L	10.0		100	55-129	6.89	30	
n-Propylbenzene	10.3	0.20	ug/L	10.0		103	78-130	5.05	30	
Bromobenzene	10.3	0.20	ug/L	10.0		103	80-120	8.44	30	
Isopropyl Benzene	10.8	0.20	ug/L	10.0		108	80-128	6.20	30	
2-Chlorotoluene	10.7	0.10	ug/L	10.0		107	78-122	7.64	30	
4-Chlorotoluene	10.6	0.20	ug/L	10.0		106	80-121	5.37	30	
t-Butylbenzene	10.8	0.20	ug/L	10.0		108	78-125	6.43	30	
1,3,5-Trimethylbenzene	11.0	0.20	ug/L	10.0		110	80-129	6.31	30	
1,2,4-Trimethylbenzene	10.9	0.20	ug/L	10.0		109	80-127	6.60	30	
s-Butylbenzene	10.9	0.20	ug/L	10.0		109	78-129	4.47	30	
4-Isopropyl Toluene	11.3	0.20	ug/L	10.0		113	79-130	5.61	30	
1,3-Dichlorobenzene	10.1	0.20	ug/L	10.0		101	80-120	6.45	30	
1,4-Dichlorobenzene	10.1	0.20	ug/L	10.0		101	80-120	8.70	30	
n-Butylbenzene	10.8	0.20	ug/L	10.0		108	74-129	3.31	30	
1,2-Dichlorobenzene	10.2	0.20	ug/L	10.0		102	80-120	5.99	30	
1,2-Dibromo-3-chloropropane	10.3	0.50	ug/L	10.0		103	62-123	5.88	30	
1,2,4-Trichlorobenzene	10.2	0.50	ug/L	10.0		102	64-124	4.60	30	
Hexachloro-1,3-Butadiene	10.6	0.20	ug/L	10.0		106	58-123	0.97	30	
Naphthalene	10.4	0.50	ug/L	10.0		104	50-134	2.79	30	
1,2,3-Trichlorobenzene	10.4	0.20	ug/L	10.0		104	49-133	5.15	30	
Dichlorodifluoromethane	9.69	0.20	ug/L	10.0		96.9	48-147	3.79	30	
Surrogate: Dibromofluoromethane	5.03		ug/L	5.00		101	80-120			
Surrogate: 1,2-Dichloroethane-d4	4.95		ug/L	5.00		98.9	80-129			
Surrogate: Toluene-d8	5.07		ug/L	5.00		101	80-120			
Surrogate: 4-Bromofluorobenzene	5.09		ug/L	5.00		102	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	4.99		ug/L	5.00		99.7	80-120			
Matrix Spike (BIC0344-MS1)		Source: 20C0167-01 Prepared: 17-Mar-2020 Analyzed: 17-Mar-2020 21:23								
Chloromethane	7.61	0.50	ug/L	10.0	ND	72.7	60-138			
Vinyl Chloride	6.84	0.10	ug/L	10.0	ND	68.4	66-133			
Bromomethane	7.44	1.00	ug/L	10.0	ND	74.4	72-131			
Chloroethane	10.7	0.20	ug/L	10.0	ND	107	60-155			
Trichlorofluoromethane	7.34	0.20	ug/L	10.0	ND	73.4	80-129			*



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Volatile Organic Compounds - Quality Control

Batch BIC0344 - EPA 5030 (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
Matrix Spike (BIC0344-MS1)		Source: 20C0167-01		Prepared: 17-Mar-2020		Analyzed: 17-Mar-2020 21:23				
Acrolein	45.8	2.50	ug/L	50.0	ND	91.5	52-144			
1,1,2-Trichloro-1,2,2-Trifluoroethane	7.16	0.20	ug/L	10.0	ND	71.6	76-129			*
Acetone	54.8	5.00	ug/L	50.0	ND	110	58-142			
1,1-Dichloroethene	7.62	0.20	ug/L	10.0	ND	76.2	69-135			
Bromoethane	7.46	0.20	ug/L	10.0	ND	74.6	78-128			*
Iodomethane	7.04	0.50	ug/L	10.0	ND	70.4	56-147			
Methylene Chloride	7.00	1.00	ug/L	10.0	ND	70.0	65-135			
Acrylonitrile	9.26	1.00	ug/L	10.0	ND	92.6	64-134			
Carbon Disulfide	7.34	0.10	ug/L	10.0	0.23	71.1	78-125			*
trans-1,2-Dichloroethene	7.25	0.20	ug/L	10.0	ND	72.5	78-128			*
Vinyl Acetate	6.36	0.20	ug/L	10.0	ND	63.6	55-138			
1,1-Dichloroethane	7.04	0.20	ug/L	10.0	ND	70.4	76-124			*
2-Butanone	49.8	5.00	ug/L	50.0	ND	99.6	61-140			
2,2-Dichloropropane	5.81	0.10	ug/L	10.0	ND	58.1	78-125			*
cis-1,2-Dichloroethene	6.57	0.20	ug/L	10.0	ND	65.7	80-121			*
Chloroform	6.73	0.20	ug/L	10.0	ND	67.3	80-122			*
Bromochloromethane	6.99	0.20	ug/L	10.0	ND	69.9	80-121			*
1,1,1-Trichloroethane	7.10	0.20	ug/L	10.0	ND	71.0	79-123			*
1,1-Dichloropropene	6.65	0.10	ug/L	10.0	ND	66.5	80-120			*
Carbon tetrachloride	6.81	0.20	ug/L	10.0	ND	68.1	53-137			
1,2-Dichloroethane	6.86	0.20	ug/L	10.0	ND	68.6	75-123			*
Benzene	6.55	0.20	ug/L	10.0	ND	65.5	80-120			*
Trichloroethene	6.63	0.20	ug/L	10.0	ND	66.3	80-120			*
1,2-Dichloropropane	6.72	0.20	ug/L	10.0	ND	67.2	80-120			*
Bromodichloromethane	6.75	0.20	ug/L	10.0	ND	67.5	80-121			*
Dibromomethane	7.43	0.20	ug/L	10.0	ND	74.3	80-120			*
2-Chloroethyl vinyl ether	4.23	0.50	ug/L	10.0	ND	42.3	74-127			*
4-Methyl-2-Pentanone	46.0	2.50	ug/L	50.0	ND	92.1	67-133			
cis-1,3-Dichloropropene	6.35	0.20	ug/L	10.0	ND	63.5	80-124			*
Toluene	6.54	0.20	ug/L	10.0	ND	65.4	80-120			*
trans-1,3-Dichloropropene	6.97	0.20	ug/L	10.0	ND	69.7	71-127			*
2-Hexanone	46.4	5.00	ug/L	50.0	ND	92.8	69-133			
1,1,2-Trichloroethane	7.30	0.20	ug/L	10.0	ND	73.0	80-121			*
1,3-Dichloropropane	7.25	0.10	ug/L	10.0	ND	72.5	80-120			*
Tetrachloroethene	6.83	0.20	ug/L	10.0	ND	68.3	80-120			*



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Volatile Organic Compounds - Quality Control

Batch BIC0344 - EPA 5030 (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
Matrix Spike (BIC0344-MS1)		Source: 20C0167-01		Prepared: 17-Mar-2020		Analyzed: 17-Mar-2020 21:23				
Dibromochloromethane	7.13	0.20	ug/L	10.0	ND	71.3	65-135			
1,2-Dibromoethane	7.91	0.10	ug/L	10.0	ND	79.1	80-121			*
Chlorobenzene	6.40	0.20	ug/L	10.0	ND	64.0	80-120			*
Ethylbenzene	6.54	0.20	ug/L	10.0	ND	65.4	80-120			*
1,1,1,2-Tetrachloroethane	6.50	0.20	ug/L	10.0	ND	65.0	80-120			*
m,p-Xylene	13.4	0.40	ug/L	20.0	ND	67.1	80-121			*
o-Xylene	6.51	0.20	ug/L	10.0	ND	65.1	80-121			*
Xylenes, total	19.9	0.60	ug/L	30.0	ND	66.4	76-127			*
Styrene	6.63	0.20	ug/L	10.0	ND	66.3	80-124			*
Bromoform	7.74	0.20	ug/L	10.0	ND	77.4	51-134			
1,1,2,2-Tetrachloroethane	8.02	0.10	ug/L	10.0	ND	80.2	77-123			
1,2,3-Trichloropropane	8.54	0.20	ug/L	10.0	ND	85.4	76-125			
trans-1,4-Dichloro 2-Butene	6.97	1.00	ug/L	10.0	ND	69.7	55-129			
n-Propylbenzene	6.53	0.20	ug/L	10.0	ND	65.3	78-130			*
Bromobenzene	6.58	0.20	ug/L	10.0	ND	65.8	80-120			*
Isopropyl Benzene	6.86	0.20	ug/L	10.0	ND	68.6	80-128			*
2-Chlorotoluene	6.46	0.10	ug/L	10.0	ND	64.6	78-122			*
4-Chlorotoluene	6.42	0.20	ug/L	10.0	ND	64.2	80-121			*
t-Butylbenzene	6.77	0.20	ug/L	10.0	ND	67.7	78-125			*
1,3,5-Trimethylbenzene	6.97	0.20	ug/L	10.0	ND	69.7	80-129			*
1,2,4-Trimethylbenzene	6.74	0.20	ug/L	10.0	ND	67.4	80-127			*
s-Butylbenzene	6.92	0.20	ug/L	10.0	ND	69.2	78-129			*
4-Isopropyl Toluene	6.81	0.20	ug/L	10.0	ND	68.1	79-130			*
1,3-Dichlorobenzene	6.38	0.20	ug/L	10.0	ND	63.8	80-120			*
1,4-Dichlorobenzene	6.24	0.20	ug/L	10.0	ND	62.4	80-120			*
n-Butylbenzene	6.21	0.20	ug/L	10.0	ND	61.5	74-129			*
1,2-Dichlorobenzene	6.40	0.20	ug/L	10.0	ND	64.0	80-120			*
1,2-Dibromo-3-chloropropane	8.46	0.50	ug/L	10.0	ND	84.6	62-123			
1,2,4-Trichlorobenzene	5.47	0.50	ug/L	10.0	ND	54.7	64-124			*
Hexachloro-1,3-Butadiene	4.73	0.20	ug/L	10.0	ND	47.3	58-123			*
Naphthalene	7.41	0.50	ug/L	10.0	ND	74.1	50-134			
1,2,3-Trichlorobenzene	5.89	0.20	ug/L	10.0	ND	58.9	49-133			
Dichlorodifluoromethane	7.78	0.20	ug/L	10.0	ND	77.8	48-147			
Surrogate: Dibromofluoromethane	5.25		ug/L	5.00	5.36	105	80-120			
Surrogate: 1,2-Dichloroethane-d4	5.49		ug/L	5.00	5.68	110	80-129			



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Volatile Organic Compounds - Quality Control

Batch BIC0344 - EPA 5030 (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
Matrix Spike (BIC0344-MS1)		Source: 20C0167-01		Prepared: 17-Mar-2020		Analyzed: 17-Mar-2020 21:23				
Surrogate: Toluene-d8	5.05		ug/L	5.00	4.89	101	80-120			
Surrogate: 4-Bromofluorobenzene	4.95		ug/L	5.00	4.61	99.1	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.02		ug/L	5.00	4.93	100	80-120			

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

Matrix Spike Dup (BIC0344-MSD1)		Source: 20C0167-01		Prepared: 17-Mar-2020		Analyzed: 17-Mar-2020 21:43				
Chloromethane	7.63	0.50	ug/L	10.0	ND	72.9	60-138	0.28	30	
Vinyl Chloride	6.91	0.10	ug/L	10.0	ND	69.1	66-133	1.04	30	
Bromomethane	7.39	1.00	ug/L	10.0	ND	73.9	72-131	0.68	30	
Chloroethane	9.09	0.20	ug/L	10.0	ND	90.9	60-155	16.20	30	
Trichlorofluoromethane	7.23	0.20	ug/L	10.0	ND	72.3	80-129	1.60	30	*
Acrolein	44.4	2.50	ug/L	50.0	ND	88.8	52-144	2.99	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	7.14	0.20	ug/L	10.0	ND	71.4	76-129	0.34	30	*
Acetone	54.1	5.00	ug/L	50.0	ND	108	58-142	1.16	30	
1,1-Dichloroethane	7.55	0.20	ug/L	10.0	ND	75.5	69-135	0.95	30	
Bromoethane	5.00	0.20	ug/L	10.0	ND	50.0	78-128	39.40	30	*
Iodomethane	6.99	0.50	ug/L	10.0	ND	69.9	56-147	0.80	30	
Methylene Chloride	6.90	1.00	ug/L	10.0	ND	69.0	65-135	1.47	30	
Acrylonitrile	9.55	1.00	ug/L	10.0	ND	95.5	64-134	3.09	30	
Carbon Disulfide	7.26	0.10	ug/L	10.0	0.23	70.3	78-125	1.13	30	*
trans-1,2-Dichloroethene	7.11	0.20	ug/L	10.0	ND	71.1	78-128	2.00	30	*
Vinyl Acetate	6.54	0.20	ug/L	10.0	ND	65.4	55-138	2.70	30	
1,1-Dichloroethane	6.89	0.20	ug/L	10.0	ND	68.9	76-124	2.10	30	*
2-Butanone	49.7	5.00	ug/L	50.0	ND	99.4	61-140	0.15	30	
2,2-Dichloropropane	5.75	0.10	ug/L	10.0	ND	57.5	78-125	1.02	30	*
cis-1,2-Dichloroethene	6.63	0.20	ug/L	10.0	ND	66.3	80-121	0.80	30	*
Chloroform	6.78	0.20	ug/L	10.0	ND	67.8	80-122	0.82	30	*
Bromochloromethane	6.74	0.20	ug/L	10.0	ND	67.4	80-121	3.61	30	*
1,1,1-Trichloroethane	7.10	0.20	ug/L	10.0	ND	71.0	79-123	0.05	30	*
1,1-Dichloropropene	6.77	0.10	ug/L	10.0	ND	67.7	80-120	1.75	30	*
Carbon tetrachloride	6.82	0.20	ug/L	10.0	ND	68.2	53-137	0.09	30	
1,2-Dichloroethane	6.95	0.20	ug/L	10.0	ND	69.5	75-123	1.40	30	*
Benzene	6.62	0.20	ug/L	10.0	ND	66.2	80-120	1.14	30	*
Trichloroethene	6.76	0.20	ug/L	10.0	ND	67.6	80-120	1.98	30	*
1,2-Dichloropropane	6.79	0.20	ug/L	10.0	ND	67.9	80-120	1.02	30	*



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Volatile Organic Compounds - Quality Control

Batch BIC0344 - EPA 5030 (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
Matrix Spike Dup (BIC0344-MSD1)		Source: 20C0167-01		Prepared: 17-Mar-2020		Analyzed: 17-Mar-2020 21:43				
Bromodichloromethane	6.84	0.20	ug/L	10.0	ND	68.4	80-121	1.26	30	*
Dibromomethane	7.12	0.20	ug/L	10.0	ND	71.2	80-120	4.36	30	*
2-Chloroethyl vinyl ether	4.34	0.50	ug/L	10.0	ND	43.4	74-127	2.56	30	*
4-Methyl-2-Pentanone	47.9	2.50	ug/L	50.0	ND	95.8	67-133	3.98	30	
cis-1,3-Dichloropropene	6.37	0.20	ug/L	10.0	ND	63.7	80-124	0.36	30	*
Toluene	6.71	0.20	ug/L	10.0	ND	67.1	80-120	2.44	30	*
trans-1,3-Dichloropropene	6.94	0.20	ug/L	10.0	ND	69.4	71-127	0.51	30	*
2-Hexanone	48.0	5.00	ug/L	50.0	ND	96.0	69-133	3.43	30	
1,1,2-Trichloroethane	7.56	0.20	ug/L	10.0	ND	75.6	80-121	3.48	30	*
1,3-Dichloropropane	7.38	0.10	ug/L	10.0	ND	73.8	80-120	1.71	30	*
Tetrachloroethene	6.79	0.20	ug/L	10.0	ND	67.9	80-120	0.48	30	*
Dibromochloromethane	7.13	0.20	ug/L	10.0	ND	71.3	65-135	0.01	30	
1,2-Dibromoethane	8.03	0.10	ug/L	10.0	ND	80.3	80-121	1.58	30	
Chlorobenzene	6.48	0.20	ug/L	10.0	ND	64.8	80-120	1.17	30	*
Ethylbenzene	6.62	0.20	ug/L	10.0	ND	66.2	80-120	1.20	30	*
1,1,1,2-Tetrachloroethane	6.66	0.20	ug/L	10.0	ND	66.6	80-120	2.49	30	*
m,p-Xylene	13.6	0.40	ug/L	20.0	ND	67.8	80-121	1.03	30	*
o-Xylene	6.59	0.20	ug/L	10.0	ND	65.9	80-121	1.16	30	*
Xylenes, total	20.1	0.60	ug/L	30.0	ND	67.1	76-127	1.07	30	*
Styrene	6.65	0.20	ug/L	10.0	ND	66.5	80-124	0.29	30	*
Bromoform	7.26	0.20	ug/L	10.0	ND	72.6	51-134	6.40	30	
1,1,2,2-Tetrachloroethane	8.13	0.10	ug/L	10.0	ND	81.3	77-123	1.25	30	
1,2,3-Trichloropropane	8.50	0.20	ug/L	10.0	ND	85.0	76-125	0.48	30	
trans-1,4-Dichloro 2-Butene	6.54	1.00	ug/L	10.0	ND	65.4	55-129	6.45	30	
n-Propylbenzene	6.60	0.20	ug/L	10.0	ND	66.0	78-130	1.16	30	*
Bromobenzene	6.46	0.20	ug/L	10.0	ND	64.6	80-120	1.87	30	*
Isopropyl Benzene	6.76	0.20	ug/L	10.0	ND	67.6	80-128	1.55	30	*
2-Chlorotoluene	6.48	0.10	ug/L	10.0	ND	64.8	78-122	0.35	30	*
4-Chlorotoluene	6.50	0.20	ug/L	10.0	ND	65.0	80-121	1.19	30	*
t-Butylbenzene	6.74	0.20	ug/L	10.0	ND	67.4	78-125	0.50	30	*
1,3,5-Trimethylbenzene	6.84	0.20	ug/L	10.0	ND	68.4	80-129	1.86	30	*
1,2,4-Trimethylbenzene	6.65	0.20	ug/L	10.0	ND	66.5	80-127	1.33	30	*
s-Butylbenzene	6.90	0.20	ug/L	10.0	ND	69.0	78-129	0.20	30	*
4-Isopropyl Toluene	6.79	0.20	ug/L	10.0	ND	67.9	79-130	0.23	30	*
1,3-Dichlorobenzene	6.39	0.20	ug/L	10.0	ND	63.9	80-120	0.15	30	*



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06-Apr-2020 09:12

Volatile Organic Compounds - Quality Control

Batch BIC0344 - EPA 5030 (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
Matrix Spike Dup (BIC0344-MSD1)		Source: 20C0167-01		Prepared: 17-Mar-2020		Analyzed: 17-Mar-2020 21:43				
1,4-Dichlorobenzene	6.35	0.20	ug/L	10.0	ND	63.5	80-120	1.79	30	*
n-Butylbenzene	6.38	0.20	ug/L	10.0	ND	63.2	74-129	2.74	30	*
1,2-Dichlorobenzene	6.49	0.20	ug/L	10.0	ND	64.9	80-120	1.34	30	*
1,2-Dibromo-3-chloropropane	8.63	0.50	ug/L	10.0	ND	86.3	62-123	1.99	30	
1,2,4-Trichlorobenzene	5.60	0.50	ug/L	10.0	ND	56.0	64-124	2.34	30	*
Hexachloro-1,3-Butadiene	5.27	0.20	ug/L	10.0	ND	52.7	58-123	10.70	30	*
Naphthalene	7.47	0.50	ug/L	10.0	ND	74.7	50-134	0.70	30	
1,2,3-Trichlorobenzene	6.03	0.20	ug/L	10.0	ND	60.3	49-133	2.28	30	
Dichlorodifluoromethane	7.38	0.20	ug/L	10.0	ND	73.8	48-147	5.21	30	
Surrogate: Dibromofluoromethane	5.22		ug/L	5.00	5.36	104	80-120			
Surrogate: 1,2-Dichloroethane-d4	5.53		ug/L	5.00	5.68	111	80-129			
Surrogate: Toluene-d8	5.07		ug/L	5.00	4.89	101	80-120			
Surrogate: 4-Bromofluorobenzene	5.00		ug/L	5.00	4.61	100	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	4.97		ug/L	5.00	4.93	99.4	80-120			

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



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Semivolatile Organic Compounds - Quality Control

Batch BIC0276 - 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
Blank (BIC0276-BLK1)		Prepared: 17-Mar-2020 Analyzed: 20-Mar-2020 11:10								
Phenol	ND	1.0	ug/L							U
bis(2-chloroethyl) ether	ND	1.0	ug/L							U
2-Chlorophenol	ND	1.0	ug/L							U
1,3-Dichlorobenzene	ND	1.0	ug/L							U
1,4-Dichlorobenzene	ND	1.0	ug/L							U
Benzyl Alcohol	ND	2.0	ug/L							U
1,2-Dichlorobenzene	ND	1.0	ug/L							U
2-Methylphenol	ND	1.0	ug/L							U
2,2'-Oxybis(1-chloropropane)	ND	1.0	ug/L							U
4-Methylphenol	ND	2.0	ug/L							U
N-Nitroso-di-n-Propylamine	ND	1.0	ug/L							U
Hexachloroethane	ND	2.0	ug/L							U
Nitrobenzene	ND	1.0	ug/L							U
Isophorone	ND	1.0	ug/L							U
2-Nitrophenol	ND	3.0	ug/L							U
2,4-Dimethylphenol	ND	3.0	ug/L							U
Bis(2-Chloroethoxy)methane	ND	1.0	ug/L							U
Benzoic acid	ND	20.0	ug/L							U
2,4-Dichlorophenol	ND	3.0	ug/L							U
1,2,4-Trichlorobenzene	ND	1.0	ug/L							U
Naphthalene	ND	1.0	ug/L							U
4-Chloroaniline	ND	5.0	ug/L							U
Hexachlorobutadiene	ND	3.0	ug/L							U
4-Chloro-3-Methylphenol	ND	3.0	ug/L							U
2-Methylnaphthalene	ND	1.0	ug/L							U
Hexachlorocyclopentadiene	ND	5.0	ug/L							U
2,4,6-Trichlorophenol	ND	3.0	ug/L							U
2,4,5-Trichlorophenol	ND	5.0	ug/L							U
2-Chloronaphthalene	ND	1.0	ug/L							U
2-Nitroaniline	ND	3.0	ug/L							U
Dimethylphthalate	ND	1.0	ug/L							U
Acenaphthylene	ND	1.0	ug/L							U
2,6-Dinitrotoluene	ND	3.0	ug/L							U
3-Nitroaniline	ND	3.0	ug/L							U
Acenaphthene	ND	1.0	ug/L							U



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Project Number: Landsburg
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Semivolatile Organic Compounds - Quality Control

Batch BIC0276 - 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
Blank (BIC0276-BLK1)		Prepared: 17-Mar-2020 Analyzed: 20-Mar-2020 11:10								
2,4-Dinitrophenol	ND	20.0	ug/L							U
Dibenzofuran	ND	1.0	ug/L							U
4-Nitrophenol	ND	10.0	ug/L							U
2,4-Dinitrotoluene	ND	3.0	ug/L							U
Fluorene	ND	1.0	ug/L							U
Diethyl phthalate	ND	1.0	ug/L							U
4-Chlorophenylphenyl ether	ND	1.0	ug/L							U
4-Nitroaniline	ND	3.0	ug/L							U
4,6-Dinitro-2-methylphenol	ND	10.0	ug/L							U
N-Nitrosodiphenylamine	ND	1.0	ug/L							U
4-Bromophenyl phenyl ether	ND	1.0	ug/L							U
Hexachlorobenzene	ND	1.0	ug/L							U
Pentachlorophenol	ND	10.0	ug/L							U
Phenanthrene	ND	1.0	ug/L							U
Anthracene	ND	1.0	ug/L							U
Carbazole	ND	1.0	ug/L							U
Di-n-Butylphthalate	ND	1.0	ug/L							U
Fluoranthene	ND	1.0	ug/L							U
Pyrene	ND	1.0	ug/L							U
Butylbenzylphthalate	ND	1.0	ug/L							U
Benzo(a)anthracene	ND	1.0	ug/L							U
3,3'-Dichlorobenzidine	ND	5.0	ug/L							U
Chrysene	ND	1.0	ug/L							U
bis(2-Ethylhexyl)phthalate	ND	3.0	ug/L							U
Di-n-Octylphthalate	ND	1.0	ug/L							U
Benzo(a)pyrene	ND	1.0	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	1.0	ug/L							U
Dibenzo(a,h)anthracene	ND	1.0	ug/L							U
Benzo(g,h,i)perylene	ND	1.0	ug/L							U
Benzo(a)fluoranthene, Total	ND	2.0	ug/L							U
1-Methylnaphthalene	ND	1.0	ug/L							U
Surrogate: 2-Fluorophenol	29.3		ug/L	37.5		78.1	33-120			
Surrogate: Phenol-d5	29.8		ug/L	37.5		79.4	38-120			
Surrogate: 2-Chlorophenol-d4	30.0		ug/L	37.5		79.9	41-120			
Surrogate: 1,2-Dichlorobenzene-d4	17.5		ug/L	25.0		70.1	20-120			



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Semivolatile Organic Compounds - Quality Control

Batch BIC0276 - 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
Blank (BIC0276-BLK1)		Prepared: 17-Mar-2020 Analyzed: 20-Mar-2020 11:10								
Surrogate: Nitrobenzene-d5	20.2		ug/L	25.0		80.8	27-120			
Surrogate: 2-Fluorobiphenyl	18.6		ug/L	25.0		74.5	33-120			
Surrogate: 2,4,6-Tribromophenol	28.1		ug/L	37.5		74.8	52-120			
Surrogate: p-Terphenyl-d14	19.2		ug/L	25.0		76.7	28-120			
LCS (BIC0276-BS1)		Prepared: 17-Mar-2020 Analyzed: 20-Mar-2020 11:43								
Phenol	20.3	1.0	ug/L	25.0		81.1	35-120			
bis(2-chloroethyl) ether	20.7	1.0	ug/L	25.0		83.0	46.5-120			
2-Chlorophenol	19.4	1.0	ug/L	25.0		77.7	48-120			
1,3-Dichlorobenzene	15.5	1.0	ug/L	25.0		62.2	34.2-120			
1,4-Dichlorobenzene	16.4	1.0	ug/L	25.0		65.4	36-120			
Benzyl Alcohol	21.4	2.0	ug/L	25.0		85.4	27.4-120			
1,2-Dichlorobenzene	16.4	1.0	ug/L	25.0		65.6	38.4-120			
2-Methylphenol	20.0	1.0	ug/L	25.0		79.8	47.8-120			
2,2'-Oxybis(1-chloropropane)	20.3	1.0	ug/L	25.0		81.0	40.4-120			
4-Methylphenol	20.9	2.0	ug/L	25.0		83.8	52.3-120			
N-Nitroso-di-n-Propylamine	20.6	1.0	ug/L	25.0		82.4	51.4-120			
Hexachloroethane	14.9	2.0	ug/L	25.0		59.6	29.5-120			
Nitrobenzene	20.9	1.0	ug/L	25.0		83.7	51.5-120			
Isophorone	27.1	1.0	ug/L	25.0		108	62.3-128			
2-Nitrophenol	19.9	3.0	ug/L	25.0		79.6	58.6-124			
2,4-Dimethylphenol	44.0	3.0	ug/L	65.0		67.7	38.5-120			
Bis(2-Chloroethoxy)methane	21.5	1.0	ug/L	25.0		85.9	52.9-120			
Benzoic acid	87.9	20.0	ug/L	115		76.4	38.2-120			
2,4-Dichlorophenol	49.7	3.0	ug/L	65.0		76.5	43.6-120			
1,2,4-Trichlorobenzene	15.9	1.0	ug/L	25.0		63.5	38.6-120			
Naphthalene	18.8	1.0	ug/L	25.0		75.1	40.5-120			
4-Chloroaniline	52.2	5.0	ug/L	65.0		80.3	42.7-120			
Hexachlorobutadiene	12.9	3.0	ug/L	25.0		51.4	32.3-120			
4-Chloro-3-Methylphenol	54.0	3.0	ug/L	65.0		83.1	51.9-120			
2-Methylnaphthalene	18.4	1.0	ug/L	25.0		73.6	47.3-120			
Hexachlorocyclopentadiene	33.5	5.0	ug/L	65.0		51.5	23.3-120			
2,4,6-Trichlorophenol	52.9	3.0	ug/L	65.0		81.4	47-120			
2,4,5-Trichlorophenol	53.7	5.0	ug/L	65.0		82.6	48.4-120			
2-Chloronaphthalene	18.9	1.0	ug/L	25.0		75.7	47.7-123			



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Semivolatile Organic Compounds - Quality Control

Batch BIC0276 - 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
LCS (BIC0276-BS1)		Prepared: 17-Mar-2020 Analyzed: 20-Mar-2020 11:43								
2-Nitroaniline	66.3	3.0	ug/L	65.0		102	56.8-120			
Dimethylphthalate	21.4	1.0	ug/L	25.0		85.8	65.2-125			
Acenaphthylene	19.9	1.0	ug/L	25.0		79.7	44.1-120			
2,6-Dinitrotoluene	61.1	3.0	ug/L	65.0		93.9	69.3-140			
3-Nitroaniline	62.8	3.0	ug/L	65.0		96.7	60.9-120			
Acenaphthene	20.0	1.0	ug/L	25.0		80.1	50.4-120			
2,4-Dinitrophenol	96.6	20.0	ug/L	115		84.0	33.7-183			
Dibenzofuran	21.0	1.0	ug/L	25.0		84.1	49.9-120			
4-Nitrophenol	55.5	10.0	ug/L	65.0		85.3	50.2-136			
2,4-Dinitrotoluene	58.8	3.0	ug/L	65.0		90.5	66.8-132			
Fluorene	20.7	1.0	ug/L	25.0		82.6	57.8-120			
Diethyl phthalate	22.0	1.0	ug/L	25.0		87.9	68.1-120			
4-Chlorophenylphenyl ether	21.3	1.0	ug/L	25.0		85.3	59.1-127			
4-Nitroaniline	60.7	3.0	ug/L	65.0		93.3	56-122			
4,6-Dinitro-2-methylphenol	98.3	10.0	ug/L	115		85.5	37.9-162			
N-Nitrosodiphenylamine	19.3	1.0	ug/L	25.0		77.4	59.6-120			
4-Bromophenyl phenyl ether	20.8	1.0	ug/L	25.0		83.0	59.6-120			
Hexachlorobenzene	20.2	1.0	ug/L	25.0		80.7	53.7-120			
Pentachlorophenol	60.0	10.0	ug/L	65.0		92.3	40.3-128			
Phenanthrene	20.9	1.0	ug/L	25.0		83.6	58.8-120			
Anthracene	20.7	1.0	ug/L	25.0		82.7	60.5-120			
Carbazole	20.8	1.0	ug/L	25.0		83.4	59.7-120			
Di-n-Butylphthalate	22.6	1.0	ug/L	25.0		90.5	71-120			
Fluoranthene	20.8	1.0	ug/L	25.0		83.2	66.7-120			
Pyrene	22.4	1.0	ug/L	25.0		89.6	62.7-127			
Butylbenzylphthalate	22.8	1.0	ug/L	25.0		91.1	67.4-128			
Benzo(a)anthracene	20.9	1.0	ug/L	25.0		83.7	58.3-128			
3,3'-Dichlorobenzidine	51.3	5.0	ug/L	65.0		78.9	34.1-120			
Chrysene	20.5	1.0	ug/L	25.0		82.1	58.9-120			
bis(2-Ethylhexyl)phthalate	21.9	3.0	ug/L	25.0		87.7	68.3-123			
Di-n-Octylphthalate	21.0	1.0	ug/L	25.0		83.9	61.5-120			
Benzo(a)pyrene	20.4	1.0	ug/L	25.0		81.5	70.6-120			
Indeno(1,2,3-cd)pyrene	21.5	1.0	ug/L	25.0		85.9	46.5-120			
Dibenzo(a,h)anthracene	21.8	1.0	ug/L	25.0		87.3	49.6-120			
Benzo(g,h,i)perylene	21.2	1.0	ug/L	25.0		84.7	37-120			



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Semivolatile Organic Compounds - Quality Control

Batch BIC0276 - 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
LCS (BIC0276-BS1)										
					Prepared: 17-Mar-2020 Analyzed: 20-Mar-2020 11:43					
Benzofluoranthenes, Total	42.3	2.0	ug/L	50.0		84.5	66.5-120			
1-Methylnaphthalene	17.8	1.0	ug/L	25.0		71.3	46.9-120			
Surrogate: 2-Fluorophenol	26.2		ug/L	37.5		70.0	33-120			
Surrogate: Phenol-d5	27.5		ug/L	37.5		73.3	38-120			
Surrogate: 2-Chlorophenol-d4	26.9		ug/L	37.5		71.7	41-120			
Surrogate: 1,2-Dichlorobenzene-d4	14.9		ug/L	25.0		59.7	20-120			
Surrogate: Nitrobenzene-d5	18.4		ug/L	25.0		73.5	27-120			
Surrogate: 2-Fluorobiphenyl	17.4		ug/L	25.0		69.4	33-120			
Surrogate: 2,4,6-Tribromophenol	28.7		ug/L	37.5		76.6	52-120			
Surrogate: p-Terphenyl-d14	18.4		ug/L	25.0		73.7	28-120			
LCS Dup (BIC0276-BSD1)										
					Prepared: 17-Mar-2020 Analyzed: 20-Mar-2020 12:16					
Phenol	20.3	1.0	ug/L	25.0		81.2	35-120	0.12	30	
bis(2-chloroethyl) ether	20.6	1.0	ug/L	25.0		82.4	46.5-120	0.68	30	
2-Chlorophenol	19.3	1.0	ug/L	25.0		77.2	48-120	0.64	30	
1,3-Dichlorobenzene	15.4	1.0	ug/L	25.0		61.5	34.2-120	1.01	30	
1,4-Dichlorobenzene	16.2	1.0	ug/L	25.0		64.7	36-120	1.14	30	
Benzyl Alcohol	21.2	2.0	ug/L	25.0		84.7	27.4-120	0.86	30	
1,2-Dichlorobenzene	16.5	1.0	ug/L	25.0		65.9	38.4-120	0.34	30	
2-Methylphenol	19.8	1.0	ug/L	25.0		79.3	47.8-120	0.63	30	
2,2'-Oxybis(1-chloropropane)	20.2	1.0	ug/L	25.0		81.0	40.4-120	0.06	30	
4-Methylphenol	20.9	2.0	ug/L	25.0		83.7	52.3-120	0.13	30	
N-Nitroso-di-n-Propylamine	20.8	1.0	ug/L	25.0		83.3	51.4-120	1.11	30	
Hexachloroethane	14.5	2.0	ug/L	25.0		57.8	29.5-120	3.11	30	
Nitrobenzene	20.8	1.0	ug/L	25.0		83.3	51.5-120	0.42	30	
Isophorone	26.9	1.0	ug/L	25.0		107	62.3-128	0.94	30	
2-Nitrophenol	19.8	3.0	ug/L	25.0		79.1	58.6-124	0.61	30	
2,4-Dimethylphenol	40.2	3.0	ug/L	65.0		61.9	38.5-120	8.99	30	
Bis(2-Chloroethoxy)methane	21.3	1.0	ug/L	25.0		85.2	52.9-120	0.85	30	
Benzoic acid	89.8	20.0	ug/L	115		78.1	38.2-120	2.21	30	
2,4-Dichlorophenol	49.0	3.0	ug/L	65.0		75.4	43.6-120	1.49	30	
1,2,4-Trichlorobenzene	15.9	1.0	ug/L	25.0		63.4	38.6-120	0.18	30	
Naphthalene	18.7	1.0	ug/L	25.0		74.6	40.5-120	0.57	30	
4-Chloroaniline	51.6	5.0	ug/L	65.0		79.4	42.7-120	1.23	30	
Hexachlorobutadiene	13.0	3.0	ug/L	25.0		52.0	32.3-120	1.19	30	



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

Reported:
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Semivolatile Organic Compounds - Quality Control

Batch BIC0276 - 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
LCS Dup (BIC0276-BSD1)		Prepared: 17-Mar-2020 Analyzed: 20-Mar-2020 12:16								
4-Chloro-3-Methylphenol	53.5	3.0	ug/L	65.0		82.4	51.9-120	0.88	30	
2-Methylnaphthalene	18.4	1.0	ug/L	25.0		73.5	47.3-120	0.18	30	
Hexachlorocyclopentadiene	33.1	5.0	ug/L	65.0		51.0	23.3-120	1.06	30	
2,4,6-Trichlorophenol	51.5	3.0	ug/L	65.0		79.3	47-120	2.65	30	
2,4,5-Trichlorophenol	52.6	5.0	ug/L	65.0		80.9	48.4-120	2.03	30	
2-Chloronaphthalene	18.3	1.0	ug/L	25.0		73.1	47.7-123	3.61	30	
2-Nitroaniline	64.6	3.0	ug/L	65.0		99.4	56.8-120	2.58	30	
Dimethylphthalate	20.8	1.0	ug/L	25.0		83.1	65.2-125	3.14	30	
Acenaphthylene	19.4	1.0	ug/L	25.0		77.8	44.1-120	2.44	30	
2,6-Dinitrotoluene	58.6	3.0	ug/L	65.0		90.2	69.3-140	4.04	30	
3-Nitroaniline	62.4	3.0	ug/L	65.0		96.0	60.9-120	0.67	30	
Acenaphthene	19.9	1.0	ug/L	25.0		79.5	50.4-120	0.86	30	
2,4-Dinitrophenol	97.6	20.0	ug/L	115		84.8	33.7-183	1.01	30	
Dibenzofuran	20.6	1.0	ug/L	25.0		82.2	49.9-120	2.22	30	
4-Nitrophenol	55.1	10.0	ug/L	65.0		84.8	50.2-136	0.62	30	
2,4-Dinitrotoluene	57.4	3.0	ug/L	65.0		88.3	66.8-132	2.38	30	
Fluorene	20.2	1.0	ug/L	25.0		80.7	57.8-120	2.38	30	
Diethyl phthalate	21.4	1.0	ug/L	25.0		85.4	68.1-120	2.88	30	
4-Chlorophenylphenyl ether	20.7	1.0	ug/L	25.0		82.8	59.1-127	2.99	30	
4-Nitroaniline	58.6	3.0	ug/L	65.0		90.1	56-122	3.52	30	
4,6-Dinitro-2-methylphenol	98.3	10.0	ug/L	115		85.5	37.9-162	0.03	30	
N-Nitrosodiphenylamine	19.2	1.0	ug/L	25.0		76.7	59.6-120	0.88	30	
4-Bromophenyl phenyl ether	20.9	1.0	ug/L	25.0		83.5	59.6-120	0.57	30	
Hexachlorobenzene	19.6	1.0	ug/L	25.0		78.4	53.7-120	2.82	30	
Pentachlorophenol	60.3	10.0	ug/L	65.0		92.8	40.3-128	0.53	30	
Phenanthrene	20.9	1.0	ug/L	25.0		83.5	58.8-120	0.08	30	
Anthracene	20.6	1.0	ug/L	25.0		82.4	60.5-120	0.41	30	
Carbazole	20.5	1.0	ug/L	25.0		82.1	59.7-120	1.55	30	
Di-n-Butylphthalate	22.5	1.0	ug/L	25.0		89.9	71-120	0.60	30	
Fluoranthene	20.8	1.0	ug/L	25.0		83.3	66.7-120	0.12	30	
Pyrene	21.6	1.0	ug/L	25.0		86.4	62.7-127	3.59	30	
Butylbenzylphthalate	22.8	1.0	ug/L	25.0		91.2	67.4-128	0.15	30	
Benzo(a)anthracene	20.4	1.0	ug/L	25.0		81.7	58.3-128	2.38	30	
3,3'-Dichlorobenzidine	48.5	5.0	ug/L	65.0		74.7	34.1-120	5.56	30	
Chrysene	20.4	1.0	ug/L	25.0		81.6	58.9-120	0.60	30	



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Semivolatile Organic Compounds - Quality Control

Batch BIC0276 - 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
LCS Dup (BIC0276-BSD1)		Prepared: 17-Mar-2020 Analyzed: 20-Mar-2020 12:16								
bis(2-Ethylhexyl)phthalate	21.6	3.0	ug/L	25.0		86.2	68.3-123	1.66	30	
Di-n-Octylphthalate	21.0	1.0	ug/L	25.0		83.9	61.5-120	0.02	30	
Benzo(a)pyrene	20.3	1.0	ug/L	25.0		81.1	70.6-120	0.51	30	
Indeno(1,2,3-cd)pyrene	21.3	1.0	ug/L	25.0		85.2	46.5-120	0.86	30	
Dibenzo(a,h)anthracene	21.4	1.0	ug/L	25.0		85.7	49.6-120	1.85	30	
Benzo(g,h,i)perylene	20.9	1.0	ug/L	25.0		83.5	37-120	1.43	30	
Benzo(a)fluoranthene, Total	42.2	2.0	ug/L	50.0		84.4	66.5-120	0.14	30	
1-Methylnaphthalene	17.6	1.0	ug/L	25.0		70.4	46.9-120	1.26	30	
Surrogate: 2-Fluorophenol	25.2		ug/L	37.5		67.3	33-120			
Surrogate: Phenol-d5	26.5		ug/L	37.5		70.7	38-120			
Surrogate: 2-Chlorophenol-d4	25.9		ug/L	37.5		69.2	41-120			
Surrogate: 1,2-Dichlorobenzene-d4	14.3		ug/L	25.0		57.2	20-120			
Surrogate: Nitrobenzene-d5	18.0		ug/L	25.0		71.9	27-120			
Surrogate: 2-Fluorobiphenyl	16.4		ug/L	25.0		65.7	33-120			
Surrogate: 2,4,6-Tribromophenol	27.1		ug/L	37.5		72.2	52-120			
Surrogate: p-Terphenyl-d14	17.8		ug/L	25.0		71.4	28-120			



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Project Manager: Gary Zimmerman

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Semivolatile Organic Compounds - Quality Control

Batch BIC0608 - EPA 3520C (Liq Liq)

Instrument: NT6 Analyst: VAN/JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIC0608-BLK1)		Prepared: 27-Mar-2020 Analyzed: 28-Mar-2020 11:30								
Phenol	ND	1.0	ug/L							U
bis(2-chloroethyl) ether	ND	1.0	ug/L							U
2-Chlorophenol	ND	1.0	ug/L							U
1,3-Dichlorobenzene	ND	1.0	ug/L							U
1,4-Dichlorobenzene	ND	1.0	ug/L							U
Benzyl Alcohol	ND	2.0	ug/L							U
1,2-Dichlorobenzene	ND	1.0	ug/L							U
2-Methylphenol	ND	1.0	ug/L							U
2,2'-Oxybis(1-chloropropane)	ND	1.0	ug/L							U
4-Methylphenol	ND	2.0	ug/L							U
N-Nitroso-di-n-Propylamine	ND	1.0	ug/L							U
Hexachloroethane	ND	2.0	ug/L							U
Nitrobenzene	ND	1.0	ug/L							U
Isophorone	ND	1.0	ug/L							U
2-Nitrophenol	ND	3.0	ug/L							U
2,4-Dimethylphenol	ND	3.0	ug/L							U
Bis(2-Chloroethoxy)methane	ND	1.0	ug/L							U
Benzoic acid	ND	20.0	ug/L							U
2,4-Dichlorophenol	ND	3.0	ug/L							U
1,2,4-Trichlorobenzene	ND	1.0	ug/L							U
Naphthalene	ND	1.0	ug/L							U
4-Chloroaniline	ND	5.0	ug/L							U
Hexachlorobutadiene	ND	3.0	ug/L							U
4-Chloro-3-Methylphenol	ND	3.0	ug/L							U
2-Methylnaphthalene	ND	1.0	ug/L							U
Hexachlorocyclopentadiene	ND	5.0	ug/L							U
2,4,6-Trichlorophenol	ND	3.0	ug/L							U
2,4,5-Trichlorophenol	ND	5.0	ug/L							U
2-Chloronaphthalene	ND	1.0	ug/L							U
2-Nitroaniline	ND	3.0	ug/L							U
Dimethylphthalate	ND	1.0	ug/L							U
Acenaphthylene	ND	1.0	ug/L							U
2,6-Dinitrotoluene	ND	3.0	ug/L							U
3-Nitroaniline	ND	3.0	ug/L							U
Acenaphthene	ND	1.0	ug/L							U



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Semivolatile Organic Compounds - Quality Control

Batch BIC0608 - EPA 3520C (Liq Liq)

Instrument: NT6 Analyst: VAN/JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIC0608-BLK1)		Prepared: 27-Mar-2020 Analyzed: 28-Mar-2020 11:30								
2,4-Dinitrophenol	ND	20.0	ug/L							U
Dibenzofuran	ND	1.0	ug/L							U
4-Nitrophenol	ND	10.0	ug/L							U
2,4-Dinitrotoluene	ND	3.0	ug/L							U
Fluorene	ND	1.0	ug/L							U
Diethyl phthalate	ND	1.0	ug/L							U
4-Chlorophenylphenyl ether	ND	1.0	ug/L							U
4-Nitroaniline	ND	3.0	ug/L							U
4,6-Dinitro-2-methylphenol	ND	10.0	ug/L							U
N-Nitrosodiphenylamine	ND	1.0	ug/L							U
4-Bromophenyl phenyl ether	ND	1.0	ug/L							U
Hexachlorobenzene	ND	1.0	ug/L							U
Pentachlorophenol	ND	10.0	ug/L							U
Phenanthrene	ND	1.0	ug/L							U
Anthracene	ND	1.0	ug/L							U
Carbazole	ND	1.0	ug/L							U
Di-n-Butylphthalate	ND	1.0	ug/L							U
Fluoranthene	ND	1.0	ug/L							U
Pyrene	ND	1.0	ug/L							U
Butylbenzylphthalate	ND	1.0	ug/L							U
Benzo(a)anthracene	ND	1.0	ug/L							U
3,3'-Dichlorobenzidine	ND	5.0	ug/L							U
Chrysene	ND	1.0	ug/L							U
bis(2-Ethylhexyl)phthalate	ND	3.0	ug/L							U
Di-n-Octylphthalate	ND	1.0	ug/L							U
Benzo(a)pyrene	ND	1.0	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	1.0	ug/L							U
Dibenzo(a,h)anthracene	ND	1.0	ug/L							U
Benzo(g,h,i)perylene	ND	1.0	ug/L							U
Benzo(a)fluoranthene, Total	ND	2.0	ug/L							U
1-Methylnaphthalene	ND	1.0	ug/L							U
Surrogate: 2-Fluorophenol	23.2		ug/L	37.5		61.8	33-120			
Surrogate: Phenol-d5	24.0		ug/L	37.5		64.1	38-120			
Surrogate: 2-Chlorophenol-d4	24.5		ug/L	37.5		65.4	41-120			
Surrogate: 1,2-Dichlorobenzene-d4	13.8		ug/L	25.0		55.1	20-120			



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Semivolatile Organic Compounds - Quality Control

Batch BIC0608 - EPA 3520C (Liq Liq)

Instrument: NT6 Analyst: VAN/JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIC0608-BLK1)		Prepared: 27-Mar-2020 Analyzed: 28-Mar-2020 11:30								
Surrogate: Nitrobenzene-d5	16.0		ug/L	25.0		63.9	27-120			
Surrogate: 2-Fluorobiphenyl	15.1		ug/L	25.0		60.3	33-120			
Surrogate: 2,4,6-Tribromophenol	24.7		ug/L	37.5		65.9	52-120			
Surrogate: p-Terphenyl-d14	17.2		ug/L	25.0		68.9	28-120			
LCS (BIC0608-BS1)		Prepared: 27-Mar-2020 Analyzed: 28-Mar-2020 12:03								
Phenol	21.2	1.0	ug/L	25.0		84.6	35-120			
bis(2-chloroethyl) ether	20.2	1.0	ug/L	25.0		80.6	46.5-120			
2-Chlorophenol	19.1	1.0	ug/L	25.0		76.6	48-120			
1,3-Dichlorobenzene	16.2	1.0	ug/L	25.0		64.8	34.2-120			
1,4-Dichlorobenzene	17.0	1.0	ug/L	25.0		67.8	36-120			
Benzyl Alcohol	21.1	2.0	ug/L	25.0		84.3	27.4-120			
1,2-Dichlorobenzene	16.7	1.0	ug/L	25.0		67.0	38.4-120			
2-Methylphenol	20.0	1.0	ug/L	25.0		79.9	47.8-120			
2,2'-Oxybis(1-chloropropane)	19.3	1.0	ug/L	25.0		77.0	40.4-120			
4-Methylphenol	21.4	2.0	ug/L	25.0		85.5	52.3-120			
N-Nitroso-di-n-Propylamine	20.2	1.0	ug/L	25.0		80.6	51.4-120			
Hexachloroethane	16.0	2.0	ug/L	25.0		64.0	29.5-120			
Nitrobenzene	20.6	1.0	ug/L	25.0		82.6	51.5-120			
Isophorone	26.6	1.0	ug/L	25.0		106	62.3-128			
2-Nitrophenol	19.9	3.0	ug/L	25.0		79.4	58.6-124			
2,4-Dimethylphenol	49.1	3.0	ug/L	65.0		75.5	38.5-120			
Bis(2-Chloroethoxy)methane	21.6	1.0	ug/L	25.0		86.3	52.9-120			
Benzoic acid	103	20.0	ug/L	115		89.2	38.2-120			
2,4-Dichlorophenol	49.0	3.0	ug/L	65.0		75.4	43.6-120			
1,2,4-Trichlorobenzene	17.0	1.0	ug/L	25.0		67.9	38.6-120			
Naphthalene	18.8	1.0	ug/L	25.0		75.3	40.5-120			
4-Chloroaniline	53.2	5.0	ug/L	65.0		81.9	42.7-120			
Hexachlorobutadiene	15.3	3.0	ug/L	25.0		61.2	32.3-120			
4-Chloro-3-Methylphenol	54.4	3.0	ug/L	65.0		83.8	51.9-120			
2-Methylnaphthalene	18.9	1.0	ug/L	25.0		75.7	47.3-120			
Hexachlorocyclopentadiene	35.9	5.0	ug/L	65.0		55.3	23.3-120			
2,4,6-Trichlorophenol	51.6	3.0	ug/L	65.0		79.4	47-120			
2,4,5-Trichlorophenol	52.5	5.0	ug/L	65.0		80.8	48.4-120			
2-Chloronaphthalene	18.3	1.0	ug/L	25.0		73.3	47.7-123			



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Reported:
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Semivolatile Organic Compounds - Quality Control

Batch BIC0608 - EPA 3520C (Liq Liq)

Instrument: NT6 Analyst: VAN/JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BIC0608-BS1)		Prepared: 27-Mar-2020 Analyzed: 28-Mar-2020 12:03								
2-Nitroaniline	62.9	3.0	ug/L	65.0		96.8	56.8-120			
Dimethylphthalate	20.5	1.0	ug/L	25.0		82.1	65.2-125			
Acenaphthylene	19.4	1.0	ug/L	25.0		77.5	44.1-120			
2,6-Dinitrotoluene	58.2	3.0	ug/L	65.0		89.6	69.3-140			
3-Nitroaniline	59.4	3.0	ug/L	65.0		91.5	60.9-120			
Acenaphthene	19.5	1.0	ug/L	25.0		78.0	50.4-120			
2,4-Dinitrophenol	101	20.0	ug/L	115		87.5	33.7-183			
Dibenzofuran	20.2	1.0	ug/L	25.0		80.9	49.9-120			
4-Nitrophenol	54.3	10.0	ug/L	65.0		83.5	50.2-136			
2,4-Dinitrotoluene	56.7	3.0	ug/L	65.0		87.2	66.8-132			
Fluorene	20.1	1.0	ug/L	25.0		80.3	57.8-120			
Diethyl phthalate	21.2	1.0	ug/L	25.0		84.8	68.1-120			
4-Chlorophenylphenyl ether	20.9	1.0	ug/L	25.0		83.8	59.1-127			
4-Nitroaniline	55.5	3.0	ug/L	65.0		85.4	56-122			
4,6-Dinitro-2-methylphenol	99.3	10.0	ug/L	115		86.3	37.9-162			
N-Nitrosodiphenylamine	19.7	1.0	ug/L	25.0		79.0	59.6-120			
4-Bromophenyl phenyl ether	20.1	1.0	ug/L	25.0		80.5	59.6-120			
Hexachlorobenzene	19.0	1.0	ug/L	25.0		76.0	53.7-120			
Pentachlorophenol	60.4	10.0	ug/L	65.0		92.9	40.3-128			
Phenanthrene	20.1	1.0	ug/L	25.0		80.3	58.8-120			
Anthracene	20.2	1.0	ug/L	25.0		80.7	60.5-120			
Carbazole	19.3	1.0	ug/L	25.0		77.0	59.7-120			
Di-n-Butylphthalate	21.9	1.0	ug/L	25.0		87.5	71-120			
Fluoranthene	20.0	1.0	ug/L	25.0		80.2	66.7-120			
Pyrene	22.7	1.0	ug/L	25.0		90.9	62.7-127			
Butylbenzylphthalate	23.2	1.0	ug/L	25.0		92.9	67.4-128			
Benzo(a)anthracene	20.2	1.0	ug/L	25.0		81.0	58.3-128			
3,3'-Dichlorobenzidine	58.2	5.0	ug/L	65.0		89.5	34.1-120			Q
Chrysene	20.0	1.0	ug/L	25.0		79.9	58.9-120			
bis(2-Ethylhexyl)phthalate	21.8	3.0	ug/L	25.0		87.3	68.3-123			
Di-n-Octylphthalate	20.2	1.0	ug/L	25.0		81.0	61.5-120			
Benzo(a)pyrene	20.1	1.0	ug/L	25.0		80.3	70.6-120			
Indeno(1,2,3-cd)pyrene	18.1	1.0	ug/L	25.0		72.4	46.5-120			
Dibenzo(a,h)anthracene	18.1	1.0	ug/L	25.0		72.3	49.6-120			
Benzo(g,h,i)perylene	17.8	1.0	ug/L	25.0		71.0	37-120			



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Project Manager: Gary Zimmerman

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Semivolatile Organic Compounds - Quality Control

Batch BIC0608 - EPA 3520C (Liq Liq)

Instrument: NT6 Analyst: VAN/JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BIC0608-BS1) Prepared: 27-Mar-2020 Analyzed: 28-Mar-2020 12:03										
Benzofluoranthenes, Total	41.9	2.0	ug/L	50.0		83.7	66.5-120			
1-Methylnaphthalene	18.0	1.0	ug/L	25.0		72.0	46.9-120			
Surrogate: 2-Fluorophenol	25.5		ug/L	37.5		68.0	33-120			
Surrogate: Phenol-d5	26.5		ug/L	37.5		70.8	38-120			
Surrogate: 2-Chlorophenol-d4	26.1		ug/L	37.5		69.7	41-120			
Surrogate: 1,2-Dichlorobenzene-d4	15.1		ug/L	25.0		60.4	20-120			
Surrogate: Nitrobenzene-d5	18.1		ug/L	25.0		72.6	27-120			
Surrogate: 2-Fluorobiphenyl	16.7		ug/L	25.0		66.9	33-120			
Surrogate: 2,4,6-Tribromophenol	28.5		ug/L	37.5		76.0	52-120			
Surrogate: p-Terphenyl-d14	18.6		ug/L	25.0		74.3	28-120			
LCS Dup (BIC0608-BSD1) Prepared: 27-Mar-2020 Analyzed: 28-Mar-2020 12:35										
Phenol	22.0	1.0	ug/L	25.0		88.0	35-120	3.89	30	
bis(2-chloroethyl) ether	20.8	1.0	ug/L	25.0		83.4	46.5-120	3.33	30	
2-Chlorophenol	19.9	1.0	ug/L	25.0		79.6	48-120	3.90	30	
1,3-Dichlorobenzene	15.0	1.0	ug/L	25.0		60.1	34.2-120	7.55	30	
1,4-Dichlorobenzene	15.8	1.0	ug/L	25.0		63.3	36-120	6.88	30	
Benzyl Alcohol	22.6	2.0	ug/L	25.0		90.3	27.4-120	6.87	30	
1,2-Dichlorobenzene	16.1	1.0	ug/L	25.0		64.5	38.4-120	3.85	30	
2-Methylphenol	21.4	1.0	ug/L	25.0		85.6	47.8-120	6.95	30	
2,2'-Oxybis(1-chloropropane)	20.3	1.0	ug/L	25.0		81.0	40.4-120	5.04	30	
4-Methylphenol	22.5	2.0	ug/L	25.0		90.0	52.3-120	5.13	30	
N-Nitroso-di-n-Propylamine	21.2	1.0	ug/L	25.0		84.9	51.4-120	5.17	30	
Hexachloroethane	14.3	2.0	ug/L	25.0		57.0	29.5-120	11.60	30	
Nitrobenzene	21.7	1.0	ug/L	25.0		86.7	51.5-120	4.91	30	
Isophorone	27.7	1.0	ug/L	25.0		111	62.3-128	4.11	30	
2-Nitrophenol	21.0	3.0	ug/L	25.0		83.9	58.6-124	5.41	30	
2,4-Dimethylphenol	51.8	3.0	ug/L	65.0		79.7	38.5-120	5.41	30	
Bis(2-Chloroethoxy)methane	22.3	1.0	ug/L	25.0		89.2	52.9-120	3.31	30	
Benzoic acid	108	20.0	ug/L	115		93.7	38.2-120	4.90	30	
2,4-Dichlorophenol	51.2	3.0	ug/L	65.0		78.7	43.6-120	4.37	30	
1,2,4-Trichlorobenzene	16.0	1.0	ug/L	25.0		64.1	38.6-120	5.77	30	
Naphthalene	19.0	1.0	ug/L	25.0		76.2	40.5-120	1.14	30	
4-Chloroaniline	55.5	5.0	ug/L	65.0		85.5	42.7-120	4.30	30	
Hexachlorobutadiene	12.9	3.0	ug/L	25.0		51.5	32.3-120	17.10	30	



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

Reported:
06-Apr-2020 09:12

Semivolatile Organic Compounds - Quality Control

Batch BIC0608 - EPA 3520C (Liq Liq)

Instrument: NT6 Analyst: VAN/JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BIC0608-BSD1)		Prepared: 27-Mar-2020 Analyzed: 28-Mar-2020 12:35								
4-Chloro-3-Methylphenol	56.4	3.0	ug/L	65.0		86.8	51.9-120	3.54	30	
2-Methylnaphthalene	19.2	1.0	ug/L	25.0		76.6	47.3-120	1.21	30	
Hexachlorocyclopentadiene	33.2	5.0	ug/L	65.0		51.1	23.3-120	7.98	30	
2,4,6-Trichlorophenol	54.3	3.0	ug/L	65.0		83.5	47-120	5.11	30	
2,4,5-Trichlorophenol	55.1	5.0	ug/L	65.0		84.7	48.4-120	4.74	30	
2-Chloronaphthalene	18.8	1.0	ug/L	25.0		75.3	47.7-123	2.59	30	
2-Nitroaniline	66.7	3.0	ug/L	65.0		103	56.8-120	5.81	30	
Dimethylphthalate	21.5	1.0	ug/L	25.0		85.8	65.2-125	4.42	30	
Acenaphthylene	20.3	1.0	ug/L	25.0		81.2	44.1-120	4.73	30	
2,6-Dinitrotoluene	60.8	3.0	ug/L	65.0		93.6	69.3-140	4.39	30	
3-Nitroaniline	62.9	3.0	ug/L	65.0		96.8	60.9-120	5.63	30	
Acenaphthene	20.1	1.0	ug/L	25.0		80.4	50.4-120	3.01	30	
2,4-Dinitrophenol	108	20.0	ug/L	115		94.0	33.7-183	7.21	30	
Dibenzofuran	21.0	1.0	ug/L	25.0		84.1	49.9-120	3.98	30	
4-Nitrophenol	57.8	10.0	ug/L	65.0		89.0	50.2-136	6.34	30	
2,4-Dinitrotoluene	59.4	3.0	ug/L	65.0		91.4	66.8-132	4.70	30	
Fluorene	20.8	1.0	ug/L	25.0		83.2	57.8-120	3.55	30	
Diethyl phthalate	22.4	1.0	ug/L	25.0		89.8	68.1-120	5.65	30	
4-Chlorophenylphenyl ether	21.4	1.0	ug/L	25.0		85.6	59.1-127	2.13	30	
4-Nitroaniline	61.2	3.0	ug/L	65.0		94.2	56-122	9.70	30	
4,6-Dinitro-2-methylphenol	104	10.0	ug/L	115		90.6	37.9-162	4.81	30	
N-Nitrosodiphenylamine	20.5	1.0	ug/L	25.0		82.1	59.6-120	3.94	30	
4-Bromophenyl phenyl ether	21.0	1.0	ug/L	25.0		83.8	59.6-120	4.11	30	
Hexachlorobenzene	19.9	1.0	ug/L	25.0		79.7	53.7-120	4.79	30	
Pentachlorophenol	63.5	10.0	ug/L	65.0		97.8	40.3-128	5.14	30	
Phenanthrene	21.1	1.0	ug/L	25.0		84.5	58.8-120	5.03	30	
Anthracene	21.2	1.0	ug/L	25.0		84.6	60.5-120	4.80	30	
Carbazole	20.7	1.0	ug/L	25.0		82.8	59.7-120	7.18	30	
Di-n-Butylphthalate	22.9	1.0	ug/L	25.0		91.5	71-120	4.45	30	
Fluoranthene	21.2	1.0	ug/L	25.0		84.6	66.7-120	5.37	30	
Pyrene	23.1	1.0	ug/L	25.0		92.2	62.7-127	1.41	30	
Butylbenzylphthalate	24.1	1.0	ug/L	25.0		96.5	67.4-128	3.78	30	
Benzo(a)anthracene	21.0	1.0	ug/L	25.0		84.0	58.3-128	3.68	30	
3,3'-Dichlorobenzidine	61.2	5.0	ug/L	65.0		94.2	34.1-120	5.10	30	Q
Chrysene	20.7	1.0	ug/L	25.0		82.7	58.9-120	3.38	30	



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Project Manager: Gary Zimmerman

Reported:
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Semivolatile Organic Compounds - Quality Control

Batch BIC0608 - EPA 3520C (Liq Liq)

Instrument: NT6 Analyst: VAN/JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BIC0608-BSD1)		Prepared: 27-Mar-2020 Analyzed: 28-Mar-2020 12:35								
bis(2-Ethylhexyl)phthalate	23.6	3.0	ug/L	25.0		94.5	68.3-123	7.90	30	
Di-n-Octylphthalate	21.1	1.0	ug/L	25.0		84.4	61.5-120	4.08	30	
Benzo(a)pyrene	21.0	1.0	ug/L	25.0		83.9	70.6-120	4.43	30	
Indeno(1,2,3-cd)pyrene	18.8	1.0	ug/L	25.0		75.2	46.5-120	3.89	30	
Dibenzo(a,h)anthracene	19.2	1.0	ug/L	25.0		76.9	49.6-120	6.06	30	
Benzo(g,h,i)perylene	18.7	1.0	ug/L	25.0		75.0	37-120	5.45	30	
Benzo(a)fluoranthene, Total	43.3	2.0	ug/L	50.0		86.6	66.5-120	3.30	30	
1-Methylnaphthalene	18.5	1.0	ug/L	25.0		74.1	46.9-120	2.89	30	
Surrogate: 2-Fluorophenol	26.2		ug/L	37.5		69.9	33-120			
Surrogate: Phenol-d5	27.3		ug/L	37.5		72.8	38-120			
Surrogate: 2-Chlorophenol-d4	27.0		ug/L	37.5		71.9	41-120			
Surrogate: 1,2-Dichlorobenzene-d4	14.6		ug/L	25.0		58.5	20-120			
Surrogate: Nitrobenzene-d5	18.5		ug/L	25.0		73.9	27-120			
Surrogate: 2-Fluorobiphenyl	17.0		ug/L	25.0		68.1	33-120			
Surrogate: 2,4,6-Tribromophenol	29.9		ug/L	37.5		79.7	52-120			
Surrogate: p-Terphenyl-d14	18.5		ug/L	25.0		74.2	28-120			



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Project Manager: Gary Zimmerman

Reported:
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Semivolatile Organic Compounds - SIM - Quality Control

Batch BIC0277 - EPA 3520C (Liq Liq)

Instrument: NT6 Analyst: JZ

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BIC0277-BLK1) Prepared: 18-Mar-2020 Analyzed: 26-Mar-2020 11:05									
1,4-Dioxane	ND	0.4	ug/L						U
Surrogate: 1,4-Dioxane-d8	6.03		ug/L	10.0	60.3	33.6-120			
LCS (BIC0277-BS1) Prepared: 18-Mar-2020 Analyzed: 26-Mar-2020 11:30									
1,4-Dioxane	6.6	0.4	ug/L	10.0	66.2	39.9-120			
Surrogate: 1,4-Dioxane-d8	6.09		ug/L	10.0	60.9	33.6-120			
LCS Dup (BIC0277-BSD1) Prepared: 18-Mar-2020 Analyzed: 26-Mar-2020 11:55									
1,4-Dioxane	7.1	0.4	ug/L	10.0	70.6	39.9-120	6.33	30	
Surrogate: 1,4-Dioxane-d8	6.09		ug/L	10.0	60.9	33.6-120			



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Petroleum Hydrocarbons - Quality Control

Batch BIC0272 - EPA 3510C SepF

Instrument: FID4 Analyst: CTO

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BIC0272-BLK1)		Prepared: 13-Mar-2020 Analyzed: 16-Mar-2020 11:23							
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	0.142		mg/L	0.225	63.3	50-150			
Surrogate: n-Triacontane	0.159		mg/L	0.225	70.5	50-150			



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Project Manager: Gary Zimmerman

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Chlorinated Pesticides - Quality Control

Batch BIC0278 - EPA 3510C SepF

Instrument: ECD6 Analyst: YZ/JGR

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIC0278-BLK1)		Prepared: 18-Mar-2020 Analyzed: 21-Mar-2020 17:19								
alpha-BHC	ND	0.025	ug/L							U
beta-BHC	ND	0.025	ug/L							U
gamma-BHC (Lindane)	ND	0.025	ug/L							U
delta-BHC	ND	0.025	ug/L							U
Heptachlor	ND	0.025	ug/L							U
Aldrin	ND	0.025	ug/L							U
Heptachlor Epoxide	ND	0.050	ug/L							U
trans-Chlordane (beta-Chlordane)	ND	0.025	ug/L							U
cis-Chlordane (alpha-chlordane)	ND	0.025	ug/L							U
Endosulfan I	ND	0.025	ug/L							U
4,4'-DDE	ND	0.050	ug/L							U
Dieldrin	ND	0.050	ug/L							U
Endrin	ND	0.050	ug/L							U
Endosulfan II	ND	0.050	ug/L							U
4,4'-DDD	ND	0.050	ug/L							U
Endrin Aldehyde	ND	0.050	ug/L							U
4,4'-DDT	ND	0.050	ug/L							U
Endosulfan Sulfate	ND	0.050	ug/L							U
Endrin Ketone	ND	0.050	ug/L							U
Methoxychlor	ND	0.250	ug/L							U
Toxaphene	ND	1.25	ug/L							U
Surrogate: Decachlorobiphenyl	0.269		ug/L	0.400		67.3	11-144			
Surrogate: Decachlorobiphenyl [2C]	0.325		ug/L	0.400		81.2	11-144			
Surrogate: Tetrachlorometaxylene	0.278		ug/L	0.400		69.6	30-120			
Surrogate: Tetrachlorometaxylene [2C]	0.306		ug/L	0.400		76.4	30-120			

LCS (BIC0278-BS1)		Prepared: 18-Mar-2020 Analyzed: 21-Mar-2020 17:37								
alpha-BHC	0.154	0.025	ug/L	0.200		77.2	57-120			
beta-BHC	0.153	0.025	ug/L	0.200		76.4	59-120			
gamma-BHC (Lindane)	0.156	0.025	ug/L	0.200		78.0	62-120			
delta-BHC	0.158	0.025	ug/L	0.200		79.2	15-145			
Heptachlor	0.154	0.025	ug/L	0.200		76.9	54-120			
Aldrin	0.154	0.025	ug/L	0.200		77.2	47-120			
Heptachlor Epoxide	0.157	0.050	ug/L	0.200		78.7	63-120			
trans-Chlordane (beta-Chlordane)	0.150	0.025	ug/L	0.200		75.1	63-120			



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Chlorinated Pesticides - Quality Control

Batch BIC0278 - EPA 3510C SepF

Instrument: ECD6 Analyst: YZ/JGR

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BIC0278-BS1)										
					Prepared: 18-Mar-2020 Analyzed: 21-Mar-2020 17:37					
cis-Chlordane (alpha-chlordane)	0.159	0.025	ug/L	0.200		79.5	60-120			
Endosulfan I	0.161	0.025	ug/L	0.200		80.5	58-121			
4,4'-DDE	0.329	0.050	ug/L	0.400		82.3	69-128			
Dieldrin	0.326	0.050	ug/L	0.400		81.5	62-120			
Endrin	0.293	0.050	ug/L	0.400		73.3	64-120			
Endosulfan II	0.319	0.050	ug/L	0.400		79.7	64-120			
4,4'-DDD	0.308	0.050	ug/L	0.400		77.1	63-120			
Endrin Aldehyde	0.259	0.050	ug/L	0.400		64.8	41-120			
4,4'-DDT	0.287	0.050	ug/L	0.400		71.6	57-124			
Endosulfan Sulfate	0.285	0.050	ug/L	0.400		71.2	47-120			
Endrin Ketone	0.305	0.050	ug/L	0.400		76.4	58-120			
Methoxychlor	1.42	0.250	ug/L	2.00		71.2	56-120			
Surrogate: Decachlorobiphenyl	0.277		ug/L	0.400		69.3	11-144			
Surrogate: Decachlorobiphenyl [2C]	0.286		ug/L	0.400		71.6	11-144			
Surrogate: Tetrachlorometaxylene	0.281		ug/L	0.400		70.3	30-120			
Surrogate: Tetrachlorometaxylene [2C]	0.308		ug/L	0.400		76.9	30-120			
LCS Dup (BIC0278-BSD1)										
					Prepared: 18-Mar-2020 Analyzed: 21-Mar-2020 17:55					
alpha-BHC	0.158	0.025	ug/L	0.200		79.2	57-120	2.54	30	
beta-BHC	0.157	0.025	ug/L	0.200		78.5	59-120	4.13	30	
gamma-BHC (Lindane)	0.160	0.025	ug/L	0.200		80.2	62-120	2.79	30	
delta-BHC	0.160	0.025	ug/L	0.200		80.2	15-145	1.26	30	
Heptachlor	0.151	0.025	ug/L	0.200		75.7	54-120	1.57	30	
Aldrin	0.149	0.025	ug/L	0.200		74.5	47-120	3.60	30	
Heptachlor Epoxide	0.161	0.050	ug/L	0.200		80.3	63-120	2.06	30	
trans-Chlordane (beta-Chlordane)	0.152	0.025	ug/L	0.200		76.2	63-120	1.43	30	
cis-Chlordane (alpha-chlordane)	0.162	0.025	ug/L	0.200		81.1	60-120	2.01	30	
Endosulfan I	0.165	0.025	ug/L	0.200		82.5	58-121	2.46	30	
4,4'-DDE	0.342	0.050	ug/L	0.400		85.5	69-128	3.73	30	
Dieldrin	0.338	0.050	ug/L	0.400		84.4	62-120	3.53	30	
Endrin	0.300	0.050	ug/L	0.400		74.9	64-120	2.18	30	
Endosulfan II	0.336	0.050	ug/L	0.400		84.1	64-120	5.32	30	
4,4'-DDD	0.319	0.050	ug/L	0.400		79.8	63-120	3.40	30	
Endrin Aldehyde	0.266	0.050	ug/L	0.400		66.6	41-120	2.79	30	
4,4'-DDT	0.291	0.050	ug/L	0.400		72.7	57-124	1.51	30	



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06-Apr-2020 09:12

Chlorinated Pesticides - Quality Control

Batch BIC0278 - EPA 3510C SepF

Instrument: ECD6 Analyst: YZ/JGR

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BIC0278-BSD1)		Prepared: 18-Mar-2020 Analyzed: 21-Mar-2020 17:55							
Endosulfan Sulfate	0.294	0.050	ug/L	0.400		73.6 47-120	3.25	30	
Endrin Ketone	0.320	0.050	ug/L	0.400		80.1 58-120	4.75	30	
Methoxychlor	1.48	0.250	ug/L	2.00		74.0 56-120	3.88	30	
Surrogate: Decachlorobiphenyl	0.273		ug/L	0.400		68.3 11-144			
Surrogate: Decachlorobiphenyl [2C]	0.264		ug/L	0.400		66.0 11-144			
Surrogate: Tetrachlorometaxylene	0.274		ug/L	0.400		68.4 30-120			
Surrogate: Tetrachlorometaxylene [2C]	0.295		ug/L	0.400		73.9 30-120			



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Reported:
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Aroclor PCB - Quality Control

Batch BIC0275 - EPA 3510C SepF

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIC0275-BLK1)		Prepared: 17-Mar-2020 Analyzed: 18-Mar-2020 16:40								
Aroclor 1016	ND	0.010	ug/L							U
Aroclor 1221	ND	0.010	ug/L							U
Aroclor 1232	ND	0.010	ug/L							U
Aroclor 1242	ND	0.010	ug/L							U
Aroclor 1248	ND	0.010	ug/L							U
Aroclor 1254	ND	0.010	ug/L							U
Aroclor 1260	ND	0.010	ug/L							U
Surrogate: Decachlorobiphenyl	0.00886		ug/L	0.0200		44.3	29-120			
Surrogate: Tetrachlorometaxylene	0.00945		ug/L	0.0200		47.2	32-120			
Surrogate: Decachlorobiphenyl [2C]	0.00838		ug/L	0.0200		41.9	29-120			
Surrogate: Tetrachlorometaxylene [2C]	0.00844		ug/L	0.0200		42.2	32-120			
LCS (BIC0275-BS1)		Prepared: 17-Mar-2020 Analyzed: 18-Mar-2020 17:01								
Aroclor 1016	0.039	0.010	ug/L	0.0500		78.5	54-120			
Aroclor 1260	0.035	0.010	ug/L	0.0500		69.2	51-128			
Surrogate: Decachlorobiphenyl	0.00891		ug/L	0.0200		44.6	29-120			
Surrogate: Tetrachlorometaxylene	0.00878		ug/L	0.0200		43.9	32-120			
Surrogate: Decachlorobiphenyl [2C]	0.00830		ug/L	0.0200		41.5	29-120			
Surrogate: Tetrachlorometaxylene [2C]	0.00796		ug/L	0.0200		39.8	32-120			
LCS Dup (BIC0275-BSD1)		Prepared: 17-Mar-2020 Analyzed: 18-Mar-2020 17:22								
Aroclor 1016	0.040	0.010	ug/L	0.0500		80.8	54-120	2.90	30	
Aroclor 1260	0.034	0.010	ug/L	0.0500		67.6	51-128	2.42	30	
Surrogate: Decachlorobiphenyl	0.00861		ug/L	0.0200		43.0	29-120			
Surrogate: Tetrachlorometaxylene	0.00947		ug/L	0.0200		47.4	32-120			
Surrogate: Decachlorobiphenyl [2C]	0.00798		ug/L	0.0200		39.9	29-120			
Surrogate: Tetrachlorometaxylene [2C]	0.00861		ug/L	0.0200		43.1	32-120			



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

Reported:
06-Apr-2020 09:12

Metals and Metallic Compounds - Quality Control

Batch BIC0312 - TWM EPA 7470A

Instrument: HYDRA Analyst: BLC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIC0312-BLK1)		Prepared: 16-Mar-2020 Analyzed: 17-Mar-2020 16:15								
Mercury	ND	0.00100	mg/L							U
LCS (BIC0312-BS1)		Prepared: 16-Mar-2020 Analyzed: 17-Mar-2020 16:17								
Mercury	0.00199	0.00100	mg/L	0.00200		99.3	80-120			
Duplicate (BIC0312-DUP1)		Source: 20C0167-01 Prepared: 16-Mar-2020 Analyzed: 17-Mar-2020 16:22								
Mercury	ND	0.00100	mg/L		ND					U
Matrix Spike (BIC0312-MS1)		Source: 20C0167-01 Prepared: 16-Mar-2020 Analyzed: 17-Mar-2020 16:24								
Mercury	0.00105	0.00100	mg/L	0.00100	ND	105	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BIC0312-MSD1)		Source: 20C0167-01 Prepared: 16-Mar-2020 Analyzed: 17-Mar-2020 16:26								
Mercury	ND	0.00100	mg/L	0.00100	ND	96.9	75-125			U

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



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

Reported:
06-Apr-2020 09:12

Metals and Metallic Compounds - Quality Control

Batch BIC0424 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: TCH

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIC0424-BLK1)			Prepared: 20-Mar-2020 Analyzed: 20-Mar-2020 21:42								
Antimony	121	ND	0.00300	mg/L							U
Antimony	123	ND	0.00300	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
Blank (BIC0424-BLK2)			Prepared: 20-Mar-2020 Analyzed: 23-Mar-2020 17:03								
Lead	208	ND	0.0100	mg/L							U
LCS (BIC0424-BS1)			Prepared: 20-Mar-2020 Analyzed: 20-Mar-2020 22:20								
Antimony	121	0.0248	0.00300	mg/L	0.0250		99.3	80-120			
Antimony	123	0.0250	0.00300	mg/L	0.0250		100	80-120			
Thallium	205	0.0226	0.00200	mg/L	0.0250		90.5	80-120			
Arsenic	75a	0.0250	0.00300	mg/L	0.0250		99.9	80-120			
Selenium	78	0.0812	0.0250	mg/L	0.0800		102	80-120			
LCS (BIC0424-BS2)			Prepared: 20-Mar-2020 Analyzed: 23-Mar-2020 17:07								
Lead	208	0.0252	0.0100	mg/L	0.0250		101	80-120			
Duplicate (BIC0424-DUP1)			Source: 20C0167-01		Prepared: 20-Mar-2020 Analyzed: 20-Mar-2020 22:03						
Antimony	121	ND	0.00300	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
Duplicate (BIC0424-DUP2)			Source: 20C0167-01		Prepared: 20-Mar-2020 Analyzed: 23-Mar-2020 23:36						
Lead	208	ND	0.0200	mg/L		ND					U
Matrix Spike (BIC0424-MS1)			Source: 20C0167-01		Prepared: 20-Mar-2020 Analyzed: 20-Mar-2020 22:12						
Antimony	121	0.0245	0.00300	mg/L	0.0250	ND	98.0	75-125			
Thallium	205	0.0215	0.00200	mg/L	0.0250	ND	85.8	75-125			
Arsenic	75a	0.0248	0.00300	mg/L	0.0250	ND	99.1	75-125			
Selenium	78	0.0760	0.0250	mg/L	0.0800	ND	94.9	75-125			

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

Matrix Spike (BIC0424-MS2)			Source: 20C0167-01		Prepared: 20-Mar-2020 Analyzed: 23-Mar-2020 23:41						
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06-Apr-2020 09:12

Metals and Metallic Compounds - Quality Control

Batch BIC0424 - 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
Matrix Spike (BIC0424-MS2)		Source: 20C0167-01		Prepared: 20-Mar-2020		Analyzed: 23-Mar-2020 23:41					
Lead	208	0.0245	0.0200	mg/L	0.0250	ND	97.9	75-125			D

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

Matrix Spike Dup (BIC0424-MSD1)		Source: 20C0167-01		Prepared: 20-Mar-2020		Analyzed: 20-Mar-2020 22:16					
Antimony	121	0.0246	0.00300	mg/L	0.0250	ND	98.3	75-125	0.33	20	
Thallium	205	0.0207	0.00200	mg/L	0.0250	ND	82.6	75-125	3.81	20	
Arsenic	75a	0.0244	0.00300	mg/L	0.0250	ND	97.7	75-125	1.45	20	
Selenium	78	0.0747	0.0250	mg/L	0.0800	ND	93.3	75-125	1.73	20	

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

Matrix Spike Dup (BIC0424-MSD2)		Source: 20C0167-01		Prepared: 20-Mar-2020		Analyzed: 23-Mar-2020 23:46					
Lead	208	0.0247	0.0200	mg/L	0.0250	ND	98.6	75-125	0.74	20	D

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



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Reported:
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Metals and Metallic Compounds - Quality Control

Batch BIC0427 - TWC EPA 3010A

Instrument: ICP2 Analyst: TCH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIC0427-BLK1)		Prepared: 20-Mar-2020 Analyzed: 23-Mar-2020 13:24								
Aluminum	ND	1.00	mg/L							U
Barium	ND	0.500	mg/L							U
Beryllium	ND	0.0100	mg/L							U
Cadmium	ND	0.0020	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

LCS (BIC0427-BS1)		Prepared: 20-Mar-2020 Analyzed: 23-Mar-2020 14:05								
Aluminum	1.97	1.00	mg/L	2.00		98.5	80-120			
Barium	1.94	0.500	mg/L	2.00		97.0	80-120			
Beryllium	0.497	0.0100	mg/L	0.500		99.4	80-120			
Cadmium	0.477	0.0020	mg/L	0.500		95.3	80-120			
Calcium	9.40	0.500	mg/L	10.0		94.0	80-120			
Chromium	0.484	0.0100	mg/L	0.500		96.7	80-120			
Cobalt	0.482	0.0100	mg/L	0.500		96.4	80-120			
Copper	0.490	0.0030	mg/L	0.500		98.1	80-120			
Iron	1.94	0.200	mg/L	2.00		96.9	80-120			
Magnesium	10.0	0.500	mg/L	10.0		100	80-120			
Manganese	0.472	0.0100	mg/L	0.500		94.4	80-120			
Nickel	0.480	0.0100	mg/L	0.500		95.9	80-120			
Potassium	9.47	0.500	mg/L	10.0		94.7	80-120			
Silver	0.505	0.0050	mg/L	0.500		101	80-120			
Sodium	9.82	0.500	mg/L	10.0		98.2	80-120			
Vanadium	0.478	0.0030	mg/L	0.500		95.5	80-120			



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Reported:
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Metals and Metallic Compounds - Quality Control

Batch BIC0427 - TWC EPA 3010A

Instrument: ICP2 Analyst: TCH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BIC0427-BS1)					Prepared: 20-Mar-2020 Analyzed: 23-Mar-2020 14:05					
Zinc	0.484	0.0200	mg/L	0.500		96.8	80-120			

Duplicate (BIC0427-DUP1)					Source: 20C0167-01 Prepared: 20-Mar-2020 Analyzed: 23-Mar-2020 13:47					
Aluminum	ND	1.00	mg/L		ND					U
Barium	ND	0.500	mg/L		ND					U
Beryllium	ND	0.0100	mg/L		ND					U
Cadmium	ND	0.0020	mg/L		ND					U
Calcium	106	0.500	mg/L		109			3.12	20	
Chromium	ND	0.0100	mg/L		ND					U
Cobalt	ND	0.0100	mg/L		ND					U
Copper	ND	0.0030	mg/L		ND					U
Iron	ND	0.200	mg/L		ND					U
Magnesium	67.0	0.500	mg/L		69.8			4.17	20	
Manganese	0.191	0.0100	mg/L		0.199			4.10	20	
Nickel	ND	0.0100	mg/L		ND					U
Potassium	3.31	0.500	mg/L		3.47			4.49	20	
Silver	ND	0.0050	mg/L		ND					U
Sodium	18.2	0.500	mg/L		19.1			4.58	20	
Vanadium	ND	0.0030	mg/L		ND					U
Zinc	ND	0.0200	mg/L		ND					U

Matrix Spike (BIC0427-MS1)					Source: 20C0167-01 Prepared: 20-Mar-2020 Analyzed: 23-Mar-2020 13:56					
Aluminum	2.03	1.00	mg/L	2.00	ND	102	75-125			
Barium	2.29	0.500	mg/L	2.00	ND	96.6	75-125			
Beryllium	0.504	0.0100	mg/L	0.500	ND	101	75-125			
Cadmium	0.487	0.0020	mg/L	0.500	ND	97.3	75-125			
Calcium	116	0.500	mg/L	10.0	109	67.7	75-125			HC
Chromium	0.487	0.0100	mg/L	0.500	ND	97.5	75-125			
Cobalt	0.483	0.0100	mg/L	0.500	ND	96.6	75-125			
Copper	0.509	0.0030	mg/L	0.500	ND	102	75-125			
Iron	1.95	0.200	mg/L	2.00	ND	94.9	75-125			
Magnesium	76.9	0.500	mg/L	10.0	69.8	70.9	75-125			HC
Manganese	0.672	0.0100	mg/L	0.500	0.199	94.6	75-125			
Nickel	0.467	0.0100	mg/L	0.500	ND	93.4	75-125			
Potassium	13.3	0.500	mg/L	10.0	3.47	98.1	75-125			



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Metals and Metallic Compounds - Quality Control

Batch BIC0427 - TWC EPA 3010A

Instrument: ICP2 Analyst: TCH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BIC0427-MS1)		Source: 20C0167-01		Prepared: 20-Mar-2020		Analyzed: 23-Mar-2020 13:56				
Silver	0.517	0.0050	mg/L	0.500	ND	103	75-125			
Sodium	29.3	0.500	mg/L	10.0	19.1	102	75-125			
Vanadium	0.484	0.0030	mg/L	0.500	ND	96.6	75-125			
Zinc	0.463	0.0200	mg/L	0.500	ND	92.6	75-125			

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

Matrix Spike Dup (BIC0427-MSD1)		Source: 20C0167-01		Prepared: 20-Mar-2020		Analyzed: 23-Mar-2020 14:00				
Aluminum	2.03	1.00	mg/L	2.00	ND	101	75-125	0.23	20	
Barium	2.30	0.500	mg/L	2.00	ND	97.1	75-125	0.50	20	
Beryllium	0.503	0.0100	mg/L	0.500	ND	101	75-125	0.28	20	
Cadmium	0.482	0.0020	mg/L	0.500	ND	96.5	75-125	0.89	20	
Calcium	116	0.500	mg/L	10.0	109	69.0	75-125	0.11	20	HC
Chromium	0.489	0.0100	mg/L	0.500	ND	97.8	75-125	0.32	20	
Cobalt	0.486	0.0100	mg/L	0.500	ND	97.2	75-125	0.65	20	
Copper	0.503	0.0030	mg/L	0.500	ND	100	75-125	1.17	20	
Iron	1.97	0.200	mg/L	2.00	ND	95.6	75-125	0.67	20	
Magnesium	77.0	0.500	mg/L	10.0	69.8	71.9	75-125	0.13	20	HC
Manganese	0.670	0.0100	mg/L	0.500	0.199	94.2	75-125	0.29	20	
Nickel	0.469	0.0100	mg/L	0.500	ND	93.8	75-125	0.43	20	
Potassium	13.1	0.500	mg/L	10.0	3.47	96.5	75-125	1.23	20	
Silver	0.509	0.0050	mg/L	0.500	ND	102	75-125	1.53	20	
Sodium	29.0	0.500	mg/L	10.0	19.1	99.6	75-125	0.93	20	
Vanadium	0.485	0.0030	mg/L	0.500	ND	96.9	75-125	0.33	20	
Zinc	0.469	0.0200	mg/L	0.500	ND	93.9	75-125	1.44	20	

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



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Project: Landsburg
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Metals and Metallic Compounds - Quality Control

Batch BIC0638 - TWC EPA 3010A

Instrument: ICP2 Analyst: SKM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIC0638-BLK1)		Prepared: 30-Mar-2020 Analyzed: 31-Mar-2020 15:33								
Cobalt	ND	0.0100	mg/L							U
Iron	ND	0.200	mg/L							U
Manganese	ND	0.0100	mg/L							U
LCS (BIC0638-BS1)		Prepared: 30-Mar-2020 Analyzed: 31-Mar-2020 16:13								
Cobalt	0.535	0.0100	mg/L	0.500		107	80-120			
Iron	2.08	0.200	mg/L	2.00		104	80-120			
Manganese	0.521	0.0100	mg/L	0.500		104	80-120			
Duplicate (BIC0638-DUP2)		Source: 20C0167-07RE1		Prepared: 30-Mar-2020 Analyzed: 31-Mar-2020 15:55						
Cobalt	0.0533	0.0100	mg/L		0.0526			1.35	20	
Copper	ND	0.0030	mg/L		ND					U
Iron	55.4	0.200	mg/L		55.0			0.67	20	
Manganese	1.22	0.0100	mg/L		1.20			1.88	20	
Zinc	ND	0.0200	mg/L		ND					U
Matrix Spike (BIC0638-MS2)		Source: 20C0167-07RE1		Prepared: 30-Mar-2020 Analyzed: 31-Mar-2020 16:04						
Cobalt	0.559	0.0100	mg/L	0.500	0.0526	101	75-125			
Iron	55.7	0.200	mg/L	2.00	55.0	32.0	75-125			HC
Manganese	1.69	0.0100	mg/L	0.500	1.20	97.7	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BIC0638-MSD2)		Source: 20C0167-07RE1		Prepared: 30-Mar-2020 Analyzed: 31-Mar-2020 16:09						
Cobalt	0.556	0.0100	mg/L	0.500	0.0526	101	75-125	0.60	20	
Iron	54.8	0.200	mg/L	2.00	55.0	-11.6	75-125	1.58	20	HC
Manganese	1.66	0.0100	mg/L	0.500	1.20	91.6	75-125	1.81	20	

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



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Project: Landsburg
Project Number: Landsburg
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Reported:
06-Apr-2020 09:12

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BIC0637 - WMN (No Prep)

Instrument: ICP2 Analyst: SKM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIC0637-BLK1)		Prepared: 30-Mar-2020 Analyzed: 31-Mar-2020 12:29								
Cobalt, Dissolved	ND	0.0100	mg/L							U
Iron, Dissolved	ND	0.200	mg/L							U
Manganese, Dissolved	ND	0.0100	mg/L							U
LCS (BIC0637-BS1)		Prepared: 30-Mar-2020 Analyzed: 31-Mar-2020 13:01								
Cobalt, Dissolved	0.517	0.0100	mg/L	0.500		103	80-120			
Iron, Dissolved	2.00	0.200	mg/L	2.00		100	80-120			
Manganese, Dissolved	0.507	0.0100	mg/L	0.500		101	80-120			
Duplicate (BIC0637-DUP1)		Source: 20C0167-08		Prepared: 30-Mar-2020 Analyzed: 31-Mar-2020 13:43						
Cobalt, Dissolved	0.0527	0.0100	mg/L		0.0530			0.50	20	
Iron, Dissolved	53.1	0.200	mg/L		53.4			0.49	20	
Manganese, Dissolved	1.17	0.0100	mg/L		1.17			0.24	20	
Matrix Spike (BIC0637-MS1)		Source: 20C0167-08		Prepared: 30-Mar-2020 Analyzed: 31-Mar-2020 13:52						
Cobalt, Dissolved	0.555	0.0100	mg/L	0.500	0.0530	100	75-125			
Iron, Dissolved	54.2	0.200	mg/L	2.00	53.4	43.5	75-125			HC
Manganese, Dissolved	1.66	0.0100	mg/L	0.500	1.17	98.9	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BIC0637-MSD1)		Source: 20C0167-08		Prepared: 30-Mar-2020 Analyzed: 31-Mar-2020 13:57						
Cobalt, Dissolved	0.556	0.0100	mg/L	0.500	0.0530	101	75-125	0.04	20	
Iron, Dissolved	53.8	0.200	mg/L	2.00	53.4	23.1	75-125	0.75	20	HC
Manganese, Dissolved	1.64	0.0100	mg/L	0.500	1.17	95.4	75-125	1.08	20	
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
EPA 200.8 in Water	
Lead-208	NELAP,WADOE,WA-DW,DoD-ELAP
Antimony-121	NELAP,WADOE,WA-DW,DoD-ELAP
Thallium-205	NELAP,WADOE,WA-DW,DoD-ELAP
EPA 200.8 UCT-KED in Water	
Arsenic-75a	NELAP,WADOE,WA-DW,DoD-ELAP
Selenium-78	NELAP,WADOE,WA-DW,DoD-ELAP
EPA 6010C in Water	
Silver	WADOE,NELAP,DoD-ELAP
Aluminum	WADOE,NELAP,DoD-ELAP
Barium	WADOE,NELAP,DoD-ELAP,ADEC
Beryllium	WADOE,NELAP,DoD-ELAP
Calcium	WADOE,NELAP,DoD-ELAP
Cadmium	WADOE,NELAP,DoD-ELAP,ADEC
Cobalt	WADOE,NELAP,DoD-ELAP
Chromium	WADOE,NELAP,DoD-ELAP,ADEC
Copper	WADOE,NELAP,DoD-ELAP
Iron	WADOE,NELAP,DoD-ELAP
Potassium	WADOE,NELAP,DoD-ELAP
Magnesium	WADOE,NELAP,DoD-ELAP
Manganese	WADOE,NELAP,DoD-ELAP
Sodium	DoD-ELAP,WADOE,NELAP
Sodium-1	DoD-ELAP
Nickel	WADOE,NELAP,DoD-ELAP,ADEC
Vanadium	WADOE,NELAP,DoD-ELAP,ADEC
Zinc	WADOE,NELAP,DoD-ELAP
Cobalt	WADOE,NELAP,DoD-ELAP
Iron	WADOE,NELAP,DoD-ELAP
Manganese	WADOE,NELAP,DoD-ELAP
EPA 7470A in Water	
Mercury	WADOE,NELAP,DoD-ELAP,CALAP
EPA 8081B in Water	
alpha-BHC	DoD-ELAP,NELAP,CALAP,WADOE
alpha-BHC [2C]	DoD-ELAP,NELAP,CALAP,WADOE
beta-BHC	DoD-ELAP,NELAP,CALAP,WADOE



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beta-BHC [2C]	DoD-ELAP,NELAP,CALAP,WADOE
gamma-BHC (Lindane)	DoD-ELAP,NELAP,CALAP,WADOE
gamma-BHC (Lindane) [2C]	DoD-ELAP,NELAP,CALAP,WADOE
delta-BHC	DoD-ELAP,NELAP,CALAP,WADOE
delta-BHC [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Heptachlor	DoD-ELAP,NELAP,CALAP,WADOE
Heptachlor [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Aldrin	DoD-ELAP,NELAP,CALAP,WADOE
Aldrin [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Heptachlor Epoxide	DoD-ELAP,NELAP,CALAP,WADOE
Heptachlor Epoxide [2C]	DoD-ELAP,NELAP,CALAP,WADOE
trans-Chlordane (beta-Chlordane)	DoD-ELAP,NELAP,CALAP,WADOE
trans-Chlordane (beta-Chlordane) [2C]	DoD-ELAP,NELAP,CALAP,WADOE
cis-Chlordane (alpha-chlordane)	DoD-ELAP,NELAP,CALAP,WADOE
cis-Chlordane (alpha-chlordane) [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Endosulfan I	DoD-ELAP,NELAP,CALAP,WADOE
Endosulfan I [2C]	DoD-ELAP,NELAP,CALAP,WADOE
4,4'-DDE	DoD-ELAP,NELAP,CALAP,WADOE
4,4'-DDE [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Dieldrin	DoD-ELAP,NELAP,CALAP,WADOE
Dieldrin [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Endrin	DoD-ELAP,NELAP,CALAP,WADOE
Endrin [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Endosulfan II	DoD-ELAP,NELAP,CALAP,WADOE
Endosulfan II [2C]	DoD-ELAP,NELAP,CALAP,WADOE
4,4'-DDD	DoD-ELAP,NELAP,CALAP,WADOE
4,4'-DDD [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Endrin Aldehyde	DoD-ELAP,NELAP,CALAP,WADOE
Endrin Aldehyde [2C]	DoD-ELAP,NELAP,CALAP,WADOE
4,4'-DDT	DoD-ELAP,NELAP,CALAP,WADOE
4,4'-DDT [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Endosulfan Sulfate	DoD-ELAP,NELAP,CALAP,WADOE
Endosulfan Sulfate [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Endrin Ketone	DoD-ELAP,NELAP,CALAP,WADOE
Endrin Ketone [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Methoxychlor	DoD-ELAP,NELAP,CALAP,WADOE
Methoxychlor [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Hexachlorobutadiene	DoD-ELAP,NELAP,CALAP,WADOE
Hexachlorobutadiene [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Hexachlorobenzene	DoD-ELAP,NELAP,CALAP,WADOE



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Hexachlorobenzene [2C]	DoD-ELAP,NELAP,CALAP,WADOE
2,4'-DDE	DoD-ELAP,NELAP,CALAP,WADOE
2,4'-DDE [2C]	DoD-ELAP,NELAP,CALAP,WADOE
2,4'-DDD	DoD-ELAP,NELAP,CALAP,WADOE
2,4'-DDD [2C]	DoD-ELAP,NELAP,CALAP,WADOE
2,4'-DDT	DoD-ELAP,NELAP,CALAP,WADOE
2,4'-DDT [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Oxychlorane	DoD-ELAP,NELAP,CALAP,WADOE
Oxychlorane [2C]	DoD-ELAP,NELAP,CALAP,WADOE
cis-Nonachlor	DoD-ELAP,NELAP,CALAP,WADOE
cis-Nonachlor [2C]	DoD-ELAP,NELAP,CALAP,WADOE
trans-Nonachlor	DoD-ELAP,NELAP,CALAP,WADOE
trans-Nonachlor [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Mirex	DoD-ELAP,NELAP,CALAP,WADOE
Mirex [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Hexachloroethane	DoD-ELAP,NELAP,CALAP
Hexachloroethane [2C]	DoD-ELAP,NELAP,CALAP
Toxaphene	DoD-ELAP,NELAP,CALAP,WADOE
Toxaphene [2C]	DoD-ELAP,NELAP,CALAP,WADOE
Chlordane, technical	DoD-ELAP,NELAP,CALAP,WADOE
Chlordane, technical [2C]	DoD-ELAP,NELAP,CALAP,WADOE

EPA 8082A in Water

Aroclor 1016	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,CALAP,ADEC



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Aroclor 1268 [2C]

WADOE,DoD-ELAP,NELAP,CALAP,ADEC

EPA 8260C in Water

Chloromethane

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

Vinyl Chloride

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

Bromomethane

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

Chloroethane

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

Trichlorofluoromethane

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

Acrolein

DoD-ELAP,NELAP,CALAP,WADOE

1,1,2-Trichloro-1,2,2-Trifluoroethane

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

Acetone

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

1,1-Dichloroethene

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

Bromoethane

DoD-ELAP,NELAP,CALAP,WADOE

Iodomethane

DoD-ELAP,NELAP,CALAP,WADOE

Methylene Chloride

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

Acrylonitrile

DoD-ELAP,NELAP,CALAP,WADOE

Carbon Disulfide

DoD-ELAP,NELAP,CALAP,WADOE

trans-1,2-Dichloroethene

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

Vinyl Acetate

DoD-ELAP,NELAP,CALAP,WADOE

1,1-Dichloroethane

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

2-Butanone

DoD-ELAP,NELAP,CALAP,WADOE

2,2-Dichloropropane

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

cis-1,2-Dichloroethene

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

Chloroform

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

Bromochloromethane

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

1,1,1-Trichloroethane

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

1,1-Dichloropropene

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

Carbon tetrachloride

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

1,2-Dichloroethane

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

Benzene

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

Trichloroethene

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

1,2-Dichloropropane

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

Bromodichloromethane

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

Dibromomethane

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

2-Chloroethyl vinyl ether

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

4-Methyl-2-Pentanone

DoD-ELAP,NELAP,CALAP,WADOE

cis-1,3-Dichloropropene

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

Toluene

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

trans-1,3-Dichloropropene

DoD-ELAP,ADEC,NELAP,CALAP,WADOE

2-Hexanone

DoD-ELAP,NELAP,CALAP,WADOE



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1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Hexane	WADOE
2-Pentanone	WADOE

EPA 8270D in Water



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Phenol	CALAP,WADOE,DoD-ELAP,NELAP
bis(2-chloroethyl) ether	CALAP,WADOE,DoD-ELAP,NELAP
2-Chlorophenol	CALAP,WADOE,DoD-ELAP,NELAP
1,3-Dichlorobenzene	CALAP,WADOE,DoD-ELAP,NELAP
1,4-Dichlorobenzene	CALAP,WADOE,DoD-ELAP,NELAP
Benzyl Alcohol	CALAP,WADOE,DoD-ELAP,NELAP
1,2-Dichlorobenzene	CALAP,WADOE,DoD-ELAP,NELAP
2-Methylphenol	CALAP,WADOE,DoD-ELAP,NELAP
2,2'-Oxybis(1-chloropropane)	DoD-ELAP
4-Methylphenol	CALAP,WADOE,DoD-ELAP,NELAP
N-Nitroso-di-n-Propylamine	CALAP,WADOE,DoD-ELAP,NELAP
Hexachloroethane	CALAP,WADOE,DoD-ELAP,NELAP
Nitrobenzene	CALAP,WADOE,DoD-ELAP,NELAP
Isophorone	CALAP,WADOE,DoD-ELAP,NELAP
2-Nitrophenol	CALAP,WADOE,DoD-ELAP,NELAP
2,4-Dimethylphenol	CALAP,WADOE,DoD-ELAP,NELAP
Bis(2-Chloroethoxy)methane	CALAP,WADOE,DoD-ELAP,NELAP
Benzoic acid	CALAP,WADOE,DoD-ELAP,NELAP
2,4-Dichlorophenol	CALAP,WADOE,DoD-ELAP,NELAP
1,2,4-Trichlorobenzene	CALAP,WADOE,DoD-ELAP,NELAP
Naphthalene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
4-Chloroaniline	CALAP,WADOE,DoD-ELAP,NELAP
Hexachlorobutadiene	CALAP,WADOE,DoD-ELAP,NELAP
4-Chloro-3-Methylphenol	CALAP,WADOE,DoD-ELAP,NELAP
2-Methylnaphthalene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Hexachlorocyclopentadiene	CALAP,WADOE,DoD-ELAP,NELAP
2,4,6-Trichlorophenol	CALAP,WADOE,DoD-ELAP,NELAP
2,4,5-Trichlorophenol	CALAP,WADOE,DoD-ELAP,NELAP
2-Chloronaphthalene	CALAP,WADOE,DoD-ELAP,NELAP
2-Nitroaniline	CALAP,WADOE,DoD-ELAP,NELAP
Dimethylphthalate	CALAP,WADOE,DoD-ELAP,NELAP
Acenaphthylene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
2,6-Dinitrotoluene	CALAP,WADOE,DoD-ELAP,NELAP
3-Nitroaniline	CALAP,WADOE,DoD-ELAP,NELAP
Acenaphthene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
2,4-Dinitrophenol	CALAP,WADOE,DoD-ELAP,NELAP
Dibenzofuran	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
4-Nitrophenol	CALAP,WADOE,DoD-ELAP,NELAP
2,4-Dinitrotoluene	CALAP,WADOE,DoD-ELAP,NELAP
Fluorene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP



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Diethyl phthalate	CALAP,WADOE,DoD-ELAP,NELAP
4-Chlorophenylphenyl ether	CALAP,WADOE,DoD-ELAP,NELAP
4-Nitroaniline	CALAP,WADOE,DoD-ELAP,NELAP
4,6-Dinitro-2-methylphenol	CALAP,WADOE,DoD-ELAP,NELAP
N-Nitrosodiphenylamine	DoD-ELAP
4-Bromophenyl phenyl ether	CALAP,WADOE,DoD-ELAP,NELAP
Hexachlorobenzene	CALAP,WADOE,DoD-ELAP,NELAP
Pentachlorophenol	CALAP,WADOE,DoD-ELAP,NELAP
Phenanthrene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Anthracene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Carbazole	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Di-n-Butylphthalate	CALAP,WADOE,DoD-ELAP,NELAP
Fluoranthene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Pyrene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Butylbenzylphthalate	CALAP,WADOE,DoD-ELAP,NELAP
Benzo(a)anthracene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
3,3'-Dichlorobenzidine	DoD-ELAP
Chrysene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
bis(2-Ethylhexyl)phthalate	CALAP,WADOE,DoD-ELAP,NELAP
Di-n-Octylphthalate	CALAP,WADOE,DoD-ELAP,NELAP
Benzo(b)fluoranthene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Benzo(k)fluoranthene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Benzo(a)pyrene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Indeno(1,2,3-cd)pyrene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Dibenzo(a,h)anthracene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Benzo(g,h,i)perylene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Benzofluoranthenes, Total	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
1-Methylnaphthalene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
N-Nitrosodimethylamine	CALAP,WADOE,DoD-ELAP,NELAP
Aniline	CALAP,WADOE,DoD-ELAP,NELAP
Benzidine	CALAP,WADOE,DoD-ELAP,NELAP
Retene	CALAP,WADOE,ADEC,DoD-ELAP,NELAP
Perylene	CALAP,WADOE,ADEC
Pyridine	CALAP,WADOE,DoD-ELAP,NELAP
N-Nitrosomethylethylamine	CALAP
2,6-Dichlorophenol	CALAP,WADOE
alpha-Terpineol	CALAP,WADOE,DoD-ELAP,NELAP
1,4-Dioxane	CALAP,WADOE,DoD-ELAP,NELAP
2,3,4,6-Tetrachlorophenol	CALAP,WADOE,DoD-ELAP
Triphenyl Phosphate	CALAP,WADOE,DoD-ELAP,NELAP



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Butyl Diphenyl Phosphate	CALAP,WADOE,DoD-ELAP,NELAP
Dibutyl Phenyl Phosphate	CALAP,WADOE,DoD-ELAP,NELAP
Tributyl Phosphate	CALAP,WADOE,DoD-ELAP,NELAP
Butylated Hydroxytoluene	CALAP,WADOE,DoD-ELAP,NELAP
Azobenzene (1,2-DP-Hydrazine)	CALAP,WADOE,DoD-ELAP,NELAP
Tetrachloroguaiacol	CALAP,WADOE,DoD-ELAP
3,4,5-Trichloroguaiacol	CALAP,WADOE
3,4,6-Trichloroguaiacol	CALAP,WADOE
4,5,6-Trichloroguaiacol	CALAP,WADOE
Guaiacol	CALAP,WADOE
1,2,4,5-Tetrachlorobenzene	CALAP,WADOE,DoD-ELAP,NELAP

EPA 8270D-SIM in Water

1,4-Dioxane	WADOE,NELAP,DoD-ELAP
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NWTPH-HCID in Water

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

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2020
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019



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Notes and Definitions

*	Flagged value is not within established control limits.
B	This analyte was detected in the method blank.
D	The reported value is from a dilution
D1	Surrogate was not detected due to sample extract 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.
M	Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
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

28 April 2020

Gary Zimmerman
Golder Associates
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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)
20D0168

Associated SDG ID(s)
N/A

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: 20D0168	Turn-around Requested:
ARI Client Company: Golder	Phone: 425-883-0772
Client Contact: Gary Zimmerman	

Page: 1	of 1
Date: 4/21/20	Ice Present? Yes
No. of Coolers: 1	Cooler Temps: 5.4°C



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

Client Project Name: Landsburg
Client Project #: 9231000006-2020
Samplers: Tom Haskins

					Analysis Requested								Notes/Comments
Sample ID	Date	Time	Matrix	No. Containers	Diss Co, Fe, Mn	Total Co, Fe, Mn	Bis (2-ethyl hexyl) phthalate						
LMW-14-0420	4/21/20	1125	GW	2	X	X							
FB-1-0420		1130	DI	1		X							
LMW-8-0420		1245	GW	2			X						
FB-2-0420		1255	DI	2			X						

Comments/Special Instructions - Ecology EIM EDD - Client specific RLS - Analyze under Wren & NSA w/ Golder	Relinquished by: (Signature) <i>[Signature]</i>	Received by: (Signature) <i>[Signature]</i>	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Tom Haskins	Printed Name: Kenny Dang	Printed Name:	Printed Name:
	Company: Golder	Company: ARI	Company:	Company:
	Date & Time: 4/21/20 1350	Date & Time: 4/21/20 1350	Date & Time:	Date & Time:

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

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

Reported:
28-Apr-2020 08:48

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LMW-14-0420	20D0168-01	Water	21-Apr-2020 11:25	21-Apr-2020 13:50
LMW-14-0420	20D0168-02	Water	21-Apr-2020 11:25	21-Apr-2020 13:50
FB-1-0420	20D0168-03	Water	21-Apr-2020 11:30	21-Apr-2020 13:50
LMW-8-0420	20D0168-04	Water	21-Apr-2020 12:45	21-Apr-2020 13:50
FB-2-0420	20D0168-05	Water	21-Apr-2020 12:55	21-Apr-2020 13:50



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Work Order Case Narrative

Semivolatiles - EPA Method SW8270D

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 LCS percent recoveries were within control limits.

Total and Dissolved Metals - EPA Method 6010C

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 LCS percent recoveries were within control limits.

The matrix spike/matrix spike duplicate recoveries and RPD were within limits.



WORK ORDER

20D0168

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

Preservation Confirmation

Container ID	Container Type	pH	
20D0168-01 A	HDPE NM, 500 mL, 1:1 HNO ₃	5.2	Pass
20D0168-02 A	HDPE NM, 500 mL, 1:1 HNO ₃ (FF)	5.2	Pass
20D0168-03 A	HDPE NM, 500 mL, 1:1 HNO ₃	5.2	Pass
20D0168-04 A	Glass NM, Amber, 500 mL		
20D0168-04 B	Glass NM, Amber, 500 mL		
20D0168-05 A	Glass NM, Amber, 500 mL		
20D0168-05 B	Glass NM, Amber, 500 mL		

IRW
Preservation Confirmed By

04/21/2020
Date



Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Golder

COC No(s): _____ (NA)

Assigned ARI Job No: 2000168

Project Name: Landsburg

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

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

5.4

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

Temp Gun ID#: DOO 5206

Cooler Accepted by: KD Date: 2/21/2020 Time: _____

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)

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

Samples Logged by: KD Date: 4/21/2020 Time: 1355 Labels checked by: KD

**** 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:
LMW-8-0420 labels do not have sample time. COC says 1245.

By: KD Date: 4/21/2020



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LMW-14-0420
20D0168-01 (Water)

Metals and Metallic Compounds

Method: EPA 6010C

Sampled: 04/21/2020 11:25

Instrument: ICP2 Analyst: MCB

Analyzed: 04/27/2020 16:31

Sample Preparation:

Preparation Method: TWC EPA 3010A

Extract ID: 20D0168-01 A 02

Preparation Batch: BID0363

Sample Size: 25 mL

Prepared: 04/24/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cobalt	7440-48-4	1	0.0002	0.0030	0.0402	mg/L	
Iron	7439-89-6	1	0.0013	0.0500	24.2	mg/L	
Manganese	7439-96-5	1	0.0003	0.0010	0.702	mg/L	



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LMW-14-0420
20D0168-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6010C

Sampled: 04/21/2020 11:25

Instrument: ICP2 Analyst: MCB

Analyzed: 04/27/2020 15:32

Sample Preparation:

Preparation Method: WMN (No Prep)

Extract ID: 20D0168-02 A 01

Preparation Batch: BID0378

Sample Size: 25 mL

Prepared: 04/24/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cobalt, Dissolved	7440-48-4	1	0.0002	0.0030	0.0430	mg/L	
Iron, Dissolved	7439-89-6	1	0.0013	0.0500	24.3	mg/L	
Manganese, Dissolved	7439-96-5	1	0.0003	0.0010	0.722	mg/L	



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FB-1-0420
20D0168-03 (Water)

Metals and Metallic Compounds

Method: EPA 6010C	Sampled: 04/21/2020 11:30
Instrument: ICP2 Analyst: MCB	Analyzed: 04/27/2020 15:18
Sample Preparation:	Preparation Method: TWC EPA 3010A
	Preparation Batch: BID0363
	Prepared: 04/24/2020
	Sample Size: 25 mL
	Final Volume: 25 mL
	Extract ID: 20D0168-03 A 02

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cobalt	7440-48-4	1	0.0002	0.0030	ND	mg/L	U
Iron	7439-89-6	1	0.0013	0.0500	0.0020	mg/L	J
Manganese	7439-96-5	1	0.0003	0.0010	ND	mg/L	U



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LMW-8-0420
20D0168-04 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D	Sampled: 04/21/2020 12:45
Instrument: NT6 Analyst: JZ	Analyzed: 04/24/2020 15:18
Sample Preparation:	Extract ID: 20D0168-04 A 01
Preparation Method: EPA 3520C (Liq Liq)	
Preparation Batch: BID0299	Sample Size: 500 mL
Prepared: 04/22/2020	Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			33-120 %	66.9	%	
Surrogate: Phenol-d5			38-120 %	69.3	%	
Surrogate: 2-Chlorophenol-d4			41-120 %	67.5	%	
Surrogate: 1,2-Dichlorobenzene-d4			20-120 %	58.1	%	
Surrogate: Nitrobenzene-d5			27-120 %	65.7	%	
Surrogate: 2-Fluorobiphenyl			33-120 %	62.8	%	
Surrogate: 2,4,6-Tribromophenol			52-120 %	63.1	%	
Surrogate: p-Terphenyl-d14			28-120 %	78.4	%	



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FB-2-0420
20D0168-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D	Sampled: 04/21/2020 12:55
Instrument: NT6 Analyst: JZ	Analyzed: 04/24/2020 15:51
Sample Preparation:	Extract ID: 20D0168-05 A 01
Preparation Method: EPA 3520C (Liq Liq)	
Preparation Batch: BID0299	Sample Size: 500 mL
Prepared: 04/22/2020	Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
bis(2-Ethylhexyl)phthalate	117-81-7	1	3.0	ND	ug/L	U
Surrogate: 2-Fluorophenol			33-120 %	68.5	%	
Surrogate: Phenol-d5			38-120 %	71.6	%	
Surrogate: 2-Chlorophenol-d4			41-120 %	71.6	%	
Surrogate: 1,2-Dichlorobenzene-d4			20-120 %	57.6	%	
Surrogate: Nitrobenzene-d5			27-120 %	69.4	%	
Surrogate: 2-Fluorobiphenyl			33-120 %	66.9	%	
Surrogate: 2,4,6-Tribromophenol			52-120 %	63.0	%	
Surrogate: p-Terphenyl-d14			28-120 %	79.2	%	



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Semivolatile Organic Compounds - Quality Control

Batch BID0299 - 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
Blank (BID0299-BLK1)										
					Prepared: 22-Apr-2020 Analyzed: 24-Apr-2020 13:40					
bis(2-Ethylhexyl)phthalate	ND	3.0	ug/L							U
Surrogate: 2-Fluorophenol	28.4		ug/L	37.5		75.9	33-120			
Surrogate: Phenol-d5	29.4		ug/L	37.5		78.3	38-120			
Surrogate: 2-Chlorophenol-d4	29.1		ug/L	37.5		77.5	41-120			
Surrogate: 1,2-Dichlorobenzene-d4	16.3		ug/L	25.0		65.3	20-120			
Surrogate: Nitrobenzene-d5	19.2		ug/L	25.0		76.6	27-120			
Surrogate: 2-Fluorobiphenyl	17.7		ug/L	25.0		71.0	33-120			
Surrogate: 2,4,6-Tribromophenol	23.6		ug/L	37.5		62.8	52-120			
Surrogate: p-Terphenyl-d14	20.2		ug/L	25.0		80.6	28-120			
LCS (BID0299-BS1)										
					Prepared: 22-Apr-2020 Analyzed: 24-Apr-2020 14:13					
bis(2-Ethylhexyl)phthalate	23.6	3.0	ug/L	25.0		94.4	68.3-123			
Surrogate: 2-Fluorophenol	26.1		ug/L	37.5		69.6	33-120			
Surrogate: Phenol-d5	27.2		ug/L	37.5		72.6	38-120			
Surrogate: 2-Chlorophenol-d4	26.9		ug/L	37.5		71.8	41-120			
Surrogate: 1,2-Dichlorobenzene-d4	14.6		ug/L	25.0		58.4	20-120			
Surrogate: Nitrobenzene-d5	17.9		ug/L	25.0		71.6	27-120			
Surrogate: 2-Fluorobiphenyl	17.2		ug/L	25.0		68.8	33-120			
Surrogate: 2,4,6-Tribromophenol	29.0		ug/L	37.5		77.4	52-120			
Surrogate: p-Terphenyl-d14	20.8		ug/L	25.0		83.1	28-120			
LCS Dup (BID0299-BSD1)										
					Prepared: 22-Apr-2020 Analyzed: 24-Apr-2020 14:45					
bis(2-Ethylhexyl)phthalate	25.0	3.0	ug/L	25.0		99.9	68.3-123	5.65	30	
Surrogate: 2-Fluorophenol	26.1		ug/L	37.5		69.6	33-120			
Surrogate: Phenol-d5	27.8		ug/L	37.5		74.0	38-120			
Surrogate: 2-Chlorophenol-d4	26.5		ug/L	37.5		70.7	41-120			
Surrogate: 1,2-Dichlorobenzene-d4	14.2		ug/L	25.0		56.7	20-120			
Surrogate: Nitrobenzene-d5	18.2		ug/L	25.0		72.6	27-120			
Surrogate: 2-Fluorobiphenyl	17.7		ug/L	25.0		70.8	33-120			
Surrogate: 2,4,6-Tribromophenol	28.9		ug/L	37.5		77.1	52-120			
Surrogate: p-Terphenyl-d14	21.2		ug/L	25.0		84.6	28-120			



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Reported:
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Metals and Metallic Compounds - Quality Control

Batch BID0363 - TWC EPA 3010A

Instrument: ICP2 Analyst: MCB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BID0363-BLK1)						Prepared: 24-Apr-2020 Analyzed: 27-Apr-2020 12:16					
Cobalt	ND	0.0002	0.0030	mg/L							U
Iron	0.0016	0.0013	0.0500	mg/L							J
Manganese	0.0004	0.0003	0.0010	mg/L							J
LCS (BID0363-BS1)						Prepared: 24-Apr-2020 Analyzed: 27-Apr-2020 12:56					
Cobalt	0.521	0.0002	0.0030	mg/L	0.500		104	80-120			
Iron	2.09	0.0013	0.0500	mg/L	2.00		105	80-120			
Manganese	0.507	0.0003	0.0010	mg/L	0.500		101	80-120			
Duplicate (BID0363-DUP1)						Source: 20D0168-01 Prepared: 24-Apr-2020 Analyzed: 27-Apr-2020 16:27					
Cobalt	0.0393	0.0002	0.0030	mg/L		0.0402			2.43	20	
Iron	23.7	0.0013	0.0500	mg/L		24.2			2.15	20	
Manganese	0.694	0.0003	0.0010	mg/L		0.702			1.24	20	
Matrix Spike (BID0363-MS1)						Source: 20D0168-01 Prepared: 24-Apr-2020 Analyzed: 27-Apr-2020 16:36					
Cobalt	0.513	0.0002	0.0030	mg/L	0.500	0.0402	94.5	75-125			
Iron	25.0	0.0013	0.0500	mg/L	2.00	24.2	38.6	75-125			HC
Manganese	1.16	0.0003	0.0010	mg/L	0.500	0.702	91.7	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BID0363-MSD1)						Source: 20D0168-01 Prepared: 24-Apr-2020 Analyzed: 27-Apr-2020 16:40					
Cobalt	0.516	0.0002	0.0030	mg/L	0.500	0.0402	95.1	75-125	0.56	20	
Iron	25.0	0.0013	0.0500	mg/L	2.00	24.2	42.9	75-125	0.34	20	HC
Manganese	1.16	0.0003	0.0010	mg/L	0.500	0.702	91.1	75-125	0.26	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											



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Metals and Metallic Compounds (dissolved) - Quality Control

Batch BID0378 - WMN (No Prep)

Instrument: ICP2 Analyst: MCB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BID0378-BLK1)						Prepared: 24-Apr-2020 Analyzed: 27-Apr-2020 14:08					
Cobalt, Dissolved	ND	0.0002	0.0030	mg/L							U
Iron, Dissolved	0.0021	0.0013	0.0500	mg/L							J
Manganese, Dissolved	ND	0.0003	0.0010	mg/L							U
LCS (BID0378-BS1)						Prepared: 24-Apr-2020 Analyzed: 27-Apr-2020 14:44					
Cobalt, Dissolved	0.524	0.0002	0.0030	mg/L	0.500		105	80-120			
Iron, Dissolved	2.07	0.0013	0.0500	mg/L	2.00		104	80-120			
Manganese, Dissolved	0.507	0.0003	0.0010	mg/L	0.500		101	80-120			
Duplicate (BID0378-DUP1)						Source: 20D0168-02 Prepared: 24-Apr-2020 Analyzed: 27-Apr-2020 15:27					
Cobalt, Dissolved	0.0430	0.0002	0.0030	mg/L		0.0430			0.16	20	
Iron, Dissolved	24.4	0.0013	0.0500	mg/L		24.3			0.26	20	
Manganese, Dissolved	0.724	0.0003	0.0010	mg/L		0.722			0.33	20	
Matrix Spike (BID0378-MS1)						Source: 20D0168-02 Prepared: 24-Apr-2020 Analyzed: 27-Apr-2020 15:36					
Cobalt, Dissolved	0.554	0.0002	0.0030	mg/L	0.500	0.0430	102	75-125			
Iron, Dissolved	25.4	0.0013	0.0500	mg/L	2.00	24.3	52.7	75-125			HC
Manganese, Dissolved	1.18	0.0003	0.0010	mg/L	0.500	0.722	92.6	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BID0378-MSD1)						Source: 20D0168-02 Prepared: 24-Apr-2020 Analyzed: 27-Apr-2020 15:41					
Cobalt, Dissolved	0.538	0.0002	0.0030	mg/L	0.500	0.0430	99.1	75-125	2.85	20	
Iron, Dissolved	25.4	0.0013	0.0500	mg/L	2.00	24.3	51.8	75-125	0.06	20	HC
Manganese, Dissolved	1.20	0.0003	0.0010	mg/L	0.500	0.722	96.1	75-125	1.48	20	
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
EPA 6010C in Water	
Cobalt	WADOE,NELAP,DoD-ELAP
Iron	WADOE,NELAP,DoD-ELAP
Manganese	WADOE,NELAP,DoD-ELAP
Cobalt	WADOE,NELAP,DoD-ELAP
Iron	WADOE,NELAP,DoD-ELAP
Manganese	WADOE,NELAP,DoD-ELAP
EPA 8270D in Water	
Phenol	WADOE,DoD-ELAP,NELAP
bis(2-chloroethyl) ether	WADOE,DoD-ELAP,NELAP
2-Chlorophenol	WADOE,DoD-ELAP,NELAP
1,3-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
1,4-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
Benzyl Alcohol	WADOE,DoD-ELAP,NELAP
1,2-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
2-Methylphenol	WADOE,DoD-ELAP,NELAP
2,2'-Oxybis(1-chloropropane)	DoD-ELAP
4-Methylphenol	WADOE,DoD-ELAP,NELAP
N-Nitroso-di-n-Propylamine	WADOE,DoD-ELAP,NELAP
Hexachloroethane	WADOE,DoD-ELAP,NELAP
Nitrobenzene	WADOE,DoD-ELAP,NELAP
Isophorone	WADOE,DoD-ELAP,NELAP
2-Nitrophenol	WADOE,DoD-ELAP,NELAP
2,4-Dimethylphenol	WADOE,DoD-ELAP,NELAP
Bis(2-Chloroethoxy)methane	WADOE,DoD-ELAP,NELAP
Benzoic acid	WADOE,DoD-ELAP,NELAP
2,4-Dichlorophenol	WADOE,DoD-ELAP,NELAP
1,2,4-Trichlorobenzene	WADOE,DoD-ELAP,NELAP
Naphthalene	WADOE,ADEC,DoD-ELAP,NELAP
4-Chloroaniline	WADOE,DoD-ELAP,NELAP
Hexachlorobutadiene	WADOE,DoD-ELAP,NELAP
4-Chloro-3-Methylphenol	WADOE,DoD-ELAP,NELAP
2-Methylnaphthalene	WADOE,ADEC,DoD-ELAP,NELAP
Hexachlorocyclopentadiene	WADOE,DoD-ELAP,NELAP
2,4,6-Trichlorophenol	WADOE,DoD-ELAP,NELAP
2,4,5-Trichlorophenol	WADOE,DoD-ELAP,NELAP



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2-Chloronaphthalene	WADOE,DoD-ELAP,NELAP
2-Nitroaniline	WADOE,DoD-ELAP,NELAP
Dimethylphthalate	WADOE,DoD-ELAP,NELAP
Acenaphthylene	WADOE,ADEC,DoD-ELAP,NELAP
2,6-Dinitrotoluene	WADOE,DoD-ELAP,NELAP
3-Nitroaniline	WADOE,DoD-ELAP,NELAP
Acenaphthene	WADOE,ADEC,DoD-ELAP,NELAP
2,4-Dinitrophenol	WADOE,DoD-ELAP,NELAP
Dibenzofuran	WADOE,ADEC,DoD-ELAP,NELAP
4-Nitrophenol	WADOE,DoD-ELAP,NELAP
2,4-Dinitrotoluene	WADOE,DoD-ELAP,NELAP
Fluorene	WADOE,ADEC,DoD-ELAP,NELAP
Diethyl phthalate	WADOE,DoD-ELAP,NELAP
4-Chlorophenylphenyl ether	WADOE,DoD-ELAP,NELAP
4-Nitroaniline	WADOE,DoD-ELAP,NELAP
4,6-Dinitro-2-methylphenol	WADOE,DoD-ELAP,NELAP
N-Nitrosodiphenylamine	DoD-ELAP
4-Bromophenyl phenyl ether	WADOE,DoD-ELAP,NELAP
Hexachlorobenzene	WADOE,DoD-ELAP,NELAP
Pentachlorophenol	WADOE,DoD-ELAP,NELAP
Phenanthrene	WADOE,ADEC,DoD-ELAP,NELAP
Anthracene	WADOE,ADEC,DoD-ELAP,NELAP
Carbazole	WADOE,ADEC,DoD-ELAP,NELAP
Di-n-Butylphthalate	WADOE,DoD-ELAP,NELAP
Fluoranthene	WADOE,ADEC,DoD-ELAP,NELAP
Pyrene	WADOE,ADEC,DoD-ELAP,NELAP
Butylbenzylphthalate	WADOE,DoD-ELAP,NELAP
Benzo(a)anthracene	WADOE,ADEC,DoD-ELAP,NELAP
3,3'-Dichlorobenzidine	DoD-ELAP
Chrysene	WADOE,ADEC,DoD-ELAP,NELAP
bis(2-Ethylhexyl)phthalate	WADOE,DoD-ELAP,NELAP
Di-n-Octylphthalate	WADOE,DoD-ELAP,NELAP
Benzo(b)fluoranthene	WADOE,ADEC,DoD-ELAP,NELAP
Benzo(k)fluoranthene	WADOE,ADEC,DoD-ELAP,NELAP
Benzo(a)pyrene	WADOE,ADEC,DoD-ELAP,NELAP
Indeno(1,2,3-cd)pyrene	WADOE,ADEC,DoD-ELAP,NELAP
Dibenzo(a,h)anthracene	WADOE,ADEC,DoD-ELAP,NELAP
Benzo(g,h,i)perylene	WADOE,ADEC,DoD-ELAP,NELAP
Benzofluoranthenes, Total	WADOE,ADEC,DoD-ELAP,NELAP



Golder Associates

18300 NE Union Hill Road Suite 200

Redmond WA, 98052-3333

Project: Landsburg

Project Number: Landsburg

Project Manager: Gary Zimmerman

Reported:

28-Apr-2020 08:48

1-Methylnaphthalene	WADOE,ADEC,DoD-ELAP,NELAP
N-Nitrosodimethylamine	WADOE,DoD-ELAP,NELAP
Aniline	WADOE,DoD-ELAP,NELAP
Benzidine	WADOE,DoD-ELAP,NELAP
Retene	WADOE,ADEC,DoD-ELAP,NELAP
Perylene	WADOE,ADEC
Pyridine	WADOE,DoD-ELAP,NELAP
N-Nitrosomethylethylamine	
2,6-Dichlorophenol	WADOE
alpha-Terpineol	WADOE,DoD-ELAP,NELAP
1,4-Dioxane	WADOE,DoD-ELAP,NELAP
2,3,4,6-Tetrachlorophenol	WADOE,DoD-ELAP
Triphenyl Phosphate	WADOE,DoD-ELAP,NELAP
Butyl Diphenyl Phosphate	WADOE,DoD-ELAP,NELAP
Dibutyl Phenyl Phosphate	WADOE,DoD-ELAP,NELAP
Tributyl Phosphate	WADOE,DoD-ELAP,NELAP
Butylated Hydroxytoluene	WADOE,DoD-ELAP,NELAP
Azobenzene (1,2-DP-Hydrazine)	WADOE,DoD-ELAP,NELAP
Tetrachloroguaiacol	WADOE,DoD-ELAP
3,4,5-Trichloroguaiacol	WADOE
3,4,6-Trichloroguaiacol	WADOE
4,5,6-Trichloroguaiacol	WADOE
Guaiacol	WADOE
1,2,4,5-Tetrachlorobenzene	WADOE,DoD-ELAP,NELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2020
WADOE	WA Dept of Ecology	C558	06/30/2020
WA-DW	Ecology - Drinking Water	C558	06/30/2020



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Notes and Definitions

D	The reported value is from a dilution
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.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
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.

TECHNICAL MEMORANDUM

DATE May 1, 2020

Project No. 923-1000-006.2020

TO Bill Kombol,
Palmer Coking Coal Company

FROM Joseph Xi (Golder Associates)

EMAIL jxi@golder.com

LANDSBURG MINE SITE MARCH 2020 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 March 10 to 12, 2020, and April 21, 2020, 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 Tables 1A-B were reviewed in this DUSR to identify quality issues which could affect the use of the sample data for decision making purposes.

Sixteen water samples, one field duplicate sample, three field blanks, and one trip blank 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-846¹ Method 8260C, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)
- 1,4-Dioxane following USEPA SW-846 Method 8270D, Semivolatile Organic Compounds by GC/MS
- Low-Level Polychlorinated Biphenyls (PCBs) following USEPA SW-846 Method 8082A, Polychlorinated Biphenyls (PCBs) by Gas Chromatography
- Organochlorine Pesticides following USEPA SW-846 Method 8081A, Organochlorine Pesticides by Gas Chromatography
- Northwest Total Petroleum Hydrocarbons – Hydrocarbon Identification Scan by NWTPH-HCID
- Total Metals by USEPA SW-846 Method 200.8 and SW-846 6010C
- Total Mercury by USEPA SW-846 Method 7470A.

The initial result for bis(2-ethylhexyl) phthalate of 34.2 micrograms per liter (µg/L) in LMW-8-0320 was reanalyzed, as bis(2-ethylhexyl) phthalate is a common lab artefact. The reanalysis of the initial sample did not detect bis(2-ethylhexyl) phthalate above the method detection limits (MDL). However, the reanalysis was completed out of hold time. Resampling of LMW-8 on April 21, 2020 for bis(2-ethylhexyl) phthalate indicated it was not detected

¹ USEPA. 2015. Test methods for evaluating solid waste, physical/chemical methods (SW-846): 3rd edition, and subsequent updates, Environmental Protection Agency, National Center for Environmental Publications, Cincinnati, Ohio, accessed at URL <http://www.epa.gov/epaoswer/hazwaste/test/sw846.htm>

above the MDL, which supports the initial bis(2-ethylhexyl) phthalate detection was a lab contaminant. LMW-8-0320 SVOC results were reported as acceptable except for bis(2-ethylhexyl) phthalate, which was rejected. LMW-8-0320 SVOC reanalysis results were rejected because they were completed outside of hold time. LMW-8-0420 bis(2-ethylhexyl) phthalate analysis (the resampling result) was accepted.

Additionally, the following metals re-analyses were conducted to confirm the initial results:

- LMW-8-0320: total iron reanalyzed, dissolved iron put on hold also analyzed.
- LMW-12-0320: total iron reanalyzed, dissolved iron put on hold also analyzed.
- LMW-14-0320: total iron, manganese, cobalt reanalyzed, dissolved iron, manganese, cobalt put on hold also analyzed. Total and dissolved iron, manganese, cobalt were resampled and reanalyzed April 21, 2020.

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 2017a²) and Inorganic Review (USEPA 2017b³), modified to include method specific 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.

² USEPA. 2017a. USEPA Contract Laboratory Program, National Functional Guidelines for Organic Superfund Methods Data Review. OLEM 9355.0-135, EPA-540-R-2017-001, January.

³ United States Environmental Protection Agency (EPA). 2017b. National Functional Guidelines for Organic Superfund Methods Data Review. OLEM 9355.0-136, EPA-540-R-2017-002, January.

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 where indicated by data qualifiers. For details about the data validation, refer to the data validation checklist in Attachment A. Tables 2A-B provide summaries of the qualifiers applied to the data.

Attachments

- Attachment A Tables
- Table 1A – Sample Collection and Analysis Summary Landsburg Mine Water Sampling Investigation March 2020 (Lab Package 20C0126)
 - Table 1B – Sample Collection and Analysis Summary Landsburg Mine Water Sampling Investigation March 2020 (Lab Package 20C0127 & 20D0168)
 - Table 2A – Qualifier Summary Table Landsburg Mine Water Sampling Investigation March 2020 (Lab Package 20C0126)
 - Table 2B – Qualifier Summary Table Landsburg Mine Water Sampling Investigation March 2020 (Lab Package 20C0127 & 20D0168)
- Attachment B Level 2A Data Validation Checklist

ATTACHMENT A

Tables

Table 1A: Sample Collection and Analysis Summary Landsburg Mine Water Sampling Investigation March 2020 (Lab Package 20C0126)

SDG	Field Identification	Collection Date	Lab Identification	Matrix	QC Samples	Analyses							
						VOCs by 8260C	SVOCs by 8270D; 1,4-Dioxane by 8270D-SIM	Gasoline, Diesel, and Motor Oil Range Organics by NWTPH-HCID	PCBs by 8082A	Pesticides by 8081B	Total TAML Metals by 200.8, 6010C, 7470A	Dissolved Metals	Dissolved Iron
20C0126	LMW-7-0320	03/10/2020	20C0126-01/20C0126-02	WG	--	x	x	x	x	x	x	Hold	
20C0126	LMW-13R-0320	03/10/2020	20C0126-03/20C0126-04	WG	--	x	x	x	x	x	x	Hold	
20C0126	LMW-12-0320	03/10/2020	20C0126-05/20C0126-06	WG	--	x	x	x	x	x	x	Hold	x
20C0126	LMW-10-0320	03/10/2020	20C0126-07/20C0126-08	WG	--	x	x	x	x	x	x	Hold	
20C0126	LMW-4-0320	03/10/2020	20C0126-09/20C0126-10	WG	--	x	x	x	x	x	x	Hold	
20C0126	LMW-4-0320-D	03/10/2020	20C0126-11/20C0126-12	WG	FD	x	x	x	x	x	x	Hold	

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

Abbreviations:
GW - Groundwater
MS - Matrix Spike
NWTPH - Northwest Total Petroleum Hydrocarbon
QC - Quality Control
SDG - Sample Delivery Group
SIM - Selected Ion Monitoring
SVOCs - Semivolatile Organic Compounds
TAML - Target Analyte Metals List
TPH-HCID - Total Petroleum Hydrocarbons - Hydrocarbon Identification Method
VOCs - Volatile Organic Compounds

Table 1B: Sample Collection and Analysis Summary Landsburg Mine Water Sampling Investigation March 2020 (Lab Package 20C0127 & 20D0168)

SDG	Field Identification	Collection Date	Lab Identification	Matrix	QC Samples	Analyses						
						VOCs by 8260C	SVOCs by 8270D; 1,4-Dioxane by 8270D-SIM	Gasoline, Diesel, and Motor Oil Range Organics by NWTPH-HCID	PCBs by SW8082A	Pesticides by 8081B	Total TAML Metals by 200.8, 6010C, 7470A	Dissolved Metals (Co, Fe, Mn) by 6010C
20C0167	LMW-2-0320	03/11/2020	20C0167-01	WG	MS/MSD	x	x	x	x	x	x	
20C0167	LMW-FB-0320	03/11/2020	20C0167-03	WQ	FB	x	x	x	x	x	x	
20C0167	LMW-6-0320	03/11/2020	20C0167-05	WG		x	x	x	x	x	x	
20C0167	LMW-14-0320	03/11/2020	20C0167-07	WG		x	x	x	x	x	x	x
20C0167	LMW-11-0320	03/11/2020	20C0167-09	WG		x	x	x	x	x	x	
20C0167	LMW-15-0320	03/11/2020	20C0167-11	WG		x	x	x	x	x	x	
20C0167	LMW-8-0320	03/12/2020	20C0167-13	WG		x	x	x	x	x	x	x
20C0167	LMW-3-0320	03/12/2020	20C0167-15	WG		x	x	x	x	x	x	
20C0167	LMW-5-0320	03/12/2020	20C0167-17	WG		x	x	x	x	x	x	
20C0167	LMW-9-0320	03/12/2020	20C0167-19	WG		x	x	x	x	x	x	
20C0167	TripBlank-0320	03/11/2020	20C0167-21	WQ	TB	x						
20D0168	LMW-14-0420	04/21/2020	20D0168-01	WG							x	x
20D0168	FB-1-0420	04/21/2020	20D0168-03	WQ	FB						x	
20D0168	LMW-8-0420	04/21/2020	20D0168-04	WG			x					
20D0168	FB-2-0420	04/21/2020	20D0168-05	WQ	FB		x					

- Notes:
- 1. All analyses performed by Analytical Resources, Incorporated (ARI), Tukwila WA
 - 2. LMW-8-0320 was run for dissolved iron. Dissolved Co and Mn not included.
 - 3. LMW-8-0420 and FB-2-0420 were only run for Bis(2-ethylhexyl) phthalate.

Abbreviations:
GW - Groundwater
MS - Matrix Spike
NWTPH - Northwest Total Petroleum Hydrocarbon
QC - Quality Control
SDG - Sample Delivery Group
SIM - Selected Ion Monitoring
SVOCs - Semivolatile Organic Compounds
TAML - Target Analyte Metals List
TPH-HCID - Total Petroleum Hydrocarbons - Hydrocarbon Identification Method
VOCs - Volatile Organic Compounds

Table 2A: Qualifier Summary Table Landsburg Mine Water Sampling Investigation March 2020 (Lab Package 20C0126)

SDG	Sample Name	Constituent	New Result	New RL	New MDL	Qualifier	Reason
20C0126	LMW-7-0320	Manganese	--	--	--	J	Laboratory duplicate RPD above QC 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

QC - Quality Control

RL - Reporting Limit

SDG - Sample Delivery Group

Qualifier Definitions

U - Non-detect result

J - Estimated Result

Table 2B: Qualifier Summary Table Landsburg Mine Water Sampling Investigation March 2020 (Lab Package 20C0127 & 20D0168)

SDG	Sample Name	Constituent	New Result	New RL	New MDL	Qualifier	Reason
20C0167	LMW-8-0320	SVOCs analyzed 3/19/2020 except bis(2-ethylhexyl) phthalate	--	--	--	--	Results deemed reportable.
20C0167	LMW-8-0320	bis(2-ethylhexyl) phthalate analyzed 3/28/2020	--	--	--	R	Result not reportable. Likely laboratory artefact. Analyzed outside hold time.
20C0167	LMW-8-0320	SVOCs analyzed 3/28/2020	--	--	--	R	Results not reportable. Analyzed outside hold time. Report bis(2-ethylhexyl) phthalate results from April 2020 resampling.
20D0168	LMW-8-0420	Bis(2-ethylhexyl) phthalate	--	--	--	--	Results deemed reportable.
20C0167	LMW-8-0320	Aroclor 1016	--	--	--	UJ	Surrogate recovery below QC criteria.
20C0167	LMW-8-0320	Aroclor 1221	--	--	--	UJ	Surrogate recovery below QC criteria.
20C0167	LMW-8-0320	Aroclor 1232	--	--	--	UJ	Surrogate recovery below QC criteria.
20C0167	LMW-8-0320	Aroclor 1242	--	--	--	UJ	Surrogate recovery below QC criteria.
20C0167	LMW-8-0320	Aroclor 1248	--	--	--	UJ	Surrogate recovery below QC criteria.
20C0167	LMW-8-0320	Aroclor 1254	--	--	--	UJ	Surrogate recovery below QC criteria.
20C0167	LMW-8-0320	Aroclor 1260	--	--	--	UJ	Surrogate recovery below QC criteria.
20C0167	LMW-2-0320	Trichlorofluoromethane	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	1,1,2-Trichloro-1,2,2-Trifluoroethane	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	Bromoethane	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	Carbon Disulfide	--	--	--	J-	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	trans-1,2-Dichloroethene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	1,1-Dichloroethane	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	2,2-Dichloropropane	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	cis-1,2-Dichloroethene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	Chloroform	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	Bromochloromethane	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	1,1,1-Trichloroethane	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	1,1-Dichloropropene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	1,2-Dichloroethane	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	Benzene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	Trichloroethene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	1,2-Dichloropropane	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	Bromodichloromethane	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	Dibromomethane	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	2-Chloroethyl vinyl ether	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	cis-1,3-Dichloropropene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	Toluene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	trans-1,3-Dichloropropene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	1,1,2-Trichloroethane	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	1,3-Dichloropropane	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	Tetrachloroethene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	Chlorobenzene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	Ethylbenzene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	1,1,1,2-Tetrachloroethane	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	m,p-Xylene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	o-Xylene	--	--	--	UJ	MS/MSD recoveries below QC criteria.

Table 2B: Qualifier Summary Table Landsburg Mine Water Sampling Investigation March 2020 (Lab Package 20C0127 & 20D0168)

SDG	Sample Name	Constituent	New Result	New RL	New MDL	Qualifier	Reason
20C0167	LMW-2-0320	Xylenes, total	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	Styrene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	n-Propylbenzene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	Bromobenzene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	Isopropyl Benzene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	2-Chlorotoluene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	4-Chlorotoluene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	t-Butylbenzene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	1,3,5-Trimethylbenzene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	1,2,4-Trimethylbenzene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	s-Butylbenzene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	4-Isopropyl Toluene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	1,3-Dichlorobenzene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	1,4-Dichlorobenzene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	n-Butylbenzene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	1,2-Dichlorobenzene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	1,2,4-Trichlorobenzene	--	--	--	UJ	MS/MSD recoveries below QC criteria.
20C0167	LMW-2-0320	Hexachloro-1,3-Butadiene	--	--	--	UJ	MS/MSD recoveries below QC 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
QC - Quality Control
RL - Reporting Limit
SDG - Sample Delivery Group

Qualifier Definitions

J = Estimated Result
UJ = Non-Detect Result, RL is Estimated

ATTACHMENT B

Level 2A Data Validation Checklist

QA LEVEL 2A - DATA VERIFICATION/DATA VALIDATION CHECKLIST

Project Name: Landsburg

Project Number/Phase/Task: 9231000006 p2020

Reviewing Company: Golder Associates Inc.

Project Manager: Gary Zimmerman

Data Evaluator: Rachel Brasco

Data Evaluation Date: April 24, 2020

Checked by: Michael Shadle

Review Date: April 28, 2020

Laboratory: Analytical Resources, Inc – Tukwila, WA

Lab SDG #: 20C0126

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

Analytical Methods: See Table 1

Sample Information: See Table 1

Data Validation Guidance:

- USEPA Contract Laboratory Program [National Functional Guidelines for Superfund Inorganic Method Data Review](#) (January 2017) (Inorganic Guidelines)
- USEPA Contract Laboratory Program [National Functional Guidelines for Superfund Organic Method Data Review](#) (January 2017) (Organic Guidelines)

COC and Sample Receipt

	YES	NO	NA	COMMENT
a) COC complete and correct?	☒	☐		
b) COC documents release of custody (signed and dated)?	☒	☐		
c) Field QC types provided (note types)?	☐	☒	☐	
d) Did the cooler contents match the COC?	☒	☐		
e) Were samples received in good condition?	☒	☐		See Note 1
f) Were cooler temperatures within control limits?	☒	☐		

Data Package Information

	YES	NO	NA	COMMENT
a) Laboratory name and location documented?	☒	☐		
b) All samples on COC reported in data package?	☒	☐		
c) Requested analytical methods used?	☒	☐		
d) Requested sample preparation methods used?	☒	☐	☐	
e) Requested analyte list reported?	☒	☐		
f) Requested units reported?	☒	☐	☐	
g) Did the laboratory define the qualifiers used?	☒	☐		
h) Data package contains all information necessary to complete the data quality review?	☒	☐		

Analytical Assessment

	YES	NO	NA	COMMENT
a) Solid samples reported on a dry-weight basis?	☐	☐	☒	
b) Were solid samples percent moisture criteria acceptable?	☐	☐	☒	
c) Were sample dilutions noted?	☐	☒		
d) Were detected concentrations less than the QL qualified by the laboratory?	☒	☐		
e) Were detected concentrations above the calibration range reported by the laboratory?	☐	☒		
f) Did the laboratory satisfy the requested sensitivity requirements?	☒	☐		

Laboratory Case Narrative	YES	NO	NA	COMMENT
a) Do the laboratory narrative or laboratory qualifiers indicate deficiencies?	☒	☐	☐	
b) Were all deficiencies noted in the laboratory qualifiers or narrative?	☒	☐	☐	
Sample Preservation and Holding Time	YES	NO	NA	COMMENT
a) Were samples properly preserved?	☒	☐		
b) Were holding times met for sample preparation?	☒	☐	☐	
c) Were holding times met for sample analysis?	☒	☐		
Blanks	YES	NO	NA	COMMENTS
a) Were blanks analyzed at the appropriate frequency?	☒	☐		
b) Were any analytes detected in the associated preparation/method blank?	☐	☒		
c) Were any analytes detected in the associated trip blanks?	☐	☐	☒	
d) Were any analytes detected in the associated field or equipment/rinsate blanks?	☐	☐	☒	
e) Were any analytes detected in the associated storage blanks?	☐	☐	☒	Only required for CLP methods
Surrogates or Deuterated Monitoring Compounds	YES	NO	NA	COMMENTS
a) Were the correct surrogate compounds added to each sample?	☒	☐	☐	
b) Were surrogate recoveries within control limits?	☒	☐	☐	
c) If not, were samples analyzed at dilution factors of 20x or greater?	☐	☐	☒	
LCS/LCSD	YES	NO	NA	COMMENTS
a) Were LCS/LCSD reported at the appropriate frequency?	☒	☐		
b) Were proper analytes included in the LCS/LCSD?	☒	☐		
c) Were LCS/LCSD recoveries within control limits?	☒	☐		
d) Were RPD values within control limits (if LCSD was analyzed)?	☒	☐	☐	
MS/MSDs	YES	NO	NA	COMMENTS
a) Were project-specific MS (and MSD) reported?	☐	☒		
b) Were proper analytes reported in the MS/MSD?	☐	☐	☒	
c) Were project-specific MS/MSD recoveries within control limits?	☐	☐	☒	
d) If not, were sample concentrations greater than 4x the spiking concentration?	☐	☐	☒	
e) Was the RPD or absolute difference within control limits (if project-specific MSD analyzed)?	☐	☐	☒	
f) Were project-specific post-digestion spikes analyzed?	☐	☒	☐	
g) Were project-specific post-digestion spike recoveries within control limits?	☐	☐	☒	
Duplicates	YES	NO	NA	COMMENTS
a) Were project-specific laboratory duplicates reported?	☒	☐	☐	LMW-7-0320 for metals
b) Was laboratory duplicate RPD or absolute difference criteria acceptable?	☐	☒	☐	See Note 2

Duplicates	YES	NO	NA	COMMENTS
c) Were field duplicates reported?	☒	☐	☐	LMW-4-0320 / LMW-4-0320-D
d) Was field duplicate RPD or absolute difference criteria acceptable (30%)?	☒	☐	☐	

ICP Serial Dilution (SD)	YES	NO	NA	COMMENTS
a) Was project-specific ICP SD data provided?	☐	☒	☐	
b) Were project-specific ICP SD within acceptable criteria?	☐	☐	☒	

Overall Evaluation	YES	NO	NA	COMMENTS
a) Were there any other technical problems not previously addressed?	☐	☒		
b) Were data acceptable and usable, except where noted?	☒	☐		

Comments/Notes:

- The cooler receipt form noted one VOC vial for sample LMW-4-0320 was received with air bubbles, but the laboratory case narrative noted no vials containing air bubbles were used for analysis. No action required other than to note.
- Laboratory duplicate RPDs were above laboratory QC criteria, as shown in the table below. Only project-specific duplicate samples were included in the table. Using professional judgement, when the concentration of at least one sample is <5x the RL and the absolute difference between the primary and duplicate results is > the RL, results are qualified as estimated (J).

Sample Name	Method	Analyte	Primary/Duplicate Results	RL	RPD (%)	QC Criteria	Units
LMW-7-0320	6010C	Manganese	0.0481 / 0.0592	0.01	20.60	20	mg/L

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
MSD: Matrix Spike Duplicate
PCB: Polychlorinated Biphenyl
PQL: Practical Quantitation Limit

TOC: Total Organic Carbon
TPH: Total Petroleum Hydrocarbons
TSS: Total Suspended Solids
VOC: Volatile Organic Compound
ZHE: Zero Headspace Extraction

QA LEVEL 2A - DATA VERIFICATION/DATA VALIDATION CHECKLIST

Project Name: Landsburg

Project Number/Phase/Task: 9231000006 p2020

Reviewing Company: Golder Associates Inc.

Project Manager: Gary Zimmerman

Data Evaluator: Rachel Brasco

Data Evaluation Date: April 27, 2020

Checked by: Michael Shadle

Review Date: April 28, 2020/May 6, 2020

Laboratory: Analytical Resources, Inc – Tukwila, WA

Lab SDG #: 20C0127, 20D0168

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

Analytical Methods: See Table 1

Sample Information: See Table 1

Data Validation Guidance:

- USEPA Contract Laboratory Program [National Functional Guidelines for Superfund Inorganic Method Data Review](#) (January 2017) (Inorganic Guidelines)
- USEPA Contract Laboratory Program [National Functional Guidelines for Superfund Organic Method Data Review](#) (January 2017) (Organic Guidelines)

COC and Sample Receipt

	YES	NO	NA	COMMENT
a) COC complete and correct?	☐	☒		See Note 1
b) COC documents release of custody (signed and dated)?	☒	☐		
c) Field QC types provided (note types)?	☒	☐	☐	FB, TB; See Table 1
d) Did the cooler contents match the COC?	☒	☐		
e) Were samples received in good condition?	☒	☐		
f) Were cooler temperatures within control limits?	☒	☐		

Data Package Information

	YES	NO	NA	COMMENT
a) Laboratory name and location documented?	☒	☐		
b) All samples on COC reported in data package?	☒	☐		
c) Requested analytical methods used?	☒	☐		
d) Requested sample preparation methods used?	☒	☐	☐	
e) Requested analyte list reported?	☒	☐		
f) Requested units reported?	☒	☐	☐	
g) Did the laboratory define the qualifiers used?	☒	☐		
h) Data package contains all information necessary to complete the data quality review?	☒	☐		

Analytical Assessment

	YES	NO	NA	COMMENT
a) Solid samples reported on a dry-weight basis?	☐	☐	☒	
b) Were solid samples percent moisture criteria acceptable?	☐	☐	☒	
c) Were sample dilutions noted?	☒	☐		See Note 2
d) Were detected concentrations less than the QL qualified by the laboratory?	☒	☐		
e) Were detected concentrations above the calibration range reported by the laboratory?	☐	☒		
f) Did the laboratory satisfy the requested sensitivity requirements?	☒	☐		

Laboratory Case Narrative	YES	NO	NA	COMMENT
a) Do the laboratory narrative or laboratory qualifiers indicate deficiencies?	☒	☐	☐	
b) Were all deficiencies noted in the laboratory qualifiers or narrative?	☒	☐	☐	
Sample Preservation and Holding Time	YES	NO	NA	COMMENT
a) Were samples properly preserved?	☒	☐		
b) Were holding times met for sample preparation?	☒	☐	☐	
c) Were holding times met for sample analysis?	☐	☒		See Note 3
Blanks	YES	NO	NA	COMMENTS
a) Were blanks analyzed at the appropriate frequency?	☒	☐		
b) Were any analytes detected in the associated preparation/method blank?	☒	☐		See Note 4
c) Were any analytes detected in the associated trip blanks?	☒	☐	☐	See Note 4
d) Were any analytes detected in the associated field or equipment/rinsate blanks?	☒	☐	☐	See Note 4
e) Were any analytes detected in the associated storage blanks?	☐	☐	☒	Only required for CLP methods
Surrogates or Deuterated Monitoring Compounds	YES	NO	NA	COMMENTS
a) Were the correct surrogate compounds added to each sample?	☒	☐	☐	
b) Were surrogate recoveries within control limits?	☐	☒	☐	See Note 5
c) If not, were samples analyzed at dilution factors of 20x or greater?	☐	☒	☐	
LCS/LCSD	YES	NO	NA	COMMENTS
a) Were LCS/LCSD reported at the appropriate frequency?	☒	☐		
b) Were proper analytes included in the LCS/LCSD?	☒	☐		
c) Were LCS/LCSD recoveries within control limits?	☒	☐		
d) Were RPD values within control limits (if LCSD was analyzed)?	☒	☐	☐	
MS/MSDs	YES	NO	NA	COMMENTS
a) Were project-specific MS (and MSD) reported?	☒	☐		See Note 6
b) Were proper analytes reported in the MS/MSD?	☒	☐	☐	
c) Were project-specific MS/MSD recoveries within control limits?	☐	☒	☐	See Note 7
d) If not, were sample concentrations greater than 4x the spiking concentration?	☒	☐	☐	
e) Was the RPD or absolute difference within control limits (if project-specific MSD analyzed)?	☐	☒	☐	See Note 7
f) Were project-specific post-digestion spikes analyzed?	☐	☒	☐	
g) Were project-specific post-digestion spike recoveries within control limits?	☐	☐	☒	
Duplicates	YES	NO	NA	COMMENTS
a) Were project-specific laboratory duplicates reported?	☒	☐	☐	LMW-2-0320 for metals; LMW-14-0420 for metals

Duplicates	YES	NO	NA	COMMENTS
b) Was laboratory duplicate RPD or absolute difference criteria acceptable?	☒	☐	☐	
c) Were field duplicates reported?	☐	☒	☐	
d) Was field duplicate RPD or absolute difference criteria acceptable (30%)?	☐	☐	☒	

ICP Serial Dilution (SD)	YES	NO	NA	COMMENTS
a) Was project-specific ICP SD data provided?	☐	☒	☐	
b) Were project-specific ICP SD within acceptable criteria?	☐	☐	☒	

Overall Evaluation	YES	NO	NA	COMMENTS
a) Were there any other technical problems not previously addressed?	☐	☒		
b) Were data acceptable and usable, except where noted?	☒	☐		

Comments/Notes:

- Sample TripBlank-0320 is dated 3/6/2020 on the COC. The laboratory has logged this sample with a date of 3/11/2020. No samples were collected 3/6/2020 so the laboratory has correctly identified that date as 3/11/2020. The cooler receipt form for SDG 20D0168 indicates the sample labels for LMW-8-0420 do not have sample times. The COC lists sample times as 12:45. No action required other than to note.

The chain of custody lists all samples to be analyzed for dissolved metals, but the laboratory report only reports data for LMW-14-0320 and LMW-8-0320. The dissolved metals analyses were put on hold and not reported with this data. No action required other than to note.

- Certain samples were analyzed at a dilution to bring the concentration of target analytes within the calibration range for metals analysis. Reporting limits are elevated proportional to the dilution. The Guidelines do not require qualification based on dilution, but the end user is alerted that the sensitivity of non-detect results should be considered as part of determining data usability.
- The laboratory case narrative noted sample LMW-8-0320 was initially extracted and analyzed within hold time. Due to possible laboratory contamination, SVOC results were re-extracted outside of hold time. The initial results showed bis(2-ethylhexyl) phthalate as detected at 34.2 ug/L. The re-analyzed results show bis(2-ethylhexyl) phthalate as not detected. Sample LMW-8-0320 will be re-sampled to confirm results. Following Guidelines, when samples were re-extracted outside hold time, results were qualified as estimated (J/UJ). Sample LMW-8-0320 was resampled as LMW-8-0420 in SDG 20D168 for bis(2-ethylhexyl) phthalate. Bis (2-ethylhexyl) phthalate confirmed the original re-analysis and is non-detect. Results for LMW-8-0420 are deemed not reportable. Results for LMW-8-0420 were deemed reportable.
- Analytes were detected in the trip blank, as shown in the table below. Following Guidelines for organics, when the blank concentration was greater than the RL, associated sample results greater than or equal to the blank result did not require qualification. Associated non-detect results did not require qualification.

Following Guidelines for inorganics, when the blank concentration was less than the RL, associated sample results greater than the RL did not require qualification.

Sample Name	Analytical Method	Analyte	Blank Result (ug/L)	Lab Qualifier	RL (ug/L)
TripBlank-0320	8260C	Carbon Disulfide	0.11		0.10
TripBlank-0320	8260C	Hexachloro-1,3-Butadiene	0.36		0.20
FB-1-0420	6010C	Iron	0.002	J	0.05
Blank (BID0363-BLK1)	6010C	Iron	0.0016	J	0.05
Blank (BID0363-BLK1)	6010C	Manganese	0.0004	J	0.001
Blank (BID0378-BLK1)	6010C	Iron, Dissolved	0.0021	J	0.05

5. Surrogate recoveries were outside QC limits, as shown in the table below. Only primary and field duplicate samples are included as laboratory and field QC samples do not require qualification. Following Guidelines and using professional judgement, when one surrogate recovery was outside of QC limits (but greater than 10%), associated results were qualified as estimated (UJ).

Sample ID	Dilution Factor	Method	Surrogate	Recovery (%)	QC Limits
LMW-8-0320	1	8082A	Tetrachloro-meta-xylene	31.5	32-120
LMW-8-0320	1	8082A	Tetrachloro-meta-xylene	29.0	32-120

6. The laboratory case narrative noted due to a laboratory error an MS/MSD was not analyzed on pesticides, PCBs, and SVOCs. No action required other than to note.
7. MS/MSD recoveries and RPDs were outside QC criteria, as shown in the table below. Only project-specific MS/MSD samples are included in this table. Following Guidelines for organics and using professional judgement, when only 1 QC indicator does not meet criteria, no qualification is required. When both MS/MSD recoveries were below QC criteria, non-detect results were qualified as estimated (UJ). Carbon disulfide was detected and detected results were estimated with low bias (J-)

Following Guidelines for inorganics, qualification was not required when recoveries were outside QC criteria and the concentration of the unspiked sample exceeded 4x the spiking amount.

Parent Sample Name	Parameter	Analyte	MS or MSD Recovery (%)	RPD (%)	QC Limits (%)
LMW-2-0320	8260C	Trichlorofluoromethane	73.4 / 72.3	1.6	80 – 129 / 30
LMW-2-0320	8260C	1,1,2-Trichloro-1,2,2-Trifluoroethane	71.6 / 71.4	0.34	76 - 129 / 30
LMW-2-0320	8260C	Bromoethane	74.6 / 50.0	39.4	78 - 128 / 30
LMW-2-0320	8260C	Carbon Disulfide	71.1 / 70.3	1.13	78 - 125 / 30
LMW-2-0320	8260C	trans-1,2-Dichloroethene	72.5 / 71.1	2.00	78 - 128 / 30
LMW-2-0320	8260C	1,1-Dichloroethane	70.4 / 68.9	2.10	76 - 124 / 30
LMW-2-0320	8260C	2,2-Dichloropropane	58.1 / 57.5	1.02	78 - 125 / 30
LMW-2-0320	8260C	cis-1,2-Dichloroethene	65.7 / 66.3	0.80	80 - 121 / 30
LMW-2-0320	8260C	Chloroform	67.3 / 67.8	0.82	80 - 122 / 30
LMW-2-0320	8260C	Bromochloromethane	69.9 / 67.4	3.61	80 - 121 / 30
LMW-2-0320	8260C	1,1,1-Trichloroethane	71 / 71	0.05	79 - 123 / 30
LMW-2-0320	8260C	1,1-Dichloropropene	66.5 / 67.7	1.75	80 - 120 / 30
LMW-2-0320	8260C	1,2-Dichloroethane	68.6 / 69.5	1.4	75 - 123 / 30
LMW-2-0320	8260C	Benzene	65.5 / 66.2	1.14	80 - 120 / 30
LMW-2-0320	8260C	Trichloroethene	66.3 / 67.6	1.98	80 - 120 / 30
LMW-2-0320	8260C	1,2-Dichloropropane	67.2 / 67.9	1.02	80 - 120 / 30
LMW-2-0320	8260C	Bromodichloromethane	67.5 / 68.4	1.26	80 - 121 / 30
LMW-2-0320	8260C	Dibromomethane	74.3 / 71.2	4.36	80 - 120 / 30
LMW-2-0320	8260C	2-Chloroethyl vinyl ether	42.3 / 43.4	2.56	74 - 127 / 30
LMW-2-0320	8260C	cis-1,3-Dichloropropene	63.5 / 63.7	0.36	80 - 124 / 30
LMW-2-0320	8260C	Toluene	65.4 / 67.1	2.44	80 - 120 / 30
LMW-2-0320	8260C	trans-1,3-Dichloropropene	69.7 / 69.4	0.51	71 - 127 / 30
LMW-2-0320	8260C	1,1,2-Trichloroethane	73.0 / 75.6	3.48	80 - 121 / 30
LMW-2-0320	8260C	1,3-Dichloropropane	72.5 / 73.8	1.71	80 - 120 / 30
LMW-2-0320	8260C	Tetrachloroethene	68.3 / 67.9	0.48	80 - 120 / 30
LMW-2-0320	8260C	1,2-Dibromoethane	79.1 / 80.3	1.58	80 - 121 / 30
LMW-2-0320	8260C	Chlorobenzene	64.0 / 64.8	1.17	80 - 120 / 30
LMW-2-0320	8260C	Ethylbenzene	65.4 / 66.2	1.2	80 - 120 / 30
LMW-2-0320	8260C	1,1,1,2-Tetrachloroethane	65.0 / 66.6	2.49	80 - 120 / 30
LMW-2-0320	8260C	m,p-Xylene	67.1 / 67.8	1.03	80 - 121 / 30
LMW-2-0320	8260C	o-Xylene	65.1 / 65.9	1.16	80 – 121 / 30

Parent Sample Name	Parameter	Analyte	MS or MSD Recovery (%)	RPD (%)	QC Limits (%)
LMW-2-0320	8260C	Xylenes, total	66.4 / 67.1	1.07	76 - 127 / 30
LMW-2-0320	8260C	Styrene	66.3 / 66.5	0.29	80 - 124 / 30
LMW-2-0320	8260C	n-Propylbenzene	65.3 / 66.0	1.16	78 - 130 / 30
LMW-2-0320	8260C	Bromobenzene	65.8 / 64.6	1.87	80 - 120 / 30
LMW-2-0320	8260C	Isopropyl Benzene	68.6 / 67.6	1.55	80 - 128 / 30
LMW-2-0320	8260C	2-Chlorotoluene	64.6 / 64.8	0.35	78 - 122 / 30
LMW-2-0320	8260C	4-Chlorotoluene	64.2 / 65.0	1.19	80 - 121 / 30
LMW-2-0320	8260C	t-Butylbenzene	67.7 / 67.4	0.50	78 - 125 / 30
LMW-2-0320	8260C	1,3,5-Trimethylbenzene	69.7 / 68.4	1.86	80 - 129 / 30
LMW-2-0320	8260C	1,2,4-Trimethylbenzene	67.4 / 66.5	1.33	80 - 127 / 30
LMW-2-0320	8260C	s-Butylbenzene	69.2 / 69.0	0.20	78 - 129 / 30
LMW-2-0320	8260C	4-Isopropyl Toluene	68.1 / 67.9	0.23	79 - 130 / 30
LMW-2-0320	8260C	1,3-Dichlorobenzene	63.8 / 63.9	0.15	80 - 120 / 30
LMW-2-0320	8260C	1,4-Dichlorobenzene	62.4 / 63.5	1.79	80 - 120 / 30
LMW-2-0320	8260C	n-Butylbenzene	61.5 / 63.2	2.74	74 - 129 / 30
LMW-2-0320	8260C	1,2-Dichlorobenzene	64.0 / 64.9	1.34	80 - 120 / 30
LMW-2-0320	8260C	1,2,4-Trichlorobenzene	54.7 / 56	2.34	64 - 124 / 30
LMW-2-0320	8260C	Hexachloro-1,3-Butadiene	47.3 / 52.7	10.7	58 - 123 / 30
LMW-2-0320	6010C	Calcium*	67.7 / 69	0.11	75 - 125 / 20
LMW-2-0320	6010C	Magnesium*	70.9 / 71.9	0.13	75 - 125 / 20
LMW-14-0320	6010C	Iron*	32 / -11.6	1.58	75 - 125 / 20
LMW-14-0320	6010C	Iron, dissolved*	43.5 / 23.1	0.75	75 - 125 / 20
LMW-8-0420	6010C	Iron, Total*	38.6 / 42.9	0.34	75 - 125 / 20
LMW-8-0420	6010C	Iron, Dissolved	52.7 / 51.8	0.06	75 - 125 / 20

*Initial sample concentration greater than 4x the spike amount

8. Certain QC samples were given a laboratory qualifier (Q) that indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF). QC samples are not qualified. No action required other than to note.

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
MSD: Matrix Spike Duplicate
PCB: Polychlorinated Biphenyl
PQL: Practical Quantitation Limit

TOC: Total Organic Carbon
TPH: Total Petroleum Hydrocarbons
TSS: Total Suspended Solids
VOC: Volatile Organic Compound
ZHE: Zero Headspace Extraction