



REPORT

Compliance Monitoring Report
March 2022 Quarterly Groundwater Sampling
Landsburg Mine Site

Submitted to:

Washington Department of Ecology

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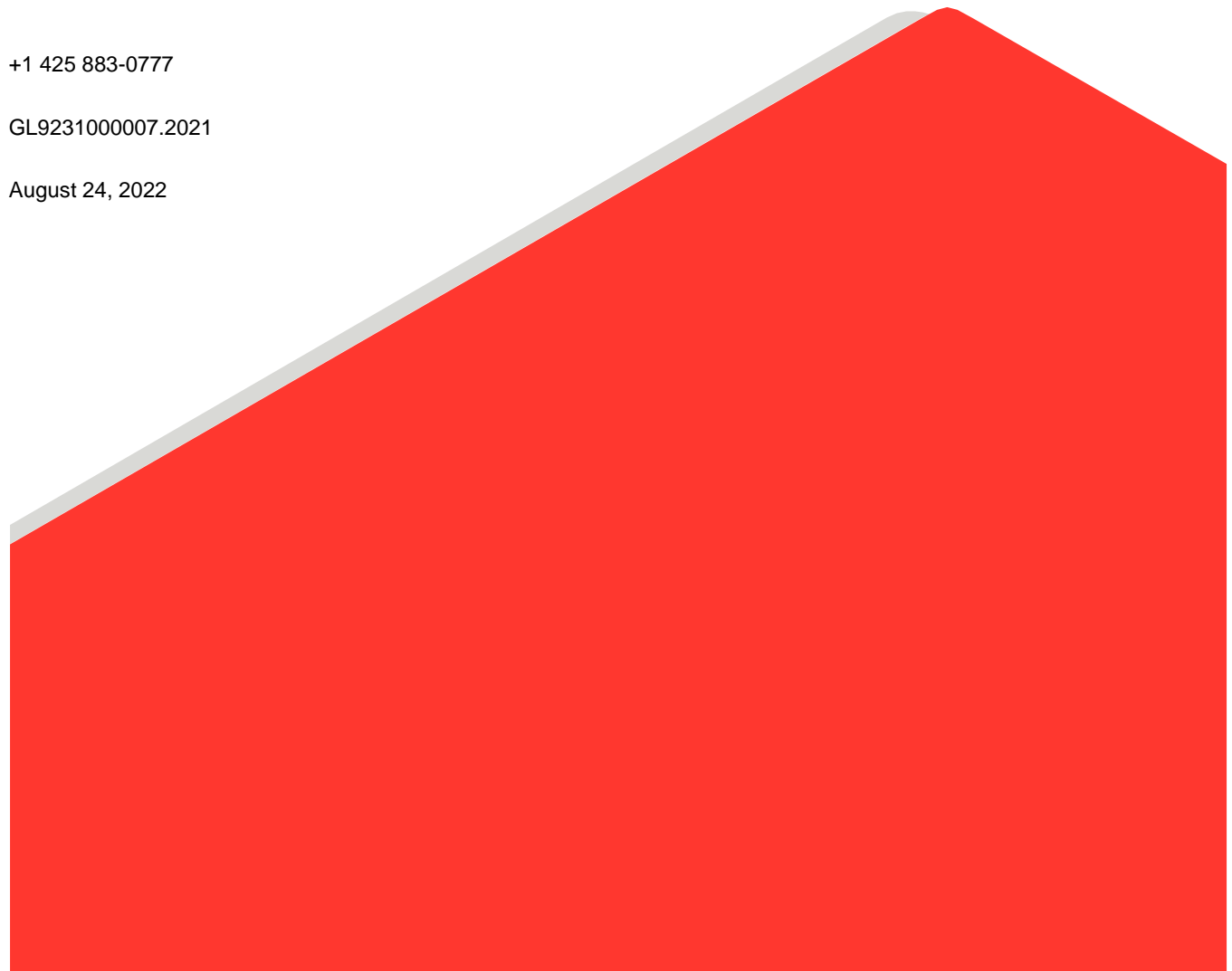
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1.0 INTRODUCTION

The Compliance Monitoring Plan (CMP) (Ecology 2017) describes the long-term confirmational monitoring required after remediation actions are completed at the Landsburg Mine Site (the Site). Additional groundwater monitoring requirements are specified in the Amendment to the Cleanup Action Plan (CAP) (Ecology 2021). This report presents the results of the first quarter 2022 long-term confirmational monitoring event, which was completed in March 2022.

The event was conducted from March 7 to 10, 2022, and included collecting groundwater samples from monitoring wells LMW-2, LMW-3, LMW-4, LMW-5, LMW-6, LMW-7, LMW-8, LMW-9, LMW-10, LMW-11, LMW-12, LMW-13R, LMW-14, and LMW-15.

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

2.0 SAMPLING ACTIVITIES

Groundwater sampling was conducted in accordance with the CMP (Ecology 2017) and the Amendment to the CAP (Ecology 2021), and included the following activities:

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

Appendix A presents the laboratory analytical data validation report with added data qualifiers noted. Appendix B presents the laboratory analytical data. Field sampling activities were documented on Sample Integrity Data Sheets (SIDS), provided in Appendix C.

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 LLC (ARI), of Tukwila, Washington, for analyses.

The laboratory data packages underwent data validation. Items of note are provided in a validation memorandum in Appendix A. In general, data were found to be acceptable with minor qualification, with the following exception: the analytical result for 2-chloroethyl vinyl ether for LMW-2-0322 was rejected. The matrix spike/ matrix spike duplicate (MS/MSD) results were non-detect and the calculated percent recovery of the associated MS/MSD did not recover. Following Guidelines and using professional judgment, the non-detect result for 2-chloroethyl vinyl ether for LMW-2-0322 was rejected. 2-chloroethyl vinyl ether has never been detected at the Site. Data qualifiers are defined, and all data qualifiers assigned under the data validation process are presented in the Appendix A data validation memorandum.

Table 1 presents depths to groundwater measured during the event and calculated static water level elevations. Table 2 presents the field parameter measurements and laboratory analytical results for each groundwater sample at the Site.

3.0 RESULTS

The results of Site groundwater monitoring wells for the March 2022 monitoring event are summarized below:

- 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 trigger level concentrations prescribed in the CMP (Ecology 2017). The following VOCs were detected above their respective laboratory reporting limits.
 - 1,1-Dichloroethane (1,1-DCA) was detected in LMW-12 at a concentration of 1 microgram per liter ($\mu\text{g/L}$). 1,1-DCA has been detected at low levels in this well in previous sampling events. The reported concentration is less than the MTCA Method B groundwater cleanup level of 7.68 $\mu\text{g/L}$.
 - Chloroethane was detected in LMW-4 at the reporting limit of 0.2 $\mu\text{g/L}$ and in LMW-12 at 0.93 $\mu\text{g/L}$. The chloroethane detection in LMW-12 is consistent in concentration with previous detections of chloroethane in this well. The reported concentrations are significantly less than the MTCA Method B groundwater cleanup level of 80 $\mu\text{g/L}$.
- There were no SVOCs detected in groundwater above the trigger level concentrations prescribed in the CMP, except for 1,4-dioxane.
 - 1,4-dioxane was detected in LMW-2 (1.8 $\mu\text{g/L}$), LMW-4 (1.9 $\mu\text{g/L}$), and LMW-12 (1.1 $\mu\text{g/L}$). 1,4-dioxane has not been detected in any other Site monitoring wells. The December 2022 results are consistent with 1,4-dioxane concentrations reported during previous sampling of these wells. Under the approved Amendment to the CAP (Ecology 2021), 5 years of quarterly groundwater samples (20 rounds of sampling) will be collected in order to conduct a statistical analysis on 1,4-dioxane trends (CAP Amendment Section 4.2). The progression of the quarterly sampling for 1,4-dioxane is as follows:

- LMW-2 and LMW-4 have 18 rounds of sampling data available for 1,4-dioxane.
- LMW-10 has 17 rounds of sampling data available for 1,4-dioxane. 1,4-Dioxane has never been detected at LMW-10 in all rounds of sampling.
- LMW-12 has 16 rounds of sampling data available for 1,4-dioxane.
- LMW-13R has 16 rounds of sampling data available for 1,4-dioxane. 1,4-Dioxane has never been detected at LMW-13R in all rounds of sampling.
- Metals detected in groundwater samples during the current sampling round include the following:
 - The groundwater sample from LMW-8, LMW-12, and LMW-14 contained iron concentrations above the MTCA Method B cleanup level of 11 milligrams per liter (mg/L). Iron has been detected in mine groundwater above MTCA cleanup levels in every monitoring event at the Site. It is a naturally occurring metal that is commonly associated with groundwater from coal mines (Fuste et al. 1983). The concentrations of iron reported during the March 2022 sampling event are within the range of typical concentrations reported during previous groundwater monitoring events at the Site.
 - The groundwater sample from LMW-11 contained total arsenic at a concentration of 0.00657 mg/L. Arsenic in LMW-11 is greater than the MTCA Method A groundwater cleanup level (0.005 mg/L) but less than the Washington State primary drinking water MCL (0.01 mg/L). The MTCA groundwater cleanup level is based on typical groundwater background levels in the State of Washington. Arsenic has been detected in groundwater from LMW-11 near or above MTCA cleanup levels during every monitoring event since LMW-11 was installed. LMW-11 is screened within the deepest portions of the Rogers coal seam, where the groundwater is naturally reducing with low reduction-oxidation (redox) potential and low dissolved oxygen levels. Arsenic is a naturally occurring metal commonly detectable in groundwater, especially in groundwater having low redox and dissolved oxygen levels.
 - Groundwater samples from LMW-14 contained cobalt at concentrations of 0.0174 mg/L, above the MTCA Method B cleanup level of 0.0048 Cobalt mg/L. Cobalt has been detected in LMW-14 in every monitoring event since it was installed. The March 2022 detection of 0.0174 mg/L is less than half of the historical high of 0.0515 mg/L, detected in March 2020. The cobalt detection in LMW-14 is naturally occurring in association with the coal mine water (Golder 2020).

4.0 NEXT SAMPLING EVENT

The next compliance monitoring event is a quarterly confirmational monitoring completed in June 2022. It included sampling of Site groundwater monitoring wells LMW-2 through LMW-15, and Cedar River Pipeline Road wells LMW-20 through LMW-22.

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5.0 REFERENCES

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- Ecology. 2021. Amendment to Cleanup Action Plan Landsburg Mine Site MTCA Remediation Project, Ravensdale, Washington. March 26.

Tables

Table 1: Groundwater Elevation Data, Landsburg Mine Site, March 7, 2022

	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	3/7/2022	3/7/2022	3/7/2022	3/7/2022	3/7/2022	3/7/2022	3/7/2022	3/7/2022	3/7/2022	3/7/2022	3/7/2022	3/7/2022	3/7/2022	3/7/2022	3/7/2022
Time of data collection	1:05 PM	9:34 AM	11:09 AM	10:11 AM	11:17 AM	12:53 PM	10:32 AM	11:14 AM	11:01 AM	10:16 AM	1:33 PM	10:21 AM	10:20 AM	1:11 PM	1:25 PM
Measured to Top of PVC (ft btc)	125.00	5.91	10.71	7.33	12.30	20.59	209.09	3.20	98.04	0.05	155.95	3.91	4.42	157.66	147.40
Surveyed Elevation															
Top of PVC (ft NAVD88)	765.36	617.79	656.75	619.27	658.27	632.33	771.51	646.97	743.99	618.98	802.19	625.35	625.86	805.12	796.46
Top of Monument (ft NAVD88)	766.16	618.38	657.48	619.89	658.87	633.00	771.88	NC	NC	619.10	802.51	625.49	625.91	805.14	796.61
Ground Level (ft NAVD88)	763.02	614.92	654.40	617.37	655.63	629.95	768.79	645.25	741.13	615.78	799.89	621.90	622.07	802.22	792.64
Corrected Water Elevation															
Using PVC elevation (ft NAVD88)	640.36	611.88	646.04	611.94	645.97	611.74	562.42	643.77	645.95	618.93	646.24	621.44	621.44	647.46	649.06

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 NAVD88 = elevation in feet NAVD88

Table 2: March 2022 Groundwater Analytical Results Landsburg Mine Site

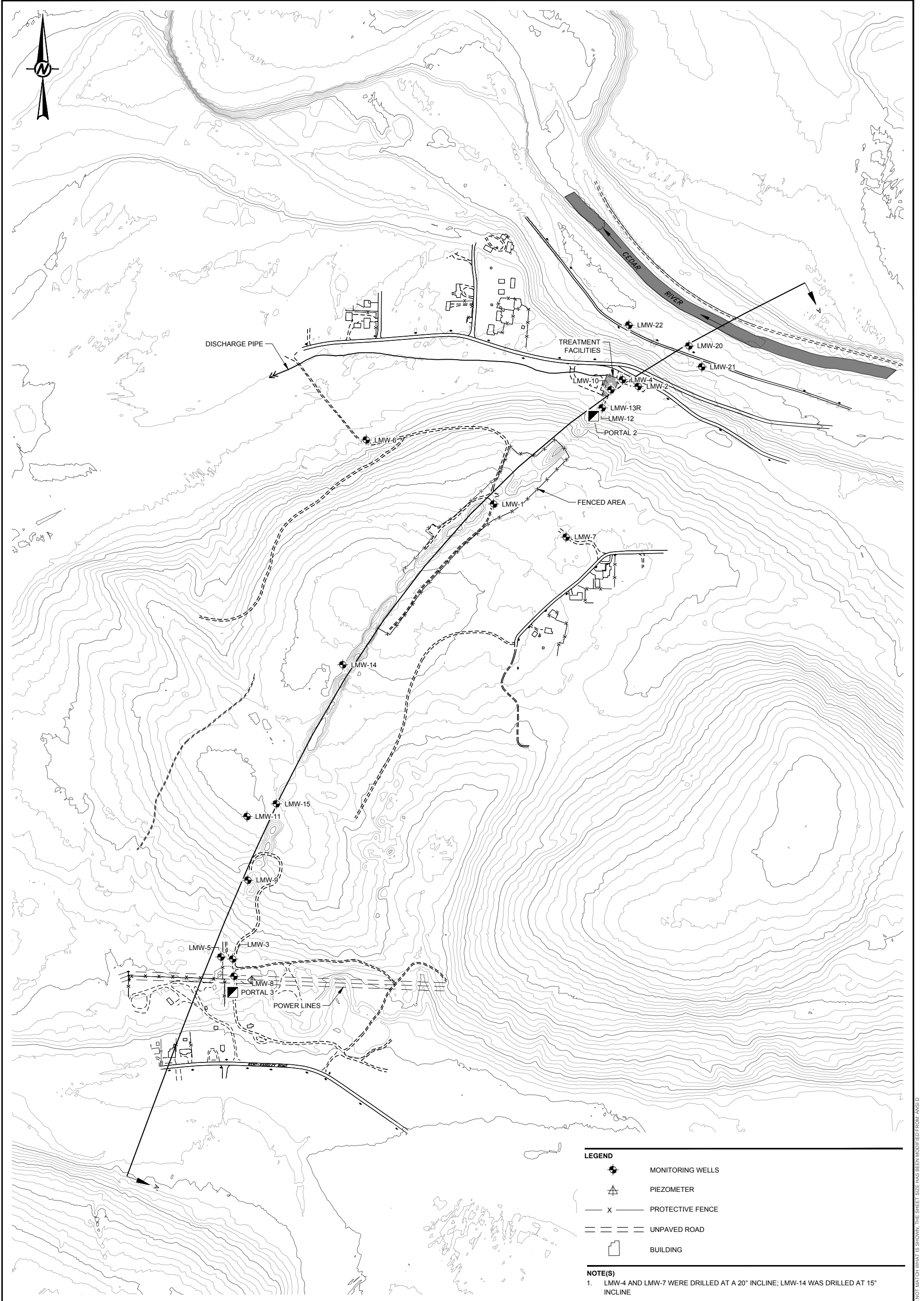
ANALYTE	UNITS	LMW-2	LMW-2 Duplicate	LMW-3	LMW-4	LMW-5	LMW-6	LMW-7	LMW-8	LMW-9	LMW-10	LMW-11	LMW-12	LMW-13R	LMW-14	LMW-15	Field Blank	Trip Blank 1	Trip Blank 2	Trip Blank 3
Ethylbenzene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Hexachlorobutadiene	ug/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Iodomethane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cumene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
p-Isopropyltoluene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Methylene Chloride	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methyl isobutyl ketone	ug/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Naphthalene	ug/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Styrene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2,3-Trichlorobenzene	ug/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	ug/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1,2-Tetrachloroethane	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2,2-Tetrachloroethane	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Tetrachloroethene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Toluene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,1-Trichloroethane	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2-Trichloroethane	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trichloroethene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CFC-113	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2,3-Trichloropropane	ug/L	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2,4-Trimethylbenzene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3,5-Trimethylbenzene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	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	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl Chloride	ug/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
m, p-Xylene	ug/L	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
o-Xylene	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Total Xylenes	ug/L	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Semi-Volatile Organic Compounds (SVOCs)																				
Phenol	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
bis(2-chloroethyl)Ether	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
2-Chlorophenol	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
1,3-Dichlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
1,4-Dichlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Benzyl Alcohol	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	NA	NA
1,2-Dichlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
o-cresol	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Bis(2-chloro-1-methylethyl) ether	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
p-cresol	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	NA	NA
N-Nitrosodi-n-propylamine	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Hexachloroethane	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	NA	NA
Nitrobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Isophorone	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
2-Nitrophenol	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
2,4-Dimethylphenol	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
Bis(2-Chloroethoxy)Methane	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Benzoic Acid	ug/L	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NA	NA	NA
2,4-Dichlorophenol	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
1,2,4-Trichlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Naphthalene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
4-Chloroaniline	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	NA
Hexachlorobutadiene	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
4-Chloro-3-Methylphenol	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
2-Methylnaphthalene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Hexachlorocyclopentadiene	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	NA
2,4,6-Trichlorophenol	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
2,4,5-Trichlorophenol	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	NA
pcn-002	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
2-Nitroaniline	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
Dimethyl phthalate	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Acenaphthylene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
2,6-Dinitrotoluene	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
m-Nitroaniline	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
Acenaphthene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
2,4-Dinitrophenol	ug/L	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	NA	NA	NA
Dibenzofuran	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
4-Nitrophenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA
2,4-Dinitrotoluene	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
Fluorene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Diethyl phthalate	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
4-chlorophenyl-Phenylether	ug/L	1 U	1																	

Table 2: March 2022 Groundwater Analytical Results Landsburg Mine Site

ANALYTE	UNITS	LMW-2	LMW-2 Duplicate	LMW-3	LMW-4	LMW-5	LMW-6	LMW-7	LMW-8	LMW-9	LMW-10	LMW-11	LMW-12	LMW-13R	LMW-14	LMW-15	Field Blank	Trip Blank 1	Trip Blank 2	Trip Blank 3
N-Nitrosodiphenylamine	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Hexachlorobenzene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Pentachlorophenol	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NA	NA	NA
Phenanthrene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Anthracene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Carbazole	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
dibutyl phthalate	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Fluoranthene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Pyrene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Butyl benzyl phthalate	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Benz[a]anthracene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
3,3'-Dichlorobenzidine	ug/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	NA
Chrysene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
bis(2-ethylhexyl) Phthalate	ug/L	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	NA	NA	NA
Di-n-Octyl Phthalate	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Benzo(a)pyrene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Dibenzo(a,h)anthracene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Benzo(ghi)perylene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
Benzo(a)fluoranthene, Total (b+k+j)	ug/L	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	NA	NA	NA
1-Methylnaphthalene	ug/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA
1,4-Dioxane	ug/L	1.8	1.9	0.4 U	1.9	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	1.1	0.4 U	0.4 U	0.4 U	0.4 U	NA	NA	NA
Polychlorinated Biphenyls (PCBs)																				
PCB-aroclor 1016	ug/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA
PCB-aroclor 1221	ug/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA
PCB-aroclor 1232	ug/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA
PCB-aroclor 1242	ug/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA
PCB-aroclor 1248	ug/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA
PCB-aroclor 1254	ug/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA
PCB-aroclor 1260	ug/L	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	NA	NA	NA
Pesticides																				
alpha-BHC	ug/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NA	NA	NA
beta-BHC	ug/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NA	NA	NA
Lindane	ug/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NA	NA	NA
delta-BHC	ug/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NA	NA	NA
Heptachlor	ug/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NA	NA	NA
Aldrin	ug/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NA	NA	NA
Heptachlor Epoxide	ug/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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA
trans-Chlordane	ug/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NA	NA	NA
cis-Chlordane	ug/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NA	NA	NA
4,4'-DDE	ug/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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA
Dieldrin	ug/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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA
Endrin	ug/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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA
4,4'-DDD	ug/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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA
Endrin Aldehyde	ug/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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA
4,4'-DDT	ug/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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA
Endosulfan Sulfate	ug/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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA
Endrin Ketone	ug/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	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	NA	NA
Methoxychlor	ug/L	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	NA	NA	NA
Toxaphene	ug/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	1.25 U	1.25 U	1.25 U	1.25 U	1.25 U	1.25 U	1.25 U	1.25 U	NA	NA	NA
Hydrocarbon Identification																				
Diesel Range	mg/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NA	NA	NA
Gas Range	mg/L	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	NA	NA	NA
Lube Oil Range	mg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	NA	NA

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

Figures



LEGEND

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

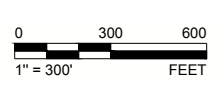
NOTE(S)
 1. LMW-4 AND LMW-7 WERE DRILLED AT A 20° INCLINE; LMW-14 WAS DRILLED AT 15° INCLINE

CLIENT
 LANDSBURG MINE SITE PLP GROUP

PROJECT
 LANDSBURG MINE SITE
 MTCA REMEDIAL ACTION

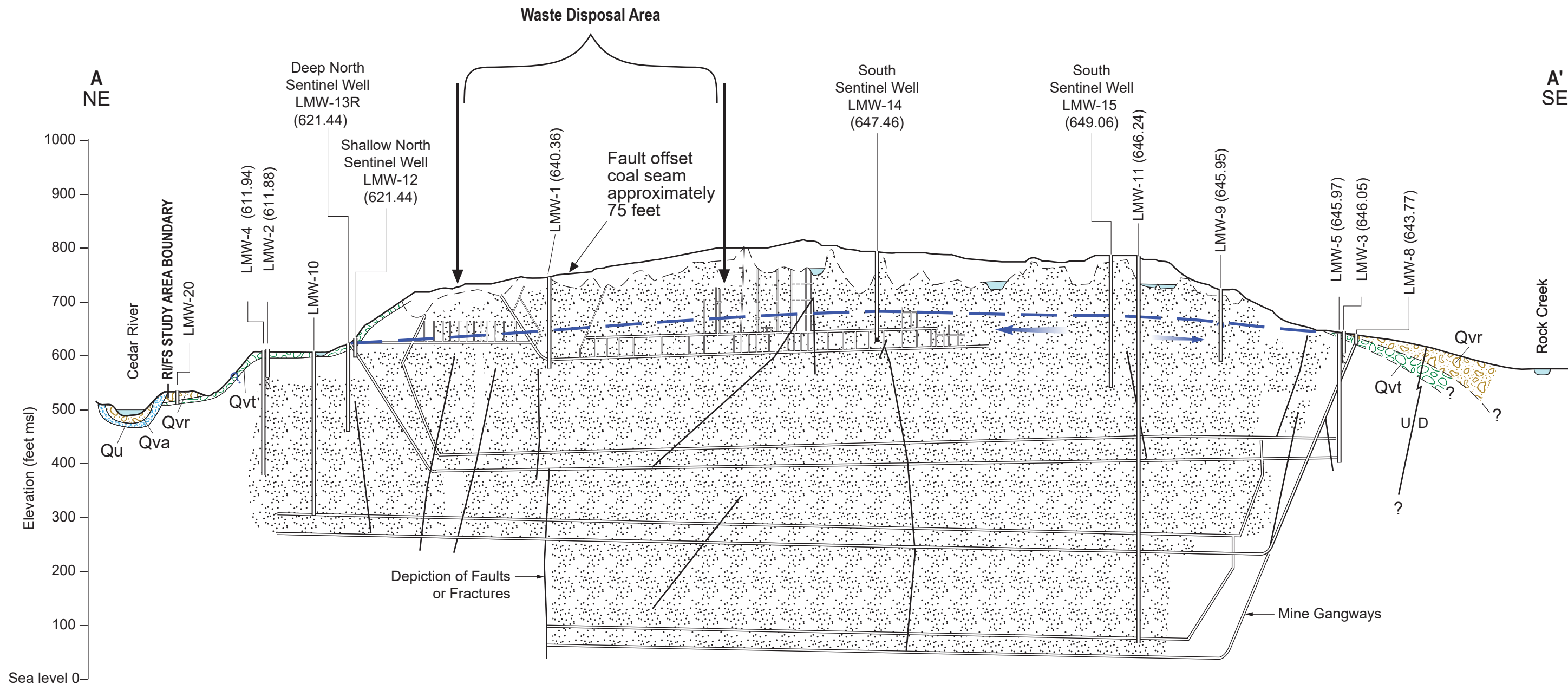
CONSULTANT	YYYY-MM-DD	2019-05-06
	DESIGNED	REDMOND
	PREPARED	JX
	REVIEWED	JX
	APPROVED	GZ

TITLE
GROUNDWATER MONITORING LOCATIONS



PROJECT NO.	PHASE	REV.	FIGURE
9231000005	1200	A	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM A3/D



- EXPLANATION**
- Potentiometric surface
 - Outline of trench bottom
 - LMW-2 (609.99) Well ID (water level in ft. amsl)
 - Qvt Till, compact mixture of gravel occasional boulders in clayey silty sand matrix
 - Sandstone
 - Surface water feature

- Anticipated collapsed zone within mine
- Qu Drift, till, fluvial sand and gravel, lacustrine sand, silt, clay and peat
- Qvr Recessional outwash, well sorted sand and pebble-cobble
- Qva Advanced outwash pebble-cobble gravel may include very fine sand
- Monitoring Interval

Groundwater Flow Direction

Sources for the Geology and Mine Information:
 J.E. Luzier 1969; surficial geology
 State of Washington, Water Well reports
 Mine Superintendent's Records
 Landsburg Well Logs

NOTE: Vertical to horizontal scale ratio is 2.5:1
 Wells are project normal into the strike of the Cross-Section
 A-A' Groundwater elevation obtained 03/07/2022



CLIENT	LANDSBURG PLP GROUP		PROJECT	LANDSBURG MINE SITE	
CONSULTANT	WSP GOLDER	DATE	YYYY-MM-DD	2022-03-07	TITLE
		PREPARED	REDMOND		CROSS-SECTION ALONG STRIKE AT COAL SEAM MARCH 7, 2022
		DESIGN			CROSS-SECTION A-A'
		REVIEW			PROJECT No.
		APPROVED			923-1000-007
				PHASE	2021
					FIGURE 2

G:\Palmer\Coal\Coal\Landsburg\Mine\A099_PROJECTS\9231000002_Phl_Remediation\RI15\02_PRODUCTION\INDD\9231000_002_R154_003.mxd

APPENDIX A

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

TECHNICAL MEMORANDUM

DATE August 16, 2022

Project No. GL923-1000-007.2021

TO Bill Kombol
Palmer Coking Coal Company

FROM Gary Zimmerman (Golder Associates)

EMAIL gary.zimmerman@wsp.com

LANDSBURG MINE SITE MARCH 2022 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 7 through 10, 2022 at the Landsburg Mine Site in Washington (Site) and the Landsburg Estates private well as part of the Landsburg Groundwater sampling project. Samples in the laboratory sample delivery group (SDG) as indicated in Table 1 was reviewed in this DUSR to identify quality issues which could affect the use of the sample data for decision making purposes.

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

- Volatile Organic Compounds (VOCs) following United States Environmental Protection Agency (USEPA) USEPA SW-846¹ Method 8260D, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)
- 1,4-Dioxane following USEPA SW-846 Method 8270E, Semivolatile Organic Compounds by GC/MS
- Low-Level Polychlorinated Biphenyls (PCBs) following USEPA SW-846 Method 8082A, Polychlorinated Biphenyls (PCBs) by Gas Chromatography
- Organochlorine Pesticides following USEPA SW-846 Method 8081B, 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 6010D
- Total Mercury by USEPA SW-846 Method 7470A

Quality assurance / quality control (QA/QC) reviews of laboratory data were performed in the laboratory in accordance with the laboratory quality assurance program plan (QAPP). The data validation QA/QC review

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>

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 2020a²) and Inorganic Review (USEPA 2020b³), 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.
- 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

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

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

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

Overall, the data review showed that data are acceptable for use, except for 2-chloroethyl vinyl ether. The MS/MSD results were non-detect and the calculated percent recovery of the associated MS/MSD did not recover. Following Guidelines and using professional judgment, the results for 2-chloroethyl vinyl ether were rejected (R). 2-chloroethyl vinyl ether was not detected during the March 2022 sampling round and has never been detected at the Site. Other minor data qualifiers related to sample preservation were also reported.

The laboratory analyzed analytes 2-chloroethyl vinyl ether, acrolein, and acrylonitrile from the preserved volatile organic analysis (VOA) vials. Due to the acid-labile nature of analytes 2-chloroethyl vinyl ether, acrolein and acrylonitrile, when samples were collected in acid-preserved vials but all associated LCS/LCSDs were within or above QC criteria, the associated non-detect results for these three analytes were qualified as estimated (UJ) due to possible acid degradation, except for 2-chloroethyl vinyl ether, the results for which were rejected as noted above. 2-chloroethyl vinyl ether, acrolein, and acrylonitrile were not detected during the March 2022 sampling round and have never been detected at the Site.

Qualifier Summary Table (Table 2) is included with the qualifiers applied. For details about the data validation, refer to the data validation checklist in Attachment A. The following bulleted items highlight comments and/or qualifications to specific parameters:

- A data completeness of 99% was achieved, which exceeds the QAPP stipulated completeness goal of 90%.

Attachments: Attachment A Tables

Table 1 – Sample Collection and Analysis Summary Landsburg Mine Water
Sampling Investigation March 2022

Table 2 – Qualifier Summary Table Landsburg Mine Water Sampling Investigation
March 2022

Attachment B Level 2A Data Validation Checklist

ATTACHMENT A

Tables

Table 1: Sample Collection and Analysis Summary

Q1 - March 2022

SDG	Field Identification	Collection Date	Lab Identification	Matrix	QC Samples	Analyses/Parameters							
						VOCs (8260D)	SVOCs (8270E)	1,4-Dioxane (8270E-SIM)	As & Se (EPA 200.8 UCT-KED)	Total Metals (EPA 6010D/7470A)	NWTPH HCID	PCBs (SW8082A)	Pesticides (SW8081B)
22C0150	LMW-10-0322	3/8/22 9:30	22C0150-01/02	GW	-	X	X	X	X	X	X	X	X
22C0150	LMW-13R-0322	3/8/22 11:30	22C0150-03/04	GW	-	X	X	X	X	X	X	X	X
22C0150	LMW-FB-0322	3/8/22 1:30	22C0150-05	WQ	FB	X	X	X	X	X	X	X	X
22C0150	LMW-12-0322	3/8/22 12:40	22C0150-06/07	GW	-	X	X	X	X	X	X	X	X
22C0150	Trip Blank-0322-2	3/8/22 9:30	22C0150-08	WQ	TB	X							
22C0153	LMW-2-0322	3/7/22 11:15	22C0153-01	GW	-	X	X	X	X	X	X	X	X
22C0153	LMW-2-0322-D	3/7/22 11:20	22C0153-02	GW	FD	X	X	X	X	X	X	X	X
22C0153	LMW-4-0322	3/7/22 1:20	22C0153-03/05	GW	-	X	X	X	X	X	X	X	X
22C0153	Trip Blank-0322-1	3/7/22 11:15	22C0153-04	WQ	TB	X							
22C0185	LMW-06-0322	3/9/22 6:40	22C0185-01	GW	-	X	X	X	X	X	X	X	X
22C0185	LMW-14-0322	3/9/22 9:55	22C0185-02	GW	-	X	X	X	X	X	X	X	X
22C0185	LMW-15-0322	3/9/22 1:55	22C0185-03	GW	-	X	X	X	X	X	X	X	X
22C0185	LMW-11-0322	3/9/22 11:30	22C0185-04	GW	-	X	X	X	X	X	X	X	X
22C0185	Trip Blanks	3/9/22 9:55	22C0185-08	WQ	TB	X							
22C0188	LMW-5-0322	3/10/22 3:45	22C0188-01	GW	-	X	X	X	X	X	X	X	X
22C0188	LMW-3-0322	3/10/22 2:25	22C0188-02	GW	-	X	X	X	X	X	X	X	X
22C0188	LMW-8-0322	3/10/22 10:20	22C0188-03	GW	-	X	X	X	X	X	X	X	X
22C0188	LMW-9-0322	3/10/22 12:35	22C0188-04	GW	-	X	X	X	X	X	X	X	X
22C0188	LMW-7-0322	3/8/22 5:40	22C0188-05	GW	-	X	X	X	X	X	X	X	X
22C0188	Trip Blanks	3/8/22 5:40	22C0188-11	WQ	TB	X							

Notes:

All analyses performed by Analytical Resources, Incorporated (ARI), Tukwila WA.
 All samples collected for dissolved metals were placed on hold and subsequently not analyzed.

Abbreviations:

- GW: Groundwater
- Se: Selenium
- As: Arsenic
- WQ: Water quality
- VOCs: Volatile Organic Compounds
- SIM: Selective Ion Monitoring
- EPA: Environmental Protection Agency
- NWTPH: Northwest Total Petroleum Hydrocarbons
- UCT-KED: Universal Cell Technology-Kinesthetic Energy Discrimination
- HCID: Hydrocarbon Identification

Table 2: Qualifier Summary Table

Q1 - March 2022

SDG	Sample Name	Constituent	New Result	New MDL	New RL	Qualifier	Reason
22C0153	LMW-2-0322	2-chloroethyl vinyl ether	--	--	--	R	No recovery in MS/MSD
22C0150	All Samples	acrylonitrile	--	--	--	UJ	Improper preservation
22C0150	All Samples	2-chloroethyl vinyl ether	--	--	--	UJ	Improper preservation
All SDGs	All Samples	All Results	--	--	--	--	Laboratory applied U-qualifiers are retained unless other qualifications are indicated in this table. All other laboratory qualifiers are removed.

Abbreviations

MDL - Method Detection Limit
MS - Matrix Spike
MSD - Matrix Spike Duplicate
QC - Quality Control
RL - Reporting Limit
SDG - Sample Delivery Group

Qualifier Definitions

UJ: Non-Detect Result, RL is estimated
R: Rejected Result
U: Not detected above the RL

ATTACHMENT B

Level 2A Data Validation Checklist

QA LEVEL 2A - DATA VERIFICATION/DATA VALIDATION CHECKLIST

Project Name: Landsburg Groundwater

Project Number/Phase/Task: GL9231000007 2021

Reviewing Company: Golder Associates

Project Manager: Gary Zimmerman

Data Evaluator: Julia Campbell

Data Evaluation Date: April 5,2022

Checked by: Michael Shadle

Review Date: April 11, 2022

Laboratory: Analytical Resources, Inc., Tukwila, WA

Lab SDG #: 22C0150,22C0153,22C0185,22C0188

Matrix: Aqueous Soil Sediment Waste Air Other:

Analytical Methods: See Table 1.

Sample Information: See Table 1.

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

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

COC and Sample Receipt	YES	NO	NA	COMMENT
a) COC complete and correct?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		See Note 1
b) COC documents release of custody (signed and dated)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
c) Field QC types provided (note types)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	FB, TB; See Table 1
d) Did the cooler contents match the COC?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		See Note 1
e) Were samples received in good condition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		See Note 2
f) Were cooler temperatures within control limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

Data Package Information	YES	NO	NA	COMMENT
a) Laboratory name and location documented?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
b) All samples on COC reported in data package?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
c) Requested analytical methods used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
d) Requested sample preparation methods used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
e) Requested analyte list reported?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
f) Requested units reported?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
g) Did the laboratory define the qualifiers used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
h) Data package contains all information necessary to complete the data quality review?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		All Information for a 2A Scope

Analytical Assessment	YES	NO	NA	COMMENT
a) Solid samples reported on a dry-weight basis?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Were solid samples percent moisture criteria acceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c) Were sample dilutions noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
d) Were detected concentrations less than the QL qualified by the laboratory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		No Results Less than RL
e) Were detected concentrations above the calibration range reported by the laboratory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

Analytical Assessment	YES	NO	NA	COMMENT
f) Did the laboratory satisfy the requested sensitivity requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Results were only reported to the RL.
Laboratory Case Narrative	YES	NO	NA	COMMENT
a) Do the laboratory narrative or laboratory qualifiers indicate deficiencies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Were all deficiencies noted in the laboratory qualifiers or narrative?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Note 2
Sample Preservation and Holding Time	YES	NO	NA	COMMENT
a) Were samples properly preserved?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		See Note 3
b) Were holding times met for sample preparation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Were holding times met for sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Blanks	YES	NO	NA	COMMENTS
a) Were blanks analyzed at the appropriate frequency?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
b) Were any analytes detected in the associated preparation/method blank?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		See Note 4
c) Were any analytes detected in the associated trip blanks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
d) Were any analytes detected in the associated field or equipment/rinsate blanks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
e) Were any analytes detected in the associated storage blanks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Surrogates or Deuterated Monitoring Compounds	YES	NO	NA	COMMENTS
a) Were the correct surrogate compounds added to each sample?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Were surrogate recoveries within control limits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Note 5
c) If not, were samples analyzed at dilution factors of 20x or greater?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
LCS/LCSD	YES	NO	NA	COMMENTS
a) Were LCS/LCSD reported at the appropriate frequency?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
b) Were proper analytes included in the LCS/LCSD?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
c) Were LCS/LCSD recoveries within control limits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		See Note 6
d) Were RPD values within control limits (if LCSD was analyzed)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
MS/MSDs	YES	NO	NA	COMMENTS
a) Were project-specific MS (and MSD) reported?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		LMW-2-0322 / LMW-06-0322/LMW-10-0322
b) Were proper analytes reported in the MS/MSD?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Were project-specific MS/MSD recoveries within control limits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Note 7

MS/MSDs	YES	NO	NA	COMMENTS
d) If not, were sample concentrations greater than 4x the spiking concentration?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
e) Was the RPD or absolute difference within control limits (if project-specific MSD analyzed)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
f) Were project-specific post-digestion spikes analyzed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
g) Were project-specific post-digestion spike recoveries within control limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Duplicates	YES	NO	NA	COMMENTS
a) Were project-specific laboratory duplicates reported?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
b) Was laboratory duplicate RPD or absolute difference criteria acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
c) Were field duplicates reported?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
d) Was field duplicate RPD or absolute difference criteria acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

ICP Serial Dilution (SD)	YES	NO	NA	COMMENTS
a) Was project-specific ICP SD data provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b) Were project-specific ICP SD within acceptable criteria?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Overall Evaluation	YES	NO	NA	COMMENTS
a) Were there any other technical problems not previously addressed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		See Note 8
b) Were data acceptable and usable, except where noted?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		

Comments/Notes:

- In SDG 22C0185 and 22C0188 there was no sample named Trip blanks listed on the COC, however it was received by the lab and analyzed. In SDG 22C0188 the COC lists 19 containers but had 24 containers. There is no other action but to note.
- It was not explicitly stated in the case narrative when there were air bubbles found in VOA vials, however, on the preservation worksheet it was noted when there were air bubbles present. In SDG 22C0150, the work order indicates that one of the VOC vials (22C0150-06 T) contained bubbles. In SDG 22C0153, the work order indicates that one of the VOC vials (22C0153-02 T) contain bubbles, however the case narrative did not indicate whether or not those vials were used. In SDG 22C0185, the work order indicates that one of the VOC vials (22C0185-02 C) contain bubbles. In SDG 22C0188, the work order indicates that one of the VOC vials (22C0188-01 E) contain bubbles. Except for SDG 22C0153, the laboratory confirmed that the vials were not used for sample analysis in the other SDGs.
- Samples for analysis of acrolein and acrylonitrile were collected in preserved VOA vials and the recovery was most likely lost due to the acid-labile nature of said compounds. Following Guidelines and using professional judgment non-detects are qualified 'UJ' and detects are qualified 'J'. See Note 7 for clarification on 2-chloroethyl vinyl ether.

4. Analytes were detected in the method blank, as shown in the table below. Following Organic Guidelines, when the associated blank concentration was greater than the RL and associated sample results were non-detect, data were not qualified. If the blank is only associated with QC samples, no qualifications are required.

SDG	Blank ID	Method	Analyte	Result	Qualifier	RL	Units
22C0150 22C0153 22C0185 22C0188	BKC0362-BLK1	EPA 8260D	Hexachloro-1,3-butadiene	0.56		0.5	µg/L

5. Surrogate recoveries were outside QC criteria, as shown in the table below. When only one surrogate per fraction for a sample was outside QC criteria, no qualifications were required.

SDG	Sample ID	Method	Surrogate	Dilution Factor	Recovery (%)	QC Limits
22C0153	LMW-2-0322-D	EPA 8270E	2,4,6-Tribromophenol	1	122	52-120%
22C0185	LMW-6-0322	EPA 8270E	2,4,6-Tribromophenol	1	128	52-120%
22C0188	LMW-5-0322	EPA 8270E	2,4,6-Tribromophenol	1	130	52-120%
22C0188	LMW-9-0322	EPA 8270E	2,4,6-Tribromophenol	1	126	52-120%

6. LCS/LCSD recoveries were outside of acceptance criteria for select analytes, as summarized in the table below for project specific samples. When LCS/LCSD recoveries were greater than the upper control limit, associated non-detect samples were not qualified.

SDG	QC sample ID	Method	Analyte	% Recovery	RPD	% Recovery Limits	Units
22C0150 22C0153	LCS/LCS dup (BKC0295-BS1) (BKC0295-BSD1)	EPA 8270E	3,3'-Dichlorobenzidine	201 / 227	12.30	34.1-120 / 30	µg/L
22C0185 22C0188	LCS/LCS dup (BKC0325-BS1) (BKC0325-BSD1)	EPA 8270E	3,3'-Dichlorobenzidine	216/224	3.46	34.1-120 / 30	µg/L

7. MS/MSD recoveries were outside of acceptance criteria for select analytes, as summarized in the table below for project specific samples. Using professional judgment, when only one QC indicator (MS/MSD/RPD) did not meet QC criteria, qualification was not required. When recoveries were greater than the upper control limit and associated sample results were non-detect, data were not qualified.

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

Primary Sample Name	Parameter	Analyte	MS/MSD % Recovery	RPD	% Recovery / RPD Criteria
LMW-2-0322	SW8260D	2-Chloroethyl vinyl ether	ND/ND	-	64-120/30
LMW-2-0322	SW8270E	3,3'-Dichlorobenzidine	223/217	2.85	34.1-120/30
LMW-2-0322	SW6010D	Calcium ^a	214/193	1.71	75-125/20

Primary Sample Name	Parameter	Analyte	MS/MSD % Recovery	RPD	% Recovery / RPD Criteria
LMW-2-0322	SW6010D	Magnesium ^a	152/138	1.78	75-125/20
LMW-2-0322	SW6010D	Sodium	127/120	2.32	75-125/20
LMW-10-0322	SW6010D	Sodium	117/129	1.19	75-125/20
LMW-06-0322	SW6010D	Magnesium ^a	138/126	4.52	75-125/20
Notes: ^a – Concentration in the parent sample was greater than 4x the spiking concentration					

8. In all SDGs listed in this DV, methods SW8260D and SW8270E had analytes that were outside continuing calibration verification analysis. This is outside the scope of 2A data validations. No further action is required other than to note.

Data qualification: See Table 2.

Definitions:

%R:	Percent Recovery	MSD:	Matrix Spike Duplicate
COC:	Chain of Custody	QAPP:	Quality Assurance Project Plan
CRQL:	Contract Required Quantitation Limit	QC:	Quality Control
DMC:	Deuterated Monitoring Compound	RL:	Reporting Limit
FB:	Field Blank	RPD:	Relative Percent Deviation
HT:	Holding Time	SD:	Serial Dilution
IS:	Internal Standard	SDG:	Sample Delivery Group
LCS:	Laboratory Control Sample	TAT:	Turn Around Time
LCSD:	Laboratory Control Sample Duplicate	TB:	Trip Blank
MB:	Method Blank	TPH:	Total Petroleum Hydrocarbons
MDL:	Method Detection Limit	VOC:	Volatile Organic Compound
MS:	Matrix Spike		

APPENDIX B

Laboratory Analytical Report



Analytical Resources, LLC
Analytical Chemists and Consultants

31 March 2022

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

RE: Landsburg (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)
22C0150

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, LLC

Kelly Bottem, Client Services Manager

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



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 Assigned Number: 22C0150	Turn-around Requested: Standard	Page: 1 of 1
ARI Client Company: Golden	Phone: 425 883 0777	Date: 3/8/22 Ice Present?
Client Contact: Gary Zimmerman / Joseph Xi	No. of Coolers:	Cooler Temps:

Client Project Name: Landing GW	Analysis Requested	Notes/Comments								
Client Project #: GL923122007.2021	<table border="1"> <tr> <th>Vol's (Client List)</th> <th>1,4-Dioxane</th> <th>Total Metals (Client List)</th> <th>Permeable Metals (HOLD)</th> <th>THM HClP (Hold Follow-Up)</th> <th>PCBs (LL)</th> <th>Organochlorine Pesticides</th> <th>SVOCs (Client List)</th> </tr> </table>	Vol's (Client List)	1,4-Dioxane	Total Metals (Client List)	Permeable Metals (HOLD)	THM HClP (Hold Follow-Up)	PCBs (LL)	Organochlorine Pesticides	SVOCs (Client List)	Analyte in accordance w/ MSA between Golden + ARI
Vol's (Client List)	1,4-Dioxane	Total Metals (Client List)	Permeable Metals (HOLD)	THM HClP (Hold Follow-Up)	PCBs (LL)	Organochlorine Pesticides	SVOCs (Client List)			
Samplers: Chris K / Autumn P										

Sample ID	Date	Time	Matrix	No. Containers	Vol's (Client List)	1,4-Dioxane	Total Metals (Client List)	Permeable Metals (HOLD)	THM HClP (Hold Follow-Up)	PCBs (LL)	Organochlorine Pesticides	SVOCs (Client List)
LMW-10-0322	3/8/22	0930	GW	19	X	X	X		X	X	X	X
LMW-13R-0322		1130	GW	19	X	X	X		X	X	X	X
LMW-FB-0322		1330	DI	20	X	X	X		X	X	X	X
LMW-12-0322	↓	1440	GW	25	X	X	X		X	X	X	X
THP Blank-0322-2	-	-	W	3	X							

Comments/Special Instructions Ecology EIM EDD Client Specific RSL Analyte List	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Joseph Xi	Printed Name: Isabella M Hoffler	Printed Name:	Printed Name:
	Company: Golden	Company: ARI	Company:	Company:
	Date & Time: 3/8/22 1622	Date & Time: 3/8/22 16:22	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:
31-Mar-2022 13:52

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LMW-10-0322	22C0150-01	Water	08-Mar-2022 09:30	08-Mar-2022 16:22
LMW-10-0322	22C0150-02	Water	08-Mar-2022 09:30	08-Mar-2022 16:22
LMW-13R-0322	22C0150-03	Water	08-Mar-2022 11:30	08-Mar-2022 16:22
LMW-13R-0322	22C0150-04	Water	08-Mar-2022 11:30	08-Mar-2022 16:22
LMW-FB-0322	22C0150-05	Water	08-Mar-2022 13:30	08-Mar-2022 16:22
LMW-12-0322	22C0150-06	Water	08-Mar-2022 14:40	08-Mar-2022 16:22
LMW-12-0322	22C0150-07	Water	08-Mar-2022 14:40	08-Mar-2022 16:22
TRIP BLANK-0322-2	22C0150-08	Water	08-Mar-2022 09:30	08-Mar-2022 16:22



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

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

Reported:
31-Mar-2022 13:52

Work Order Case Narrative

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

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

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

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

1,4-Dioxane- EPA Method SW8270E

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

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 blank spike (BS/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:
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The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

Volatiles - EPA Method SW8260D

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

Initial and continuing calibrations were within method requirements with the exception of all associated "Q" flagged analytes which are out of control low in the CCAL. All associated samples that contain analyte have been flagged with a "Q" qualifier.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) contained hexachloro-1,3-Butadiene. Samples that contain analyte have been flagged with a "B" qualifier.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

The samples were analyzed from vials that did not contain air bubbles.

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

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

Initial and continuing calibrations were within method requirements.

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

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



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Project: Landsburg

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Project Manager: Gary Zimmerman

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

Semivolatiles - EPA Method SW8270E

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

Initial and continuing calibrations were within method requirements with the exception of all associated "Q" flagged analytes which are out of control high in the CCAL and 2,2'-Oxybis(1-chloropropane) and 2,4-Dinitrophenol are out of control low. All associated samples that contain analyte have been flagged with a "Q" qualifier.

Internal standard areas were within limits.

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

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

The blank spike (BS/LCS) percent recoveries were within control limits with the exception of analytes flagged on the associated forms.



WORK ORDER

22C0150

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

Client: Golder Associates	Project Manager: Kelly Bottem
Project: Landsburg	Project Number: Landsburg

22C0150-03 P	VOA Vial, Clear, 40 mL, HCL
22C0150-03 Q	VOA Vial, Amber, 40 mL, HCL
22C0150-03 R	VOA Vial, Amber, 40 mL, HCL
22C0150-04 A	HDPE NM, 500 mL, 1:1 HNO3 (FF) <i>L2 pass</i>
22C0150-05 A	Glass NM, Amber, 1000 mL
22C0150-05 B	Glass NM, Amber, 1000 mL
22C0150-05 C	Glass NM, Amber, 1000 mL
22C0150-05 D	Glass NM, Amber, 500 mL
22C0150-05 E	Glass NM, Amber, 500 mL
22C0150-05 F	Glass NM, Amber, 500 mL
22C0150-05 G	Glass NM, Amber, 500 mL
22C0150-05 H	Glass NM, Amber, 500 mL
22C0150-05 I	Glass NM, Amber, 500 mL
22C0150-05 J	Glass NM, Amber, 500 mL
22C0150-05 K	Glass NM, Amber, 500 mL
22C0150-05 L	Glass NM, Amber, 500 mL
22C0150-05 M	Glass NM, Amber, 500 mL
22C0150-05 N	Glass NM, Amber, 500 mL
22C0150-05 O	HDPE NM, 500 mL, 1:1 HNO3 <i>L2 pass</i>
22C0150-05 P	VOA Vial, Clear, 40 mL, HCL
22C0150-05 Q	VOA Vial, Clear, 40 mL, HCL
22C0150-05 R	VOA Vial, Clear, 40 mL, HCL
22C0150-05 S	VOA Vial, Amber, 40 mL, HCL
22C0150-05 T	VOA Vial, Amber, 40 mL, HCL
22C0150-06 A	Glass NM, Amber, 500 mL
22C0150-06 B	Glass NM, Amber, 500 mL
22C0150-06 C	Glass NM, Amber, 500 mL
22C0150-06 D	Glass NM, Amber, 500 mL
22C0150-06 E	Glass NM, Amber, 500 mL
22C0150-06 F	Glass NM, Amber, 500 mL
22C0150-06 G	Glass NM, Amber, 500 mL
22C0150-06 H	Glass NM, Amber, 500 mL
22C0150-06 I	Glass NM, Amber, 500 mL
22C0150-06 J	Glass NM, Amber, 500 mL
22C0150-06 K	Glass NM, Amber, 500 mL
22C0150-06 L	Glass NM, Amber, 500 mL



WORK ORDER

22C0150

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

Preservation Confirmation

Container ID	Container Type	pH
22C0150-01 A	Glass NM, Amber, 1000 mL	
22C0150-01 B	Glass NM, Amber, 1000 mL	
22C0150-01 C	Glass NM, Amber, 1000 mL	
22C0150-01 D	Glass NM, Amber, 1000 mL	
22C0150-01 E	Glass NM, Amber, 1000 mL	
22C0150-01 F	Glass NM, Amber, 1000 mL	
22C0150-01 G	Glass NM, Amber, 1000 mL	
22C0150-01 H	Glass NM, Amber, 1000 mL	
22C0150-01 I	Glass NM, Amber, 500 mL	
22C0150-01 J	Glass NM, Amber, 500 mL	
22C0150-01 K	Glass NM, Amber, 500 mL	
22C0150-01 L	Glass NM, Amber, 500 mL	
22C0150-01 M	HDPE NM, 500 mL, 1:1 HNO3	L2 PASS
22C0150-01 N	VOA Vial, Clear, 40 mL, HCL	
22C0150-01 O	VOA Vial, Clear, 40 mL, HCL	
22C0150-01 P	VOA Vial, Clear, 40 mL, HCL	
22C0150-01 Q	VOA Vial, Amber, 40 mL, HCL	
22C0150-01 R	VOA Vial, Amber, 40 mL, HCL	
22C0150-02 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	L2 PASS
22C0150-03 A	Glass NM, Amber, 1000 mL	
22C0150-03 B	Glass NM, Amber, 1000 mL	
22C0150-03 C	Glass NM, Amber, 1000 mL	
22C0150-03 D	Glass NM, Amber, 1000 mL	
22C0150-03 E	Glass NM, Amber, 1000 mL	
22C0150-03 F	Glass NM, Amber, 1000 mL	
22C0150-03 G	Glass NM, Amber, 1000 mL	
22C0150-03 H	Glass NM, Amber, 1000 mL	
22C0150-03 I	Glass NM, Amber, 500 mL	
22C0150-03 J	Glass NM, Amber, 500 mL	
22C0150-03 K	Glass NM, Amber, 500 mL	
22C0150-03 L	Glass NM, Amber, 500 mL	
22C0150-03 M	HDPE NM, 500 mL, 1:1 HNO3	L2 PASS
22C0150-03 N	VOA Vial, Clear, 40 mL, HCL	
22C0150-03 O	VOA Vial, Clear, 40 mL, HCL	



Cooler Receipt Form

ARI Client: Coolder
 COC No(s): _____ (NA)
 Assigned ARI Job No: 22C0150

Project Name: Landsburg
 Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____
 Tracking No: _____ (NA)

Preliminary Examination Phase:

Were in tact, 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 16:22 2.8 4.4 3.1 2.4 5.5
 If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D002565
 Cooler Accepted by: OB Date: 3/8/22 Time: 16:22

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 3/04/22
 Were the sample(s) split by ARI? (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: OB Date: 3/9/22 Time: 16:22 Labels checked by: _____

**** 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:

air bubbles annotated on pres

Sheet
OB

Date: 3/9/22



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

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

Reported:
31-Mar-2022 13:52

LMW-10-0322
22C0150-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/08/2022 09:30

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 18:26

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BKC0362
Prepared: 03/15/2022

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 22C0150-01 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	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U



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LMW-10-0322
22C0150-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/08/2022 09:30

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 18:26

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 13:52
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LMW-10-0322
22C0150-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 03/08/2022 09:30
Instrument: NT2 Analyst: PKC Analyzed: 03/15/2022 18:26

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	100	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	98.5	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	101	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	99.2	%	



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Project: Landsburg
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Reported:
31-Mar-2022 13:52

LMW-10-0322
22C0150-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/08/2022 09:30

Instrument: NT6 Analyst: JZ

Analyzed: 03/16/2022 20:02

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BKC0295
Prepared: 03/14/2022

Sample Size: 500 mL
Final Volume: 0.5 mL

Extract ID: 22C0150-01 L 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



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Reported:
31-Mar-2022 13:52

LMW-10-0322
22C0150-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/08/2022 09:30

Instrument: NT6 Analyst: JZ

Analyzed: 03/16/2022 20:02

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
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 %	72.1	%	
<i>Surrogate: Phenol-d5</i>			38-120 %	72.6	%	
<i>Surrogate: 2-Chlorophenol-d4</i>			41-120 %	80.2	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			20-120 %	77.8	%	
<i>Surrogate: Nitrobenzene-d5</i>			27-120 %	76.5	%	



Golder Associates
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Redmond WA, 98052-3333

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

Reported:
31-Mar-2022 13:52

LMW-10-0322
22C0150-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/08/2022 09:30

Instrument: NT6 Analyst: JZ

Analyzed: 03/16/2022 20:02

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
<i>Surrogate: 2-Fluorobiphenyl</i>		33-120 %	82.6	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>		52-120 %	111	%	Q
<i>Surrogate: p-Terphenyl-d14</i>		28-120 %	83.6	%	



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 13:52
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LMW-10-0322
22C0150-01 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM Sampled: 03/08/2022 09:30
Instrument: NT6 Analyst: JZ Analyzed: 03/17/2022 04:49

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 22C0150-01 K 01
Preparation Batch: BKC0294 Sample Size: 500 mL
Prepared: 03/14/2022 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
<i>Surrogate: 1,4-Dioxane-d8</i>			<i>33.6-120 %</i>	<i>52.9</i>	<i>%</i>	



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 13:52
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LMW-10-0322
22C0150-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID Sampled: 03/08/2022 09:30
Instrument: FID4 Analyst: JR Analyzed: 03/14/2022 19:40

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 22C0150-01 I 01
Preparation Batch: BKC0252 Sample Size: 500 mL
Prepared: 03/11/2022 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 %	107	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	116	%	



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

Reported:
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LMW-10-0322
22C0150-01 (Water)

Chlorinated Pesticides

Method: EPA 8081B Sampled: 03/08/2022 09:30
Instrument: ECD6 Analyst: YZ Analyzed: 03/28/2022 14:40

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 22C0150-01 J 01
Preparation Batch: BKC0272 Sample Size: 500 mL
Prepared: 03/14/2022 Final Volume: 5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 22C0150-01 J 01
Cleanup Batch: CKC0171 Initial Volume: 5 mL
Cleaned: 24-Mar-2022 Final Volume: 5 mL

Sample Cleanup: Cleanup Method: Sulfur Extract ID: 22C0150-01 J 01
Cleanup Batch: CKC0170 Initial Volume: 5 uL
Cleaned: 24-Mar-2022 Final Volume: 5 uL

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
<i>Surrogate: Decachlorobiphenyl</i>			<i>11-144 %</i>	<i>94.3</i>	<i>%</i>	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			<i>11-144 %</i>	<i>89.6</i>	<i>%</i>	
<i>Surrogate: Tetrachlorometaxylene</i>			<i>30-120 %</i>	<i>62.6</i>	<i>%</i>	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			<i>30-120 %</i>	<i>70.7</i>	<i>%</i>	



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LMW-10-0322
22C0150-01 (Water)

Aroclor PCB

Method: EPA 8082A Sampled: 03/08/2022 09:30
Instrument: ECD7 Analyst: JGR Analyzed: 03/23/2022 14:08

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKC0271 Prepared: 03/14/2022	Sample Size: 1000 mL Final Volume: 0.5 mL	Extract ID: 22C0150-01 A 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKC0162 Cleansed: 23-Mar-2022	Initial Volume: 0.5 mL Final Volume: 0.5 mL	Extract ID: 22C0150-01 A 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKC0160 Cleansed: 23-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0150-01 A 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CKC0161 Cleansed: 23-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0150-01 A 01

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 %	57.0	%	
<i>Surrogate: Tetrachlorometaxylene</i>			32-120 %	54.4	%	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			29-120 %	60.6	%	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			32-120 %	52.5	%	



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LMW-10-0322
22C0150-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 Sampled: 03/08/2022 09:30
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/18/2022 22:18

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0150-01 M 02
Preparation Batch: BKC0459 Sample Size: 25 mL
Prepared: 03/18/2022 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-10-0322
22C0150-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED Sampled: 03/08/2022 09:30
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/18/2022 22:18

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0150-01 M 02
Preparation Batch: BKC0459 Sample Size: 25 mL
Prepared: 03/18/2022 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-10-0322
22C0150-01 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 03/08/2022 09:30
Instrument: ICP2 Analyst: MVP Analyzed: 03/22/2022 16:15

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22C0150-01 M 03
Preparation Batch: BKC0475 Sample Size: 25 mL
Prepared: 03/18/2022 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	5.98	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	2.88	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	1.19	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	50.0	87.7	mg/L	
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U



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LMW-10-0322
22C0150-01 (Water)

Metals and Metallic Compounds

Method: EPA 7470A Sampled: 03/08/2022 09:30
Instrument: HYDRA Analyst: SKD Analyzed: 03/16/2022 16:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWM EPA 7470A Extract ID: 22C0150-01 M
Preparation Batch: BKC0278 Sample Size: 20 mL
Prepared: 03/11/2022 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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Project: Landsburg
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Project Manager: Gary Zimmerman

Reported:
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LMW-13R-0322
22C0150-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/08/2022 11:30

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 18:47

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BKC0362
Prepared: 03/15/2022

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 22C0150-03 O

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



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

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LMW-13R-0322
22C0150-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/08/2022 11:30

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 18:47

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



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

Reported:
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LMW-13R-0322
22C0150-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/08/2022 11:30

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 18:47

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	103	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	96.7	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	101	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	96.3	%	



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LMW-13R-0322
22C0150-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/08/2022 11:30

Instrument: NT6 Analyst: JZ

Analyzed: 03/16/2022 20:35

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BKC0295
Prepared: 03/14/2022

Sample Size: 500 mL
Final Volume: 0.5 mL

Extract ID: 22C0150-03 L 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



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

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

Reported:
31-Mar-2022 13:52

LMW-13R-0322
22C0150-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/08/2022 11:30

Instrument: NT6 Analyst: JZ

Analyzed: 03/16/2022 20:35

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
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 %	75.5	%	
<i>Surrogate: Phenol-d5</i>			38-120 %	76.3	%	
<i>Surrogate: 2-Chlorophenol-d4</i>			41-120 %	83.6	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			20-120 %	81.0	%	
<i>Surrogate: Nitrobenzene-d5</i>			27-120 %	80.3	%	



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

Reported:
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LMW-13R-0322
22C0150-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/08/2022 11:30

Instrument: NT6 Analyst: JZ

Analyzed: 03/16/2022 20:35

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
<i>Surrogate: 2-Fluorobiphenyl</i>		33-120 %	86.6	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>		52-120 %	112	%	Q
<i>Surrogate: p-Terphenyl-d14</i>		28-120 %	89.3	%	



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LMW-13R-0322
22C0150-03 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM Sampled: 03/08/2022 11:30
Instrument: NT6 Analyst: JZ Analyzed: 03/17/2022 05:15

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 22C0150-03 K 01
Preparation Batch: BKC0294 Sample Size: 500 mL
Prepared: 03/14/2022 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
<i>Surrogate: 1,4-Dioxane-d8</i>			<i>33.6-120 %</i>	<i>55.9</i>	<i>%</i>	



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LMW-13R-0322
22C0150-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID Sampled: 03/08/2022 11:30
Instrument: FID4 Analyst: JR Analyzed: 03/14/2022 20:39

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 22C0150-03 I 01
Preparation Batch: BKC0252 Sample Size: 500 mL
Prepared: 03/11/2022 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 %	107	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	114	%	



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

Reported:
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LMW-13R-0322
22C0150-03 (Water)

Chlorinated Pesticides

Method: EPA 8081B Sampled: 03/08/2022 11:30
Instrument: ECD6 Analyst: YZ Analyzed: 03/28/2022 14:59

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 22C0150-03 J 01
Preparation Batch: BKC0272 Sample Size: 500 mL
Prepared: 03/14/2022 Final Volume: 5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 22C0150-03 J 01
Cleanup Batch: CKC0171 Initial Volume: 5 mL
Cleaned: 24-Mar-2022 Final Volume: 5 mL

Sample Cleanup: Cleanup Method: Sulfur Extract ID: 22C0150-03 J 01
Cleanup Batch: CKC0170 Initial Volume: 5 uL
Cleaned: 24-Mar-2022 Final Volume: 5 uL

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 %	107	%
Surrogate: Decachlorobiphenyl [2C]	11-144 %	101	%
Surrogate: Tetrachlorometaxylene	30-120 %	57.8	%
Surrogate: Tetrachlorometaxylene [2C]	30-120 %	64.7	%



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LMW-13R-0322
22C0150-03 (Water)

Aroclor PCB

Method: EPA 8082A Sampled: 03/08/2022 11:30
Instrument: ECD7 Analyst: JGR Analyzed: 03/23/2022 14:30

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKC0271 Prepared: 03/14/2022	Sample Size: 1000 mL Final Volume: 0.5 mL	Extract ID: 22C0150-03 A 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKC0162 Cleaned: 23-Mar-2022	Initial Volume: 0.5 mL Final Volume: 0.5 mL	Extract ID: 22C0150-03 A 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKC0160 Cleaned: 23-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0150-03 A 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CKC0161 Cleaned: 23-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0150-03 A 01

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 %	65.2	%	
<i>Surrogate: Tetrachlorometaxylene</i>			32-120 %	60.0	%	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			29-120 %	61.4	%	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			32-120 %	58.3	%	



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LMW-13R-0322
22C0150-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 Sampled: 03/08/2022 11:30
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/18/2022 22:03

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0150-03 M 02
Preparation Batch: BKC0459 Sample Size: 25 mL
Prepared: 03/18/2022 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-13R-0322
22C0150-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED Sampled: 03/08/2022 11:30
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/18/2022 22:03

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0150-03 M 02
Preparation Batch: BKC0459 Sample Size: 25 mL
Prepared: 03/18/2022 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



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 13:52
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LMW-13R-0322
22C0150-03 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 03/08/2022 11:30
Instrument: ICP2 Analyst: MVP Analyzed: 03/22/2022 15:33

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22C0150-03 M 03
Preparation Batch: BKC0475 Sample Size: 25 mL
Prepared: 03/18/2022 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	86.9	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	0.995	mg/L	
Magnesium	7439-95-4	1	0.500	38.6	mg/L	
Manganese	7439-96-5	1	0.0100	0.0272	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	3.04	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	50.0	84.6	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-13R-0322
22C0150-03 (Water)

Metals and Metallic Compounds

Method: EPA 7470A Sampled: 03/08/2022 11:30
Instrument: HYDRA Analyst: SKD Analyzed: 03/16/2022 14:50

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWM EPA 7470A Extract ID: 22C0150-03 M
Preparation Batch: BKC0278 Sample Size: 20 mL
Prepared: 03/11/2022 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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Project: Landsburg
Project Number: Landsburg
Project Manager: Gary Zimmerman

Reported:
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LMW-FB-0322
22C0150-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/08/2022 13:30

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 19:08

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BKC0362
Prepared: 03/15/2022

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 22C0150-05 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	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U



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

Reported:
31-Mar-2022 13:52

LMW-FB-0322
22C0150-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/08/2022 13:30

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 19:08

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



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LMW-FB-0322
22C0150-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 03/08/2022 13:30
Instrument: NT2 Analyst: PKC Analyzed: 03/15/2022 19:08

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	103	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	98.4	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	104	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	103	%	



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LMW-FB-0322
22C0150-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/08/2022 13:30

Instrument: NT6 Analyst: JZ

Analyzed: 03/16/2022 21:09

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BKC0295
Prepared: 03/14/2022

Sample Size: 500 mL
Final Volume: 0.5 mL

Extract ID: 22C0150-05 G 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



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LMW-FB-0322
22C0150-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/08/2022 13:30

Instrument: NT6 Analyst: JZ

Analyzed: 03/16/2022 21:09

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
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 %	79.2	%	
<i>Surrogate: Phenol-d5</i>			38-120 %	80.4	%	
<i>Surrogate: 2-Chlorophenol-d4</i>			41-120 %	88.6	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			20-120 %	87.0	%	
<i>Surrogate: Nitrobenzene-d5</i>			27-120 %	86.1	%	



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LMW-FB-0322
22C0150-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E Sampled: 03/08/2022 13:30
Instrument: NT6 Analyst: JZ Analyzed: 03/16/2022 21:09

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
<i>Surrogate: 2-Fluorobiphenyl</i>		33-120 %	91.2	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>		52-120 %	121	%	*, Q
<i>Surrogate: p-Terphenyl-d14</i>		28-120 %	99.6	%	



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LMW-FB-0322
22C0150-05 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM Sampled: 03/08/2022 13:30
Instrument: NT6 Analyst: JZ Analyzed: 03/18/2022 12:46

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 22C0150-05 F 01
Preparation Batch: BKC0294 Sample Size: 500 mL
Prepared: 03/14/2022 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
<i>Surrogate: 1,4-Dioxane-d8</i>			<i>33.6-120 %</i>	<i>59.8</i>	<i>%</i>	



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LMW-FB-0322
22C0150-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID Sampled: 03/08/2022 13:30
Instrument: FID4 Analyst: JR Analyzed: 03/14/2022 20:59

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 22C0150-05 D 01
Preparation Batch: BKC0252 Sample Size: 500 mL
Prepared: 03/11/2022 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 %	100	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	109	%	



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LMW-FB-0322
22C0150-05 (Water)

Chlorinated Pesticides

Method: EPA 8081B Sampled: 03/08/2022 13:30
Instrument: ECD6 Analyst: YZ Analyzed: 03/28/2022 15:17

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 22C0150-05 E 01
Preparation Batch: BKC0272 Sample Size: 500 mL
Prepared: 03/14/2022 Final Volume: 5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 22C0150-05 E 01
Cleanup Batch: CKC0171 Initial Volume: 5 mL
Cleaned: 24-Mar-2022 Final Volume: 5 mL

Sample Cleanup: Cleanup Method: Sulfur Extract ID: 22C0150-05 E 01
Cleanup Batch: CKC0170 Initial Volume: 5 uL
Cleaned: 24-Mar-2022 Final Volume: 5 uL

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 %	105 %
Surrogate: Decachlorobiphenyl [2C]	11-144 %	95.8 %
Surrogate: Tetrachlorometaxylene	30-120 %	62.6 %
Surrogate: Tetrachlorometaxylene [2C]	30-120 %	70.2 %



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LMW-FB-0322
22C0150-05 (Water)

Aroclor PCB

Method: EPA 8082A Sampled: 03/08/2022 13:30
Instrument: ECD7 Analyst: JGR Analyzed: 03/23/2022 14:51

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKC0271 Prepared: 03/14/2022	Sample Size: 1000 mL Final Volume: 0.5 mL	Extract ID: 22C0150-05 A 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKC0162 Cleansed: 23-Mar-2022	Initial Volume: 0.5 mL Final Volume: 0.5 mL	Extract ID: 22C0150-05 A 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKC0160 Cleansed: 23-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0150-05 A 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CKC0161 Cleansed: 23-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0150-05 A 01

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 %	65.8	%	
<i>Surrogate: Tetrachlorometaxylene</i>			32-120 %	63.5	%	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			29-120 %	63.8	%	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			32-120 %	61.4	%	



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LMW-FB-0322
22C0150-05 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 Sampled: 03/08/2022 13:30
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/18/2022 22:08

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0150-05 O 02
Preparation Batch: BKC0459 Sample Size: 25 mL
Prepared: 03/18/2022 Final Volume: 25 mL

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



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LMW-FB-0322
22C0150-05 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED Sampled: 03/08/2022 13:30
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/18/2022 22:08

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0150-05 O 02
Preparation Batch: BKC0459 Sample Size: 25 mL
Prepared: 03/18/2022 Final Volume: 25 mL

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



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LMW-FB-0322
22C0150-05 (Water)

Metals and Metallic Compounds

Method: EPA 6010D

Sampled: 03/08/2022 13:30

Instrument: ICP2 Analyst: MVP

Analyzed: 03/22/2022 15:35

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWC EPA 3010A
Preparation Batch: BKC0475
Prepared: 03/18/2022

Sample Size: 25 mL
Final Volume: 25 mL

Extract ID: 22C0150-05 O 03

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



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LMW-FB-0322
22C0150-05 (Water)

Metals and Metallic Compounds

Method: EPA 7470A Sampled: 03/08/2022 13:30
Instrument: HYDRA Analyst: SKD Analyzed: 03/16/2022 14:52

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWM EPA 7470A Extract ID: 22C0150-05 O
Preparation Batch: BKC0278 Sample Size: 20 mL
Prepared: 03/11/2022 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-12-0322
22C0150-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/08/2022 14:40

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 19:29

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BKC0362
Prepared: 03/15/2022

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 22C0150-06 U

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



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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:
31-Mar-2022 13:52

LMW-12-0322
22C0150-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/08/2022 14:40

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 19:29

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



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

Reported:
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LMW-12-0322
22C0150-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/08/2022 14:40

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 19:29

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	108	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	98.2	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	99.2	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	97.7	%	



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

Reported:
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LMW-12-0322
22C0150-06 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/08/2022 14:40

Instrument: NT6 Analyst: JZ

Analyzed: 03/16/2022 21:42

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BKC0295
Prepared: 03/14/2022

Sample Size: 500 mL
Final Volume: 0.5 mL

Extract ID: 22C0150-06 D 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



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Project Manager: Gary Zimmerman

Reported:
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LMW-12-0322
22C0150-06 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/08/2022 14:40

Instrument: NT6 Analyst: JZ

Analyzed: 03/16/2022 21:42

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
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 %	75.2	%	
<i>Surrogate: Phenol-d5</i>			38-120 %	73.7	%	
<i>Surrogate: 2-Chlorophenol-d4</i>			41-120 %	82.9	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			20-120 %	80.0	%	
<i>Surrogate: Nitrobenzene-d5</i>			27-120 %	79.3	%	



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LMW-12-0322
22C0150-06 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/08/2022 14:40

Instrument: NT6 Analyst: JZ

Analyzed: 03/16/2022 21:42

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
<i>Surrogate: 2-Fluorobiphenyl</i>		33-120 %	86.9	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>		52-120 %	110	%	Q
<i>Surrogate: p-Terphenyl-d14</i>		28-120 %	87.6	%	



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LMW-12-0322
22C0150-06 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM Sampled: 03/08/2022 14:40
Instrument: NT6 Analyst: JZ Analyzed: 03/18/2022 12:21

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 22C0150-06 C 01
Preparation Batch: BKC0294 Sample Size: 500 mL
Prepared: 03/14/2022 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	1.1	ug/L	
<i>Surrogate: 1,4-Dioxane-d8</i>			<i>33.6-120 %</i>	<i>63.5</i>	<i>%</i>	



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LMW-12-0322
22C0150-06 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID Sampled: 03/08/2022 14:40
Instrument: FID4 Analyst: JR Analyzed: 03/14/2022 21:19

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 22C0150-06 A 01
Preparation Batch: BKC0252 Sample Size: 500 mL
Prepared: 03/11/2022 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 %	112	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	123	%	



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Reported:
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LMW-12-0322
22C0150-06 (Water)

Chlorinated Pesticides

Method: EPA 8081B
Instrument: ECD6 Analyst: YZ

Sampled: 03/08/2022 14:40
Analyzed: 03/28/2022 15:35

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BKC0272
Prepared: 03/14/2022

Sample Size: 500 mL
Final Volume: 5 mL

Extract ID: 22C0150-06 B 01

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CKC0171
Cleaned: 24-Mar-2022

Initial Volume: 5 mL
Final Volume: 5 mL

Extract ID: 22C0150-06 B 01

Sample Cleanup: Cleanup Method: Sulfur
Cleanup Batch: CKC0170
Cleaned: 24-Mar-2022

Initial Volume: 5 uL
Final Volume: 5 uL

Extract ID: 22C0150-06 B 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 %	97.2	%	
Surrogate: Decachlorobiphenyl [2C]			11-144 %	84.2	%	
Surrogate: Tetrachlorometaxylene			30-120 %	56.4	%	
Surrogate: Tetrachlorometaxylene [2C]			30-120 %	61.0	%	



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LMW-12-0322
22C0150-06 (Water)

Aroclor PCB

Method: EPA 8082A Sampled: 03/08/2022 14:40
Instrument: ECD7 Analyst: JGR Analyzed: 03/23/2022 15:13

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKC0271 Prepared: 03/14/2022	Sample Size: 1000 mL Final Volume: 0.5 mL	Extract ID: 22C0150-06 Q 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKC0162 Cleansed: 23-Mar-2022	Initial Volume: 0.5 mL Final Volume: 0.5 mL	Extract ID: 22C0150-06 Q 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKC0160 Cleansed: 23-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0150-06 Q 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CKC0161 Cleansed: 23-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0150-06 Q 01

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 %	52.8	%	
<i>Surrogate: Tetrachlorometaxylene</i>			32-120 %	68.0	%	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			29-120 %	49.8	%	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			32-120 %	66.1	%	



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LMW-12-0322
22C0150-06 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 Sampled: 03/08/2022 14:40
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/18/2022 22:13

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0150-06 S 02
Preparation Batch: BKC0459 Sample Size: 25 mL
Prepared: 03/18/2022 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-12-0322
22C0150-06 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED Sampled: 03/08/2022 14:40
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/18/2022 22:13

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0150-06 S 02
Preparation Batch: BKC0459 Sample Size: 25 mL
Prepared: 03/18/2022 Final Volume: 25 mL

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



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Project Manager: Gary Zimmerman

Reported:
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LMW-12-0322
22C0150-06 (Water)

Metals and Metallic Compounds

Method: EPA 6010D

Sampled: 03/08/2022 14:40

Instrument: ICP2 Analyst: MVP

Analyzed: 03/22/2022 16:10

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWC EPA 3010A
Preparation Batch: BKC0475
Prepared: 03/18/2022

Sample Size: 25 mL
Final Volume: 25 mL

Extract ID: 22C0150-06 S 03

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	88.2	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	15.6	mg/L	
Magnesium	7439-95-4	1	0.500	54.8	mg/L	
Manganese	7439-96-5	1	0.0100	0.586	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	3.34	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	10.1	mg/L	
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 13:52
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LMW-12-0322
22C0150-06 (Water)

Metals and Metallic Compounds

Method: EPA 7470A Sampled: 03/08/2022 14:40
Instrument: HYDRA Analyst: SKD Analyzed: 03/16/2022 14:55

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWM EPA 7470A Extract ID: 22C0150-06 S
Preparation Batch: BKC0278 Sample Size: 20 mL
Prepared: 03/11/2022 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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Project: Landsburg
Project Number: Landsburg
Project Manager: Gary Zimmerman

Reported:
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TRIP BLANK-0322-2
22C0150-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/08/2022 09:30

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 17:02

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BKC0362
Prepared: 03/15/2022

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 22C0150-08 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	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U



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TRIP BLANK-0322-2
22C0150-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/08/2022 09:30

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 17:02

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



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TRIP BLANK-0322-2
22C0150-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/08/2022 09:30

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 17:02

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	95.9	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	99.0	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	106	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	103	%	



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Project: Landsburg
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Project Manager: Gary Zimmerman

Reported:
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0362-BLK1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 16:41								
Chloromethane	ND	0.50	ug/L							U
Vinyl Chloride	ND	0.10	ug/L							U
Bromomethane	ND	1.00	ug/L							U
Chloroethane	ND	0.20	ug/L							U
Trichlorofluoromethane	ND	0.20	ug/L							U
Acrolein	ND	5.00	ug/L							U
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.20	ug/L							U
Acetone	ND	5.00	ug/L							U
1,1-Dichloroethene	ND	0.20	ug/L							U
Iodomethane	ND	1.00	ug/L							U
Methylene Chloride	ND	1.00	ug/L							U
Acrylonitrile	ND	1.00	ug/L							U
Carbon Disulfide	ND	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.20	ug/L							U
Vinyl Acetate	ND	0.20	ug/L							U
1,1-Dichloroethane	ND	0.20	ug/L							U
2-Butanone	ND	5.00	ug/L							U
2,2-Dichloropropane	ND	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Chloroform	ND	0.20	ug/L							U
Bromochloromethane	ND	0.20	ug/L							U
1,1,1-Trichloroethane	ND	0.20	ug/L							U
1,1-Dichloropropene	ND	0.10	ug/L							U
Carbon tetrachloride	ND	0.20	ug/L							U
1,2-Dichloroethane	ND	0.20	ug/L							U
Benzene	ND	0.20	ug/L							U
Trichloroethene	ND	0.20	ug/L							U
1,2-Dichloropropane	ND	0.20	ug/L							U
Bromodichloromethane	ND	0.20	ug/L							U
Dibromomethane	ND	0.20	ug/L							U
2-Chloroethyl vinyl ether	ND	1.00	ug/L							U
4-Methyl-2-Pentanone	ND	2.50	ug/L							U
cis-1,3-Dichloropropene	ND	0.20	ug/L							U
Toluene	ND	0.20	ug/L							U
trans-1,3-Dichloropropene	ND	0.20	ug/L							U



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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0362-BLK1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 16:41								
2-Hexanone	ND	5.00	ug/L							U
1,1,2-Trichloroethane	ND	0.20	ug/L							U
1,3-Dichloropropane	ND	0.10	ug/L							U
Tetrachloroethene	ND	0.20	ug/L							U
Dibromochloromethane	ND	0.20	ug/L							U
1,2-Dibromoethane	ND	0.10	ug/L							U
Chlorobenzene	ND	0.20	ug/L							U
Ethylbenzene	ND	0.20	ug/L							U
1,1,1,2-Tetrachloroethane	ND	0.20	ug/L							U
m,p-Xylene	ND	0.40	ug/L							U
o-Xylene	ND	0.20	ug/L							U
Xylenes, total	ND	0.60	ug/L							U
Styrene	ND	0.20	ug/L							U
Bromoform	ND	0.20	ug/L							U
1,1,2,2-Tetrachloroethane	ND	0.20	ug/L							U
1,2,3-Trichloropropane	ND	0.25	ug/L							U
trans-1,4-Dichloro 2-Butene	ND	1.00	ug/L							U
n-Propylbenzene	ND	0.20	ug/L							U
Bromobenzene	ND	0.20	ug/L							U
Isopropyl Benzene	ND	0.20	ug/L							U
2-Chlorotoluene	ND	0.10	ug/L							U
4-Chlorotoluene	ND	0.20	ug/L							U
t-Butylbenzene	ND	0.20	ug/L							U
1,3,5-Trimethylbenzene	ND	0.20	ug/L							U
1,2,4-Trimethylbenzene	ND	0.20	ug/L							U
s-Butylbenzene	ND	0.20	ug/L							U
4-Isopropyl Toluene	ND	0.20	ug/L							U
1,3-Dichlorobenzene	ND	0.20	ug/L							U
1,4-Dichlorobenzene	ND	0.20	ug/L							U
n-Butylbenzene	ND	0.20	ug/L							U
1,2-Dichlorobenzene	ND	0.20	ug/L							U
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L							U
1,2,4-Trichlorobenzene	ND	0.50	ug/L							U
Hexachloro-1,3-Butadiene	0.56	0.50	ug/L							
Naphthalene	ND	0.50	ug/L							U



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Reported:
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0362-BLK1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 16:41								
1,2,3-Trichlorobenzene	ND	0.50	ug/L							U
Dichlorodifluoromethane	ND	0.20	ug/L							U
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.86		ug/L	5.00		97.2	80-129			
<i>Surrogate: Toluene-d8</i>	4.94		ug/L	5.00		98.7	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.88		ug/L	5.00		97.6	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	5.09		ug/L	5.00		102	80-120			
LCS (BKC0362-BS1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:38								
Chloromethane	9.37	0.50	ug/L	10.0		93.7	60-138			
Vinyl Chloride	10.4	0.10	ug/L	10.0		104	66-133			
Bromomethane	9.40	1.00	ug/L	10.0		94.0	72-131			
Chloroethane	9.21	0.20	ug/L	10.0		92.1	60-155			
Trichlorofluoromethane	9.73	0.20	ug/L	10.0		97.3	62-141			
Acrolein	47.0	5.00	ug/L	50.0		94.0	52-190			
1,1,2-Trichloro-1,2,2-Trifluoroethane	9.64	0.20	ug/L	10.0		96.4	76-129			
Acetone	47.3	5.00	ug/L	50.0		94.6	58-142			
1,1-Dichloroethene	9.50	0.20	ug/L	10.0		95.0	69-135			
Iodomethane	9.51	1.00	ug/L	10.0		95.1	56-147			
Methylene Chloride	9.34	1.00	ug/L	10.0		93.4	65-135			
Acrylonitrile	8.44	1.00	ug/L	10.0		84.4	64-134			
Carbon Disulfide	9.93	0.20	ug/L	10.0		99.3	78-125			
trans-1,2-Dichloroethene	9.28	0.20	ug/L	10.0		92.8	78-128			
Vinyl Acetate	8.15	0.20	ug/L	10.0		81.5	55-138			
1,1-Dichloroethane	9.87	0.20	ug/L	10.0		98.7	76-124			
2-Butanone	46.3	5.00	ug/L	50.0		92.7	61-140			
2,2-Dichloropropane	10.1	0.20	ug/L	10.0		101	66-147			
cis-1,2-Dichloroethene	9.94	0.20	ug/L	10.0		99.4	80-121			
Chloroform	9.78	0.20	ug/L	10.0		97.8	80-122			
Bromochloromethane	9.37	0.20	ug/L	10.0		93.7	80-121			
1,1,1-Trichloroethane	9.97	0.20	ug/L	10.0		99.7	79-123			
1,1-Dichloropropene	9.79	0.10	ug/L	10.0		97.9	80-127			
Carbon tetrachloride	8.15	0.20	ug/L	10.0		81.5	53-137			
1,2-Dichloroethane	9.51	0.20	ug/L	10.0		95.1	75-123			
Benzene	9.71	0.20	ug/L	10.0		97.1	80-120			
Trichloroethene	9.65	0.20	ug/L	10.0		96.5	80-120			



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Reported:
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BKC0362-BS1)				Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:38						
1,2-Dichloropropane	9.66	0.20	ug/L	10.0		96.6	80-120			
Bromodichloromethane	10.2	0.20	ug/L	10.0		102	80-121			
Dibromomethane	9.77	0.20	ug/L	10.0		97.7	80-120			
2-Chloroethyl vinyl ether	9.48	1.00	ug/L	10.0		94.8	64-120			
4-Methyl-2-Pentanone	36.3	2.50	ug/L	50.0		72.5	67-133			Q
cis-1,3-Dichloropropene	8.72	0.20	ug/L	10.0		87.2	80-124			
Toluene	9.29	0.20	ug/L	10.0		92.9	80-120			
trans-1,3-Dichloropropene	7.80	0.20	ug/L	10.0		78.0	71-127			Q
2-Hexanone	51.7	5.00	ug/L	50.0		103	69-133			
1,1,2-Trichloroethane	9.67	0.20	ug/L	10.0		96.7	80-121			
1,3-Dichloropropane	10.2	0.10	ug/L	10.0		102	80-120			
Tetrachloroethene	9.19	0.20	ug/L	10.0		91.9	80-120			
Dibromochloromethane	8.47	0.20	ug/L	10.0		84.7	65-135			
1,2-Dibromoethane	8.22	0.10	ug/L	10.0		82.2	80-121			
Chlorobenzene	9.94	0.20	ug/L	10.0		99.4	80-120			
Ethylbenzene	9.71	0.20	ug/L	10.0		97.1	80-120			
1,1,1,2-Tetrachloroethane	8.34	0.20	ug/L	10.0		83.4	80-120			
m,p-Xylene	19.6	0.40	ug/L	20.0		97.8	80-121			
o-Xylene	9.80	0.20	ug/L	10.0		98.0	80-121			
Xylenes, total	29.4	0.60	ug/L	30.0		97.9	76-127			
Styrene	10.4	0.20	ug/L	10.0		104	80-124			
Bromoform	7.97	0.20	ug/L	10.0		79.7	51-134			Q
1,1,2,2-Tetrachloroethane	10.4	0.20	ug/L	10.0		104	77-123			
1,2,3-Trichloropropane	8.28	0.25	ug/L	10.0		82.8	76-125			
trans-1,4-Dichloro 2-Butene	9.60	1.00	ug/L	10.0		96.0	55-129			
n-Propylbenzene	10.9	0.20	ug/L	10.0		109	78-130			
Bromobenzene	10.0	0.20	ug/L	10.0		100	80-120			
Isopropyl Benzene	10.6	0.20	ug/L	10.0		106	80-128			
2-Chlorotoluene	9.88	0.10	ug/L	10.0		98.8	78-122			
4-Chlorotoluene	10.3	0.20	ug/L	10.0		103	80-121			
t-Butylbenzene	10.4	0.20	ug/L	10.0		104	78-125			
1,3,5-Trimethylbenzene	10.5	0.20	ug/L	10.0		105	80-129			
1,2,4-Trimethylbenzene	10.5	0.20	ug/L	10.0		105	80-127			
s-Butylbenzene	10.5	0.20	ug/L	10.0		105	78-129			
4-Isopropyl Toluene	10.9	0.20	ug/L	10.0		109	79-130			



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

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

Reported:
31-Mar-2022 13:52

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BKC0362-BS1)				Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:38						
1,3-Dichlorobenzene	10.3	0.20	ug/L	10.0		103	80-120			
1,4-Dichlorobenzene	9.55	0.20	ug/L	10.0		95.5	80-120			
n-Butylbenzene	11.0	0.20	ug/L	10.0		110	74-129			
1,2-Dichlorobenzene	9.90	0.20	ug/L	10.0		99.0	80-120			
1,2-Dibromo-3-chloropropane	9.21	0.50	ug/L	10.0		92.1	62-123			
1,2,4-Trichlorobenzene	10.6	0.50	ug/L	10.0		106	64-124			
Hexachloro-1,3-Butadiene	11.2	0.50	ug/L	10.0		112	58-123			B
Naphthalene	10.6	0.50	ug/L	10.0		106	50-134			
1,2,3-Trichlorobenzene	10.5	0.50	ug/L	10.0		105	49-133			
Dichlorodifluoromethane	10.5	0.20	ug/L	10.0		105	48-147			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.89		ug/L	5.00		97.8	80-129			
<i>Surrogate: Toluene-d8</i>	4.97		ug/L	5.00		99.5	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	5.08		ug/L	5.00		102	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	4.95		ug/L	5.00		99.0	80-120			
LCS Dup (BKC0362-BSD1)				Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:58						
Chloromethane	9.65	0.50	ug/L	10.0		96.5	60-138	2.98	30	
Vinyl Chloride	10.5	0.10	ug/L	10.0		105	66-133	0.76	30	
Bromomethane	9.67	1.00	ug/L	10.0		96.7	72-131	2.83	30	
Chloroethane	9.32	0.20	ug/L	10.0		93.2	60-155	1.14	30	
Trichlorofluoromethane	9.48	0.20	ug/L	10.0		94.8	62-141	2.63	30	
Acrolein	46.5	5.00	ug/L	50.0		93.0	52-190	1.08	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	9.52	0.20	ug/L	10.0		95.2	76-129	1.25	30	
Acetone	47.9	5.00	ug/L	50.0		95.9	58-142	1.38	30	
1,1-Dichloroethene	9.60	0.20	ug/L	10.0		96.0	69-135	1.12	30	
Iodomethane	9.42	1.00	ug/L	10.0		94.2	56-147	0.94	30	
Methylene Chloride	9.24	1.00	ug/L	10.0		92.4	65-135	1.06	30	
Acrylonitrile	8.53	1.00	ug/L	10.0		85.3	64-134	1.02	30	
Carbon Disulfide	9.82	0.20	ug/L	10.0		98.2	78-125	1.08	30	
trans-1,2-Dichloroethene	9.56	0.20	ug/L	10.0		95.6	78-128	3.04	30	
Vinyl Acetate	8.18	0.20	ug/L	10.0		81.8	55-138	0.30	30	
1,1-Dichloroethane	9.97	0.20	ug/L	10.0		99.7	76-124	0.99	30	
2-Butanone	48.5	5.00	ug/L	50.0		97.0	61-140	4.58	30	
2,2-Dichloropropane	10.1	0.20	ug/L	10.0		101	66-147	0.33	30	
cis-1,2-Dichloroethene	9.90	0.20	ug/L	10.0		99.0	80-121	0.37	30	



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

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

Reported:
31-Mar-2022 13:52

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BKC0362-BSD1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:58								
Chloroform	10.0	0.20	ug/L	10.0	100	80-122	2.21	30		
Bromochloromethane	9.58	0.20	ug/L	10.0	95.8	80-121	2.23	30		
1,1,1-Trichloroethane	9.98	0.20	ug/L	10.0	99.8	79-123	0.12	30		
1,1-Dichloropropene	9.65	0.10	ug/L	10.0	96.5	80-127	1.41	30		
Carbon tetrachloride	8.14	0.20	ug/L	10.0	81.4	53-137	0.02	30		
1,2-Dichloroethane	9.36	0.20	ug/L	10.0	93.6	75-123	1.66	30		
Benzene	9.67	0.20	ug/L	10.0	96.7	80-120	0.42	30		
Trichloroethene	9.47	0.20	ug/L	10.0	94.7	80-120	1.83	30		
1,2-Dichloropropane	9.67	0.20	ug/L	10.0	96.7	80-120	0.12	30		
Bromodichloromethane	9.93	0.20	ug/L	10.0	99.3	80-121	2.25	30		
Dibromomethane	9.71	0.20	ug/L	10.0	97.1	80-120	0.67	30		
2-Chloroethyl vinyl ether	9.73	1.00	ug/L	10.0	97.3	64-120	2.70	30		
4-Methyl-2-Pentanone	36.3	2.50	ug/L	50.0	72.6	67-133	0.17	30		Q
cis-1,3-Dichloropropene	8.62	0.20	ug/L	10.0	86.2	80-124	1.15	30		
Toluene	9.28	0.20	ug/L	10.0	92.8	80-120	0.17	30		
trans-1,3-Dichloropropene	7.73	0.20	ug/L	10.0	77.3	71-127	0.98	30		Q
2-Hexanone	55.1	5.00	ug/L	50.0	110	69-133	6.25	30		
1,1,2-Trichloroethane	9.77	0.20	ug/L	10.0	97.7	80-121	1.10	30		
1,3-Dichloropropane	10.7	0.10	ug/L	10.0	107	80-120	5.18	30		
Tetrachloroethene	9.30	0.20	ug/L	10.0	93.0	80-120	1.17	30		
Dibromochloromethane	8.76	0.20	ug/L	10.0	87.6	65-135	3.33	30		
1,2-Dibromoethane	8.70	0.10	ug/L	10.0	87.0	80-121	5.63	30		
Chlorobenzene	10.1	0.20	ug/L	10.0	101	80-120	1.70	30		
Ethylbenzene	9.83	0.20	ug/L	10.0	98.3	80-120	1.16	30		
1,1,1,2-Tetrachloroethane	8.62	0.20	ug/L	10.0	86.2	80-120	3.35	30		
m,p-Xylene	19.9	0.40	ug/L	20.0	99.5	80-121	1.80	30		
o-Xylene	10.2	0.20	ug/L	10.0	102	80-121	3.52	30		
Xylenes, total	30.1	0.60	ug/L	30.0	100	76-127	2.38	30		
Styrene	10.7	0.20	ug/L	10.0	107	80-124	2.51	30		
Bromoform	7.91	0.20	ug/L	10.0	79.1	51-134	0.83	30		Q
1,1,2,2-Tetrachloroethane	10.5	0.20	ug/L	10.0	105	77-123	1.53	30		
1,2,3-Trichloropropane	8.24	0.25	ug/L	10.0	82.4	76-125	0.56	30		
trans-1,4-Dichloro 2-Butene	9.84	1.00	ug/L	10.0	98.4	55-129	2.43	30		
n-Propylbenzene	11.0	0.20	ug/L	10.0	110	78-130	1.22	30		
Bromobenzene	10.1	0.20	ug/L	10.0	101	80-120	0.56	30		



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 13:52
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BKC0362-BSD1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:58								
Isopropyl Benzene	10.7	0.20	ug/L	10.0		107	80-128	0.91	30	
2-Chlorotoluene	10.0	0.10	ug/L	10.0		100	78-122	1.22	30	
4-Chlorotoluene	10.4	0.20	ug/L	10.0		104	80-121	0.61	30	
t-Butylbenzene	10.5	0.20	ug/L	10.0		105	78-125	0.86	30	
1,3,5-Trimethylbenzene	10.7	0.20	ug/L	10.0		107	80-129	1.64	30	
1,2,4-Trimethylbenzene	10.9	0.20	ug/L	10.0		109	80-127	3.04	30	
s-Butylbenzene	10.6	0.20	ug/L	10.0		106	78-129	0.78	30	
4-Isopropyl Toluene	10.9	0.20	ug/L	10.0		109	79-130	0.55	30	
1,3-Dichlorobenzene	10.2	0.20	ug/L	10.0		102	80-120	0.23	30	
1,4-Dichlorobenzene	9.94	0.20	ug/L	10.0		99.4	80-120	3.95	30	
n-Butylbenzene	11.2	0.20	ug/L	10.0		112	74-129	1.39	30	
1,2-Dichlorobenzene	10.2	0.20	ug/L	10.0		102	80-120	2.57	30	
1,2-Dibromo-3-chloropropane	9.67	0.50	ug/L	10.0		96.7	62-123	4.83	30	
1,2,4-Trichlorobenzene	10.3	0.50	ug/L	10.0		103	64-124	2.66	30	
Hexachloro-1,3-Butadiene	10.5	0.50	ug/L	10.0		105	58-123	6.53	30	B
Naphthalene	10.9	0.50	ug/L	10.0		109	50-134	2.89	30	
1,2,3-Trichlorobenzene	10.5	0.50	ug/L	10.0		105	49-133	0.32	30	
Dichlorodifluoromethane	11.0	0.20	ug/L	10.0		110	48-147	5.07	30	
Surrogate: 1,2-Dichloroethane-d4	5.00		ug/L	5.00		99.9	80-129			
Surrogate: Toluene-d8	5.01		ug/L	5.00		100	80-120			
Surrogate: 4-Bromofluorobenzene	5.23		ug/L	5.00		105	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	5.05		ug/L	5.00		101	80-120			



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

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

Reported:
31-Mar-2022 13:52

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0295 - 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 (BKC0295-BLK1)		Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 18:20								
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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18300 NE Union Hill Road Suite 200
Redmond WA, 98052-3333

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

Reported:
31-Mar-2022 13:52

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0295 - 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 (BKC0295-BLK1)										
				Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 18:20						
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
<i>Surrogate: 2-Fluorophenol</i>	28.7		ug/L	37.5		76.5	33-120			
<i>Surrogate: Phenol-d5</i>	28.9		ug/L	37.5		77.1	38-120			
<i>Surrogate: 2-Chlorophenol-d4</i>	32.2		ug/L	37.5		85.9	41-120			



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

Reported:
31-Mar-2022 13:52

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0295 - 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 (BKC0295-BLK1)				Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 18:20						
Surrogate: 1,2-Dichlorobenzene-d4	21.1		ug/L	25.0		84.4	20-120			
Surrogate: Nitrobenzene-d5	20.7		ug/L	25.0		82.9	27-120			
Surrogate: 2-Fluorobiphenyl	22.2		ug/L	25.0		88.9	33-120			
Surrogate: 2,4,6-Tribromophenol	43.4		ug/L	37.5		116	52-120			Q
Surrogate: p-Terphenyl-d14	24.0		ug/L	25.0		96.1	28-120			
LCS (BKC0295-BS1)				Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 18:54						
Phenol	16.9	1.0	ug/L	25.0		67.6	35-120			
bis(2-chloroethyl) ether	17.9	1.0	ug/L	25.0		71.7	46.5-120			
2-Chlorophenol	18.7	1.0	ug/L	25.0		74.7	48-120			
1,3-Dichlorobenzene	18.8	1.0	ug/L	25.0		75.2	34.2-120			
1,4-Dichlorobenzene	19.8	1.0	ug/L	25.0		79.2	36-120			
Benzyl Alcohol	19.3	2.0	ug/L	25.0		77.1	27.4-120			
1,2-Dichlorobenzene	19.5	1.0	ug/L	25.0		78.0	38.4-120			
2-Methylphenol	17.5	1.0	ug/L	25.0		70.1	47.8-120			
2,2'-Oxybis(1-chloropropane)	15.3	1.0	ug/L	25.0		61.3	40.4-120			Q
4-Methylphenol	18.4	2.0	ug/L	25.0		73.6	52.3-120			
N-Nitroso-di-n-Propylamine	16.3	1.0	ug/L	25.0		65.1	51.4-120			
Hexachloroethane	18.4	2.0	ug/L	25.0		73.6	29.5-120			
Nitrobenzene	19.5	1.0	ug/L	25.0		78.0	51.5-120			
Isophorone	25.4	1.0	ug/L	25.0		102	62.3-128			
2-Nitrophenol	24.1	3.0	ug/L	25.0		96.3	58.6-124			
2,4-Dimethylphenol	39.9	3.0	ug/L	65.0		61.3	38.5-120			
Bis(2-Chloroethoxy)methane	20.8	1.0	ug/L	25.0		83.1	52.9-120			
Benzoic acid	82.1	20.0	ug/L	115		71.4	38.2-120			Q
2,4-Dichlorophenol	50.6	3.0	ug/L	65.0		77.9	43.6-120			
1,2,4-Trichlorobenzene	21.0	1.0	ug/L	25.0		83.9	38.6-120			
Naphthalene	20.9	1.0	ug/L	25.0		83.5	40.5-120			
4-Chloroaniline	43.9	5.0	ug/L	65.0		67.5	42.7-120			
Hexachlorobutadiene	21.8	3.0	ug/L	25.0		87.3	32.3-120			
4-Chloro-3-Methylphenol	50.2	3.0	ug/L	65.0		77.2	51.9-120			
2-Methylnaphthalene	22.1	1.0	ug/L	25.0		88.4	47.3-120			
Hexachlorocyclopentadiene	36.5	5.0	ug/L	65.0		56.2	23.3-120			
2,4,6-Trichlorophenol	53.7	3.0	ug/L	65.0		82.6	47-120			
2,4,5-Trichlorophenol	54.1	5.0	ug/L	65.0		83.3	48.4-120			



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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:
31-Mar-2022 13:52

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0295 - 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 (BKC0295-BS1)				Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 18:54						
2-Chloronaphthalene	21.8	1.0	ug/L	25.0		87.3	47.7-123			
2-Nitroaniline	46.9	3.0	ug/L	65.0		72.1	56.8-120			
Dimethylphthalate	23.1	1.0	ug/L	25.0		92.6	65.2-125			
Acenaphthylene	23.0	1.0	ug/L	25.0		92.0	44.1-120			
2,6-Dinitrotoluene	57.8	3.0	ug/L	65.0		89.0	69.3-140			
3-Nitroaniline	54.0	3.0	ug/L	65.0		83.1	60.9-120			
Acenaphthene	22.3	1.0	ug/L	25.0		89.3	50.4-120			
2,4-Dinitrophenol	114	20.0	ug/L	115		98.9	33.7-183			Q
Dibenzofuran	23.2	1.0	ug/L	25.0		92.9	49.9-120			
4-Nitrophenol	61.8	10.0	ug/L	65.0		95.1	50.2-136			Q
2,4-Dinitrotoluene	56.9	3.0	ug/L	65.0		87.5	66.8-132			
Fluorene	22.7	1.0	ug/L	25.0		90.8	57.8-120			
Diethyl phthalate	23.3	1.0	ug/L	25.0		93.3	68.1-120			
4-Chlorophenylphenyl ether	23.6	1.0	ug/L	25.0		94.6	59.1-127			
4-Nitroaniline	55.1	3.0	ug/L	65.0		84.8	56-122			
4,6-Dinitro-2-methylphenol	107	10.0	ug/L	115		93.1	37.9-162			
N-Nitrosodiphenylamine	21.8	1.0	ug/L	25.0		87.2	59.6-120			
4-Bromophenyl phenyl ether	23.1	1.0	ug/L	25.0		92.5	59.6-120			
Hexachlorobenzene	23.8	1.0	ug/L	25.0		95.2	53.7-120			
Pentachlorophenol	63.3	10.0	ug/L	65.0		97.4	40.3-128			
Phenanthrene	23.3	1.0	ug/L	25.0		93.2	58.8-120			
Anthracene	22.5	1.0	ug/L	25.0		90.0	60.5-120			
Carbazole	22.7	1.0	ug/L	25.0		90.8	59.7-120			
Di-n-Butylphthalate	23.1	1.0	ug/L	25.0		92.6	71-120			
Fluoranthene	24.3	1.0	ug/L	25.0		97.1	66.7-120			
Pyrene	19.6	1.0	ug/L	25.0		78.5	62.7-127			
Butylbenzylphthalate	20.8	1.0	ug/L	25.0		83.3	67.4-128			
Benzo(a)anthracene	23.2	1.0	ug/L	25.0		92.6	58.3-128			
3,3'-Dichlorobenzidine	130	5.0	ug/L	65.0		201	34.1-120			*, Q
Chrysene	22.7	1.0	ug/L	25.0		90.7	58.9-120			
bis(2-Ethylhexyl)phthalate	22.7	3.0	ug/L	25.0		90.9	68.3-123			
Di-n-Octylphthalate	24.2	1.0	ug/L	25.0		96.7	61.5-120			
Benzo(a)pyrene	21.5	1.0	ug/L	25.0		86.2	70.6-120			
Indeno(1,2,3-cd)pyrene	21.3	1.0	ug/L	25.0		85.2	46.5-120			
Dibenzo(a,h)anthracene	21.8	1.0	ug/L	25.0		87.2	49.6-120			



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

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

Reported:
31-Mar-2022 13:52

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0295 - 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 (BKC0295-BS1)		Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 18:54								
Benzo(g,h,i)perylene	20.6	1.0	ug/L	25.0		82.4	37-120			
Benzo(a)fluoranthene, Total	45.2	2.0	ug/L	50.0		90.4	66.5-120			
1-Methylnaphthalene	23.2	1.0	ug/L	25.0		92.8	46.9-120			
Surrogate: 2-Fluorophenol	27.1		ug/L	37.5		72.3	33-120			
Surrogate: Phenol-d5	28.0		ug/L	37.5		74.5	38-120			
Surrogate: 2-Chlorophenol-d4	29.8		ug/L	37.5		79.4	41-120			
Surrogate: 1,2-Dichlorobenzene-d4	19.1		ug/L	25.0		76.6	20-120			
Surrogate: Nitrobenzene-d5	20.1		ug/L	25.0		80.6	27-120			
Surrogate: 2-Fluorobiphenyl	21.6		ug/L	25.0		86.4	33-120			
Surrogate: 2,4,6-Tribromophenol	44.6		ug/L	37.5		119	52-120			Q
Surrogate: p-Terphenyl-d14	21.6		ug/L	25.0		86.3	28-120			
LCS Dup (BKC0295-BSD1)		Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 19:28								
Phenol	18.5	1.0	ug/L	25.0		74.1	35-120	9.17	30	
bis(2-chloroethyl) ether	19.5	1.0	ug/L	25.0		78.1	46.5-120	8.61	30	
2-Chlorophenol	20.1	1.0	ug/L	25.0		80.4	48-120	7.34	30	
1,3-Dichlorobenzene	20.4	1.0	ug/L	25.0		81.7	34.2-120	8.25	30	
1,4-Dichlorobenzene	21.5	1.0	ug/L	25.0		86.2	36-120	8.50	30	
Benzyl Alcohol	21.1	2.0	ug/L	25.0		84.6	27.4-120	9.27	30	
1,2-Dichlorobenzene	21.0	1.0	ug/L	25.0		84.1	38.4-120	7.49	30	
2-Methylphenol	19.2	1.0	ug/L	25.0		77.0	47.8-120	9.30	30	
2,2'-Oxybis(1-chloropropane)	16.7	1.0	ug/L	25.0		66.6	40.4-120	8.39	30	Q
4-Methylphenol	20.4	2.0	ug/L	25.0		81.7	52.3-120	10.40	30	
N-Nitroso-di-n-Propylamine	18.1	1.0	ug/L	25.0		72.4	51.4-120	10.60	30	
Hexachloroethane	19.6	2.0	ug/L	25.0		78.6	29.5-120	6.57	30	
Nitrobenzene	21.1	1.0	ug/L	25.0		84.3	51.5-120	7.76	30	
Isophorone	27.8	1.0	ug/L	25.0		111	62.3-128	9.00	30	
2-Nitrophenol	25.9	3.0	ug/L	25.0		103	58.6-124	7.18	30	
2,4-Dimethylphenol	44.1	3.0	ug/L	65.0		67.9	38.5-120	10.20	30	
Bis(2-Chloroethoxy)methane	22.7	1.0	ug/L	25.0		91.0	52.9-120	9.03	30	
Benzoic acid	91.8	20.0	ug/L	115		79.8	38.2-120	11.20	30	Q
2,4-Dichlorophenol	54.8	3.0	ug/L	65.0		84.4	43.6-120	8.00	30	
1,2,4-Trichlorobenzene	22.7	1.0	ug/L	25.0		91.0	38.6-120	8.09	30	
Naphthalene	22.8	1.0	ug/L	25.0		91.1	40.5-120	8.65	30	
4-Chloroaniline	49.4	5.0	ug/L	65.0		76.0	42.7-120	11.80	30	



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

Reported:
31-Mar-2022 13:52

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0295 - 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 (BKC0295-BSD1)		Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 19:28								
Hexachlorobutadiene	23.4	3.0	ug/L	25.0		93.7	32.3-120	7.06	30	
4-Chloro-3-Methylphenol	54.2	3.0	ug/L	65.0		83.4	51.9-120	7.70	30	
2-Methylnaphthalene	23.8	1.0	ug/L	25.0		95.0	47.3-120	7.21	30	
Hexachlorocyclopentadiene	44.2	5.0	ug/L	65.0		67.9	23.3-120	19.00	30	
2,4,6-Trichlorophenol	58.3	3.0	ug/L	65.0		89.6	47-120	8.15	30	
2,4,5-Trichlorophenol	58.2	5.0	ug/L	65.0		89.5	48.4-120	7.24	30	
2-Chloronaphthalene	23.2	1.0	ug/L	25.0		92.6	47.7-123	5.91	30	
2-Nitroaniline	51.4	3.0	ug/L	65.0		79.0	56.8-120	9.17	30	
Dimethylphthalate	25.5	1.0	ug/L	25.0		102	65.2-125	9.66	30	
Acenaphthylene	24.4	1.0	ug/L	25.0		97.7	44.1-120	6.06	30	
2,6-Dinitrotoluene	64.1	3.0	ug/L	65.0		98.6	69.3-140	10.30	30	
3-Nitroaniline	60.9	3.0	ug/L	65.0		93.7	60.9-120	12.00	30	
Acenaphthene	24.0	1.0	ug/L	25.0		96.1	50.4-120	7.38	30	
2,4-Dinitrophenol	131	20.0	ug/L	115		114	33.7-183	14.30	30	Q
Dibenzofuran	24.8	1.0	ug/L	25.0		99.3	49.9-120	6.73	30	
4-Nitrophenol	65.8	10.0	ug/L	65.0		101	50.2-136	6.34	30	Q
2,4-Dinitrotoluene	62.6	3.0	ug/L	65.0		96.3	66.8-132	9.61	30	
Fluorene	24.6	1.0	ug/L	25.0		98.6	57.8-120	8.20	30	
Diethyl phthalate	25.3	1.0	ug/L	25.0		101	68.1-120	8.20	30	
4-Chlorophenylphenyl ether	25.4	1.0	ug/L	25.0		101	59.1-127	7.02	30	
4-Nitroaniline	61.0	3.0	ug/L	65.0		93.9	56-122	10.10	30	
4,6-Dinitro-2-methylphenol	119	10.0	ug/L	115		103	37.9-162	10.40	30	
N-Nitrosodiphenylamine	23.8	1.0	ug/L	25.0		95.2	59.6-120	8.77	30	
4-Bromophenyl phenyl ether	25.5	1.0	ug/L	25.0		102	59.6-120	9.69	30	
Hexachlorobenzene	25.9	1.0	ug/L	25.0		104	53.7-120	8.53	30	
Pentachlorophenol	68.8	10.0	ug/L	65.0		106	40.3-128	8.22	30	
Phenanthrene	25.2	1.0	ug/L	25.0		101	58.8-120	7.93	30	
Anthracene	24.2	1.0	ug/L	25.0		97.0	60.5-120	7.47	30	
Carbazole	24.2	1.0	ug/L	25.0		96.9	59.7-120	6.50	30	
Di-n-Butylphthalate	24.9	1.0	ug/L	25.0		99.7	71-120	7.36	30	
Fluoranthene	25.6	1.0	ug/L	25.0		102	66.7-120	5.36	30	
Pyrene	22.4	1.0	ug/L	25.0		89.4	62.7-127	13.00	30	
Butylbenzylphthalate	23.4	1.0	ug/L	25.0		93.7	67.4-128	11.80	30	
Benzo(a)anthracene	25.6	1.0	ug/L	25.0		103	58.3-128	10.20	30	
3,3'-Dichlorobenzidine	148	5.0	ug/L	65.0		227	34.1-120	12.30	30	*, Q



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Project: Landsburg
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Project Manager: Gary Zimmerman

Reported:
31-Mar-2022 13:52

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0295 - 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 (BKC0295-BSD1)				Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 19:28						
Chrysene	24.6	1.0	ug/L	25.0		98.2	58.9-120	7.96	30	
bis(2-Ethylhexyl)phthalate	24.9	3.0	ug/L	25.0		99.7	68.3-123	9.24	30	
Di-n-Octylphthalate	26.3	1.0	ug/L	25.0		105	61.5-120	8.42	30	
Benzo(a)pyrene	23.4	1.0	ug/L	25.0		93.5	70.6-120	8.15	30	
Indeno(1,2,3-cd)pyrene	23.4	1.0	ug/L	25.0		93.5	46.5-120	9.23	30	
Dibenzo(a,h)anthracene	23.9	1.0	ug/L	25.0		95.4	49.6-120	9.07	30	
Benzo(g,h,i)perylene	22.5	1.0	ug/L	25.0		90.0	37-120	8.82	30	
Benzo(a)fluoranthene, Total	47.6	2.0	ug/L	50.0		95.3	66.5-120	5.28	30	
1-Methylnaphthalene	25.3	1.0	ug/L	25.0		101	46.9-120	8.58	30	
<i>Surrogate: 2-Fluorophenol</i>	27.6		ug/L	37.5		73.7	33-120			
<i>Surrogate: Phenol-d5</i>	29.0		ug/L	37.5		77.4	38-120			
<i>Surrogate: 2-Chlorophenol-d4</i>	31.0		ug/L	37.5		82.8	41-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	19.3		ug/L	25.0		77.1	20-120			
<i>Surrogate: Nitrobenzene-d5</i>	21.0		ug/L	25.0		84.1	27-120			
<i>Surrogate: 2-Fluorobiphenyl</i>	21.8		ug/L	25.0		87.0	33-120			
<i>Surrogate: 2,4,6-Tribromophenol</i>	46.9		ug/L	37.5		125	52-120			* Q
<i>Surrogate: p-Terphenyl-d14</i>	23.8		ug/L	25.0		95.2	28-120			



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

Reported:
31-Mar-2022 13:52

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BKC0294 - 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 (BKC0294-BLK1)				Prepared: 14-Mar-2022 Analyzed: 17-Mar-2022 03:34						
1,4-Dioxane	ND	0.4	ug/L							U
<i>Surrogate: 1,4-Dioxane-d8</i>	11.8		ug/L	20.0	59.1		33.6-120			
LCS (BKC0294-BS1)				Prepared: 14-Mar-2022 Analyzed: 17-Mar-2022 03:59						
1,4-Dioxane	4.6	0.4	ug/L	10.0	45.6		39.9-120			
<i>Surrogate: 1,4-Dioxane-d8</i>	11.9		ug/L	20.0	59.7		33.6-120			
LCS Dup (BKC0294-BSD1)				Prepared: 14-Mar-2022 Analyzed: 17-Mar-2022 04:24						
1,4-Dioxane	4.4	0.4	ug/L	10.0	44.0		39.9-120	3.77	30	
<i>Surrogate: 1,4-Dioxane-d8</i>	11.6		ug/L	20.0	58.0		33.6-120			



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

Reported:
31-Mar-2022 13:52

Analysis by: Analytical Resources, LLC

Petroleum Hydrocarbons - Quality Control

Batch BKC0252 - EPA 3510C SepF

Instrument: FID4 Analyst: JR/VTS/JW

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0252-BLK1)		Prepared: 11-Mar-2022 Analyzed: 14-Mar-2022 18:41								
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
<i>Surrogate: o-Terphenyl</i>	0.207		mg/L	0.225	92.1		50-150			
<i>Surrogate: n-Triacontane</i>	0.229		mg/L	0.225	102		50-150			



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Reported:
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Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BKC0272 - EPA 3510C SepF

Instrument: ECD6 Analyst: YZ/VTS

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0272-BLK1)										
					Prepared: 14-Mar-2022 Analyzed: 28-Mar-2022 13:27					
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
<i>Surrogate: Decachlorobiphenyl</i>	0.362		ug/L	0.400		90.4	11-144			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	0.368		ug/L	0.400		91.9	11-144			
<i>Surrogate: Tetrachlorometaxylene</i>	0.179		ug/L	0.400		44.8	30-120			
<i>Surrogate: Tetrachlorometaxylene [2C]</i>	0.192		ug/L	0.400		48.1	30-120			

LCS (BKC0272-BS1)										
					Prepared: 14-Mar-2022 Analyzed: 28-Mar-2022 13:45					
alpha-BHC [2C]	0.167	0.025	ug/L	0.200		83.3	54-124			
beta-BHC [2C]	0.166	0.025	ug/L	0.200		82.9	53-123			
gamma-BHC (Lindane) [2C]	0.172	0.025	ug/L	0.200		86.0	53-127			
delta-BHC [2C]	0.154	0.025	ug/L	0.200		76.8	53-122			
Heptachlor [2C]	0.150	0.025	ug/L	0.200		74.9	50-120			
Aldrin [2C]	0.133	0.025	ug/L	0.200		66.4	47-120			
Heptachlor Epoxide [2C]	0.171	0.050	ug/L	0.200		85.6	50-127			
trans-Chlordane (beta-Chlordane) [2C]	0.158	0.025	ug/L	0.200		78.8	47-127			



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Chlorinated Pesticides - Quality Control

Batch BKC0272 - EPA 3510C SepF

Instrument: ECD6 Analyst: YZ/VTS

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BKC0272-BS1)		Prepared: 14-Mar-2022 Analyzed: 28-Mar-2022 13:45								
cis-Chlordane (alpha-chlordane) [2C]	0.170	0.025	ug/L	0.200		84.8	51-132			
Endosulfan I [2C]	0.173	0.025	ug/L	0.200		86.7	48-137			
4,4'-DDE [2C]	0.335	0.050	ug/L	0.400		83.8	47-133			
Dieldrin [2C]	0.330	0.050	ug/L	0.400		82.4	55-130			
Endrin [2C]	0.339	0.050	ug/L	0.400		84.7	52-121			
Endosulfan II	0.383	0.050	ug/L	0.400		95.7	60-120			
4,4'-DDD	0.390	0.050	ug/L	0.400		97.5	60-120			
Endrin Aldehyde	0.366	0.050	ug/L	0.400		91.5	53-120			
4,4'-DDT	0.376	0.050	ug/L	0.400		94.0	57-122			
Endosulfan Sulfate [2C]	0.371	0.050	ug/L	0.400		92.7	56-120			
Endrin Ketone	0.399	0.050	ug/L	0.400		99.7	61-120			
Methoxychlor [2C]	1.85	0.250	ug/L	2.00		92.6	55-120			
<i>Surrogate: Decachlorobiphenyl</i>	0.375		ug/L	0.400		93.9	11-144			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	0.343		ug/L	0.400		85.8	11-144			
<i>Surrogate: Tetrachlorometaxylene</i>	0.250		ug/L	0.400		62.4	30-120			
<i>Surrogate: Tetrachlorometaxylene [2C]</i>	0.270		ug/L	0.400		67.6	30-120			
LCS (BKC0272-BS2)		Prepared: 14-Mar-2022 Analyzed: 28-Mar-2022 14:04								
Toxaphene	9.56	1.25	ug/L	10.0		95.6	0-200			
<i>Surrogate: Decachlorobiphenyl</i>	0.323		ug/L	0.400		80.7	11-144			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	0.308		ug/L	0.400		76.9	11-144			
<i>Surrogate: Tetrachlorometaxylene</i>	0.260		ug/L	0.400		65.0	30-120			
<i>Surrogate: Tetrachlorometaxylene [2C]</i>	0.295		ug/L	0.400		73.8	30-120			
LCS Dup (BKC0272-BSD1)		Prepared: 14-Mar-2022 Analyzed: 28-Mar-2022 14:22								
alpha-BHC [2C]	0.179	0.025	ug/L	0.200		89.3	54-124	6.94	30	
beta-BHC [2C]	0.175	0.025	ug/L	0.200		87.7	53-123	5.59	30	
gamma-BHC (Lindane) [2C]	0.181	0.025	ug/L	0.200		90.5	53-127	5.15	30	
delta-BHC [2C]	0.158	0.025	ug/L	0.200		78.8	53-122	2.69	30	
Heptachlor [2C]	0.158	0.025	ug/L	0.200		79.0	50-120	5.39	30	
Aldrin [2C]	0.138	0.025	ug/L	0.200		68.9	47-120	3.74	30	
Heptachlor Epoxide [2C]	0.178	0.050	ug/L	0.200		89.0	50-127	3.80	30	
trans-Chlordane (beta-Chlordane) [2C]	0.163	0.025	ug/L	0.200		81.7	47-127	3.66	30	
cis-Chlordane (alpha-chlordane) [2C]	0.176	0.025	ug/L	0.200		87.8	51-132	3.57	30	



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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:
31-Mar-2022 13:52

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BKC0272 - EPA 3510C SepF

Instrument: ECD6 Analyst: YZ/VTS

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BKC0272-BSD1)		Prepared: 14-Mar-2022 Analyzed: 28-Mar-2022 14:22								
Endosulfan I [2C]	0.181	0.025	ug/L	0.200		90.3	48-137	4.07	30	
4,4'-DDE [2C]	0.348	0.050	ug/L	0.400		86.9	47-133	3.63	30	
Dieldrin [2C]	0.343	0.050	ug/L	0.400		85.6	55-130	3.78	30	
Endrin [2C]	0.340	0.050	ug/L	0.400		85.0	52-121	0.30	30	
Endosulfan II [2C]	0.372	0.050	ug/L	0.400		93.1	60-120	2.91	30	
4,4'-DDD	0.372	0.050	ug/L	0.400		92.9	60-120	4.83	30	
Endrin Aldehyde [2C]	0.341	0.050	ug/L	0.400		85.3	53-120	0.30	30	
4,4'-DDT [2C]	0.387	0.050	ug/L	0.400		96.7	57-122	4.44	30	
Endosulfan Sulfate [2C]	0.399	0.050	ug/L	0.400		99.8	56-120	7.37	30	
Endrin Ketone [2C]	0.420	0.050	ug/L	0.400		105	61-120	6.52	30	
Methoxychlor [2C]	1.90	0.250	ug/L	2.00		94.9	55-120	2.41	30	
<i>Surrogate: Decachlorobiphenyl</i>	0.351		ug/L	0.400		87.7	11-144			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	0.335		ug/L	0.400		83.8	11-144			
<i>Surrogate: Tetrachlorometaxylene</i>	0.260		ug/L	0.400		64.9	30-120			
<i>Surrogate: Tetrachlorometaxylene [2C]</i>	0.291		ug/L	0.400		72.8	30-120			



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

Reported:
31-Mar-2022 13:52

Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BKC0271 - 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 (BKC0271-BLK1)										
					Prepared: 14-Mar-2022 Analyzed: 23-Mar-2022 13:03					
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	0.0137		ug/L	0.0200	68.5		29-120			
Surrogate: Tetrachlorometaxylene	0.0141		ug/L	0.0200	70.3		32-120			
Surrogate: Decachlorobiphenyl [2C]	0.0133		ug/L	0.0200	66.6		29-120			
Surrogate: Tetrachlorometaxylene [2C]	0.0131		ug/L	0.0200	65.5		32-120			
LCS (BKC0271-BS1)										
					Prepared: 14-Mar-2022 Analyzed: 23-Mar-2022 13:25					
Aroclor 1016	0.045	0.010	ug/L	0.0500	89.1		54-120			
Aroclor 1260	0.054	0.010	ug/L	0.0500	108		51-128			
Surrogate: Decachlorobiphenyl	0.0140		ug/L	0.0200	70.1		29-120			
Surrogate: Tetrachlorometaxylene	0.0139		ug/L	0.0200	69.6		32-120			
Surrogate: Decachlorobiphenyl [2C]	0.0136		ug/L	0.0200	67.8		29-120			
Surrogate: Tetrachlorometaxylene [2C]	0.0135		ug/L	0.0200	67.7		32-120			
LCS Dup (BKC0271-BSD1)										
					Prepared: 14-Mar-2022 Analyzed: 23-Mar-2022 13:46					
Aroclor 1016 [2C]	0.044	0.010	ug/L	0.0500	87.5		54-120	0.39	30	
Aroclor 1260	0.053	0.010	ug/L	0.0500	106		51-128	1.38	30	
Surrogate: Decachlorobiphenyl	0.0133		ug/L	0.0200	66.3		29-120			
Surrogate: Tetrachlorometaxylene	0.0140		ug/L	0.0200	70.2		32-120			
Surrogate: Decachlorobiphenyl [2C]	0.0126		ug/L	0.0200	62.8		29-120			
Surrogate: Tetrachlorometaxylene [2C]	0.0137		ug/L	0.0200	68.3		32-120			



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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0278 - TWM EPA 7470A

Instrument: HYDRA Analyst: SKD

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0278-BLK1)					Prepared: 11-Mar-2022 Analyzed: 16-Mar-2022 14:06					
Mercury	ND	0.00100	mg/L							U
LCS (BKC0278-BS1)					Prepared: 11-Mar-2022 Analyzed: 16-Mar-2022 14:09					
Mercury	0.00175	0.00100	mg/L	0.00200		87.5	80-120			



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

Reported:
31-Mar-2022 13:52

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0459 - 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 (BKC0459-BLK1)			Prepared: 18-Mar-2022 Analyzed: 18-Mar-2022 18:58								
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 (BKC0459-BS1)			Prepared: 18-Mar-2022 Analyzed: 18-Mar-2022 19:03								
Antimony	121	0.0251	0.00300	mg/L	0.0250		101	80-120			
Antimony	123	0.0251	0.00300	mg/L	0.0250		100	80-120			
Lead	208	0.0262	0.0100	mg/L	0.0250		105	80-120			
Thallium	205	0.0266	0.00200	mg/L	0.0250		106	80-120			
Arsenic	75a	0.0245	0.00300	mg/L	0.0250		98.0	80-120			
Selenium	78	0.0808	0.0250	mg/L	0.0800		101	80-120			
Duplicate (BKC0459-DUP1)			Source: 22C0150-01		Prepared: 18-Mar-2022 Analyzed: 18-Mar-2022 22:23						
Antimony	121	ND	0.00300	mg/L		ND					U
Lead	208	ND	0.0100	mg/L		ND					U
Thallium	205	ND	0.00200	mg/L		ND					U
Arsenic	75a	ND	0.00300	mg/L		ND					U
Selenium	78	ND	0.0250	mg/L		ND					U
Matrix Spike (BKC0459-MS1)			Source: 22C0150-01		Prepared: 18-Mar-2022 Analyzed: 18-Mar-2022 22:28						
Antimony	121	0.0256	0.00300	mg/L	0.0250	ND	103	75-125			
Lead	208	0.0253	0.0100	mg/L	0.0250	ND	101	75-125			
Thallium	205	0.0259	0.00200	mg/L	0.0250	ND	104	75-125			
Arsenic	75a	0.0255	0.00300	mg/L	0.0250	ND	101	75-125			
Selenium	78	0.0792	0.0250	mg/L	0.0800	ND	99.0	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BKC0459-MSD1)			Source: 22C0150-01		Prepared: 18-Mar-2022 Analyzed: 18-Mar-2022 22:34						
Antimony	121	0.0254	0.00300	mg/L	0.0250	ND	102	75-125	0.79	20	
Lead	208	0.0249	0.0100	mg/L	0.0250	ND	99.7	75-125	1.54	20	
Thallium	205	0.0254	0.00200	mg/L	0.0250	ND	102	75-125	1.92	20	
Arsenic	75a	0.0252	0.00300	mg/L	0.0250	ND	100	75-125	0.85	20	



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

Reported:
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0459 - 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 (BKC0459-MSD1)			Source: 22C0150-01		Prepared: 18-Mar-2022		Analyzed: 18-Mar-2022 22:34				
Selenium	78	0.0787	0.0250	mg/L	0.0800	ND	98.4	75-125	0.64	20	

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



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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:
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0475 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0475-BLK1)										
					Prepared: 18-Mar-2022 Analyzed: 22-Mar-2022 14:27					
Aluminum	ND	1.00	mg/L							U
Barium	ND	0.500	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

Blank (BKC0475-BLK2)										
					Prepared: 18-Mar-2022 Analyzed: 23-Mar-2022 15:27					
Beryllium	ND	0.0100	mg/L							U

LCS (BKC0475-BS1)										
					Prepared: 18-Mar-2022 Analyzed: 22-Mar-2022 15:02					
Aluminum	2.16	1.00	mg/L	2.00		108	80-120			
Barium	2.06	0.500	mg/L	2.00		103	80-120			
Cadmium	0.516	0.0020	mg/L	0.500		103	80-120			
Calcium	10.2	0.500	mg/L	10.0		102	80-120			
Chromium	0.508	0.0100	mg/L	0.500		102	80-120			
Cobalt	0.586	0.0100	mg/L	0.500		117	80-120			
Copper	0.500	0.0030	mg/L	0.500		99.9	80-120			
Iron	2.02	0.200	mg/L	2.00		101	80-120			
Magnesium	11.1	0.500	mg/L	10.0		111	80-120			
Manganese	0.514	0.0100	mg/L	0.500		103	80-120			
Nickel	0.529	0.0100	mg/L	0.500		106	80-120			
Potassium	10.6	0.500	mg/L	10.0		106	80-120			
Silver	0.536	0.0050	mg/L	0.500		107	80-120			



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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:
31-Mar-2022 13:52

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0475 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BKC0475-BS1)				Prepared: 18-Mar-2022 Analyzed: 22-Mar-2022 15:02						
Sodium	10.8	0.500	mg/L	10.0		108	80-120			
Vanadium	0.512	0.0030	mg/L	0.500		102	80-120			
Zinc	0.528	0.0200	mg/L	0.500		106	80-120			
LCS (BKC0475-BS2)				Prepared: 18-Mar-2022 Analyzed: 23-Mar-2022 15:51						
Beryllium	0.552	0.0100	mg/L	0.500		110	80-120			
Duplicate (BKC0475-DUP1)				Source: 22C0150-01 Prepared: 18-Mar-2022 Analyzed: 22-Mar-2022 16:18						
Aluminum	ND	1.00	mg/L		ND					U
Barium	ND	0.500	mg/L		ND					U
Cadmium	ND	0.0020	mg/L		ND					U
Calcium	6.69	0.500	mg/L		5.98			11.20	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					L, U
Magnesium	3.24	0.500	mg/L		2.88			11.70	20	
Manganese	ND	0.0100	mg/L		ND					U
Nickel	ND	0.0100	mg/L		ND					U
Potassium	1.18	0.500	mg/L		1.19			0.83	20	
Silver	ND	0.0050	mg/L		ND					U
Sodium	85.1	50.0	mg/L		87.7			2.97	20	
Vanadium	ND	0.0030	mg/L		ND					U
Zinc	ND	0.0200	mg/L		ND					U
Duplicate (BKC0475-DUP2)				Source: 22C0150-01 Prepared: 18-Mar-2022 Analyzed: 23-Mar-2022 16:07						
Beryllium	ND	0.0100	mg/L		ND					U
Matrix Spike (BKC0475-MS1)				Source: 22C0150-01 Prepared: 18-Mar-2022 Analyzed: 22-Mar-2022 16:21						
Aluminum	2.23	1.00	mg/L	2.00	ND	111	75-125			
Barium	2.18	0.500	mg/L	2.00	ND	108	75-125			
Cadmium	0.513	0.0020	mg/L	0.500	ND	103	75-125			
Calcium	16.4	0.500	mg/L	10.0	5.98	104	75-125			
Chromium	0.534	0.0100	mg/L	0.500	ND	107	75-125			
Cobalt	0.576	0.0100	mg/L	0.500	ND	115	75-125			
Copper	0.500	0.0030	mg/L	0.500	ND	100	75-125			



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

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

Reported:
31-Mar-2022 13:52

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0475 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BKC0475-MS1)		Source: 22C0150-01		Prepared: 18-Mar-2022		Analyzed: 22-Mar-2022 16:21				
Iron	2.15	0.200	mg/L	2.00	ND	105	75-125			
Magnesium	14.6	0.500	mg/L	10.0	2.88	117	75-125			
Manganese	0.538	0.0100	mg/L	0.500	ND	107	75-125			
Nickel	0.551	0.0100	mg/L	0.500	ND	110	75-125			
Potassium	12.0	0.500	mg/L	10.0	1.19	108	75-125			
Silver	0.529	0.0050	mg/L	0.500	ND	106	75-125			
Sodium	99.4	50.0	mg/L	10.0	87.7	117	75-125			
Vanadium	0.511	0.0030	mg/L	0.500	ND	102	75-125			
Zinc	0.562	0.0200	mg/L	0.500	ND	112	75-125			

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

Matrix Spike (BKC0475-MS2)		Source: 22C0150-01		Prepared: 18-Mar-2022		Analyzed: 23-Mar-2022 16:10				
Beryllium	0.565	0.0100	mg/L	0.500	ND	113	75-125			

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

Matrix Spike Dup (BKC0475-MSD1)		Source: 22C0150-01		Prepared: 18-Mar-2022		Analyzed: 22-Mar-2022 16:24				
Aluminum	2.28	1.00	mg/L	2.00	ND	114	75-125	2.62	20	
Barium	2.22	0.500	mg/L	2.00	ND	110	75-125	1.80	20	
Cadmium	0.527	0.0020	mg/L	0.500	ND	105	75-125	2.76	20	
Calcium	16.9	0.500	mg/L	10.0	5.98	109	75-125	3.10	20	
Chromium	0.541	0.0100	mg/L	0.500	ND	108	75-125	1.32	20	
Cobalt	0.599	0.0100	mg/L	0.500	ND	120	75-125	4.06	20	
Copper	0.520	0.0030	mg/L	0.500	ND	104	75-125	3.82	20	
Iron	2.20	0.200	mg/L	2.00	ND	108	75-125	2.01	20	
Magnesium	14.9	0.500	mg/L	10.0	2.88	120	75-125	1.92	20	
Manganese	0.549	0.0100	mg/L	0.500	ND	109	75-125	1.91	20	
Nickel	0.555	0.0100	mg/L	0.500	ND	111	75-125	0.76	20	
Potassium	12.3	0.500	mg/L	10.0	1.19	111	75-125	2.31	20	
Silver	0.540	0.0050	mg/L	0.500	ND	108	75-125	2.08	20	
Sodium	101	50.0	mg/L	10.0	87.7	129	75-125	1.19	20	HC
Vanadium	0.528	0.0030	mg/L	0.500	ND	106	75-125	3.30	20	
Zinc	0.574	0.0200	mg/L	0.500	ND	115	75-125	2.24	20	

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

Matrix Spike Dup (BKC0475-MSD2)		Source: 22C0150-01		Prepared: 18-Mar-2022		Analyzed: 23-Mar-2022 16:14				
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0475 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BKC0475-MSD2)		Source: 22C0150-01		Prepared: 18-Mar-2022		Analyzed: 23-Mar-2022 16:14				
Beryllium	0.566	0.0100	mg/L	0.500	ND	113	75-125	0.13	20	

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



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

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

Reported:
31-Mar-2022 13:52

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 6010D 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
EPA 7470A in Water	
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8081B in Water	
alpha-BHC	DoD-ELAP,NELAP,WADOE
alpha-BHC [2C]	DoD-ELAP,NELAP,WADOE
beta-BHC	DoD-ELAP,NELAP,WADOE
beta-BHC [2C]	DoD-ELAP,NELAP,WADOE
gamma-BHC (Lindane)	DoD-ELAP,NELAP,WADOE
gamma-BHC (Lindane) [2C]	DoD-ELAP,NELAP,WADOE



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



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

EPA 8082A in Water

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



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EPA 8260D in Water

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



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

EPA 8270E in Water

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



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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
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



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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
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
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



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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

EPA 8270E-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	03/28/2023
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022



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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.
- P The reported value is greater than 25% difference between the concentrations determined on two GC columns where applicable.
- P1 The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
- 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, LLC
Analytical Chemists and Consultants

31 March 2022

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

RE: Landsburg (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)
22C0153

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, LLC

Kelly Bottem, Client Services Manager

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



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 Assigned Number: 220153 Turn-around Requested: Standard

Page: 1 of 1

ARI Client Company: Golder Phone: 425 883 0777

Date: 3/7/22 Ice Present?

Client Contact: Gary Zimmerman / Joseph Xi

No. of Coolers: See CRF Cooler Temps: See CRF

Client Project Name: Landsburg GW

Analysis Requested

Client Project #: Samplers: Chris K / Autumn P.

Notes/Comments	SOCs	Chert list	Organic Chloride	PCPBs (LL)	TPH HClD (Held Filter)	Dissolved Metals (HOLD)	Total Metals (Chert list)	1,4-Dioxane	VOCs (Chert list)
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Sample ID	Date	Time	Matrix	No. Containers
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LMW-2-0322	3/7/22	1115	GW	54	X	X	X		X	X	X	X	Extra vol collected for ms/msd
LMW-2-0322-D	↓	1120	GW	18	X	X	X		X	X	X	X	
LMW-4-0322	↓	1320	GW	19	X	X	X		X	X	X	X	
Temp Blank-0322-1	-	-	GW	3	X								

Comments/Special Instructions
Ecology EIM EDD
Chert specific RLs / Analyte List

Relinquished by: [Signature]
 (Signature)
 Printed Name: Christopher Kubicki
 Company: GOLDER ASSOCIATES
 Date & Time: 15:30 3/7/22

Received by: [Signature]
 (Signature)
 Printed Name: Limin Comanche
 Company: ARIT
 Date & Time: 3/7/22 1530

Relinquished by:
 (Signature)
 Printed Name:
 Company:
 Date & Time:

Received by:
 (Signature)
 Printed Name:
 Company:
 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:
31-Mar-2022 13:37

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LMW-2-0322	22C0153-01	Water	07-Mar-2022 11:15	07-Mar-2022 15:30
LMW-2-0322-D	22C0153-02	Water	07-Mar-2022 11:20	07-Mar-2022 15:30
LMW-4-0322	22C0153-03	Water	07-Mar-2022 13:20	07-Mar-2022 15:30
Trip Blank-0322-1	22C0153-04	Water	07-Mar-2022 11:15	07-Mar-2022 15:30
LMW-4-0322	22C0153-05	Water	07-Mar-2022 13:20	07-Mar-2022 15:30



Golder Associates
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Redmond WA, 98052-3333

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

Reported:
31-Mar-2022 13:37

Work Order Case Narrative

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

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

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

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

1,4-Dioxane- EPA Method SW8270E

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

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

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



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Project: Landsburg
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Reported:
31-Mar-2022 13:37

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

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

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

Volatiles - EPA Method SW8260D

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

Initial and continuing calibrations were within method requirements with the exception of all associated "Q" flagged analytes which are out of control low in the CCAL. All associated samples that contain analyte have been flagged with a "Q" qualifier.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) contained hexachloro-1,3-Butadiene. Samples that contain analyte have been flagged with a "B" qualifier.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

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



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Project Number: Landsburg
Project Manager: Gary Zimmerman

Reported:
31-Mar-2022 13:37

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

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

Initial and continuing calibrations were within method requirements.

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

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

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

Semivolatiles - EPA Method SW8270E

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

Initial and continuing calibrations were within method requirements with the exception of all associated "Q" flagged analytes which are out of control high in the CCAL and 2,2'-Oxybis(1-chloropropane), benzoic acid and 2,4-Dinitrophenol are out of control low. All associated samples that contain analyte have been flagged with a "Q" qualifier.

Internal standard areas were within limits.

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

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

The blank spike (BS/LCS) percent recoveries were within control limits with the exception of analytes flagged on the associated forms.

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



WORK ORDER

22C0153

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

Preservation Confirmation

Container ID	Container Type	pH
22C0153-01 A	Glass NM, Amber, 1000 mL	
22C0153-01 AA	Glass NM, Amber, 500 mL	
22C0153-01 AB	Glass NM, Amber, 500 mL	
22C0153-01 AC	Glass NM, Amber, 500 mL	
22C0153-01 AD	Glass NM, Amber, 500 mL	
22C0153-01 AE	Glass NM, Amber, 500 mL	
22C0153-01 AF	Glass NM, Amber, 500 mL	
22C0153-01 AG	Glass NM, Amber, 500 mL	
22C0153-01 AH	Glass NM, Amber, 500 mL	
22C0153-01 AI	Glass NM, Amber, 500 mL	
22C0153-01 AJ	HDPE NM, 500 mL, 1:1 HNO3	22 Pass
22C0153-01 AK	HDPE NM, 500 mL, 1:1 HNO3	22 Pass
22C0153-01 AL	HDPE NM, 500 mL, 1:1 HNO3	22 Pass
22C0153-01 AM	VOA Vial, Clear, 40 mL, HCL	
22C0153-01 AN	VOA Vial, Clear, 40 mL, HCL	
22C0153-01 AO	VOA Vial, Clear, 40 mL, HCL	
22C0153-01 AP	VOA Vial, Clear, 40 mL, HCL	
22C0153-01 AQ	VOA Vial, Clear, 40 mL, HCL	
22C0153-01 AR	VOA Vial, Clear, 40 mL, HCL	
22C0153-01 AS	VOA Vial, Clear, 40 mL, HCL	
22C0153-01 AT	VOA Vial, Clear, 40 mL, HCL	
22C0153-01 AU	VOA Vial, Clear, 40 mL, HCL	
22C0153-01 AV	VOA Vial, Amber, 40 mL, HCL	
22C0153-01 AW	VOA Vial, Amber, 40 mL, HCL	
22C0153-01 AX	VOA Vial, Amber, 40 mL, HCL	
22C0153-01 AY	VOA Vial, Amber, 40 mL, HCL	
22C0153-01 AZ	VOA Vial, Amber, 40 mL, HCL	
22C0153-01 B	Glass NM, Amber, 500 mL	
22C0153-01 BA	VOA Vial, Amber, 40 mL, HCL	
22C0153-01 BB	Glass NM, Amber, 500 mL	
22C0153-01 C	Glass NM, Amber, 1000 mL	
22C0153-01 D	Glass NM, Amber, 1000 mL	
22C0153-01 E	Glass NM, Amber, 1000 mL	
22C0153-01 F	Glass NM, Amber, 1000 mL	



WORK ORDER

22C0153

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

22C0153-01 G	Glass NM, Amber, 1000 mL
22C0153-01 H	Glass NM, Amber, 1000 mL
22C0153-01 I	Glass NM, Amber, 1000 mL
22C0153-01 J	Glass NM, Amber, 1000 mL
22C0153-01 K	Glass NM, Amber, 1000 mL
22C0153-01 L	Glass NM, Amber, 1000 mL
22C0153-01 M	Glass NM, Amber, 1000 mL
22C0153-01 N	Glass NM, Amber, 1000 mL
22C0153-01 O	Glass NM, Amber, 1000 mL
22C0153-01 P	Glass NM, Amber, 1000 mL
22C0153-01 Q	Glass NM, Amber, 1000 mL
22C0153-01 R	Glass NM, Amber, 1000 mL
22C0153-01 S	Glass NM, Amber, 1000 mL
22C0153-01 T	Glass NM, Amber, 1000 mL
22C0153-01 U	Glass NM, Amber, 1000 mL
22C0153-01 V	Glass NM, Amber, 1000 mL
22C0153-01 W	Glass NM, Amber, 1000 mL
22C0153-01 X	Glass NM, Amber, 500 mL
22C0153-01 X 01	Autosampler Vial, clear
22C0153-01 Y	Glass NM, Amber, 500 mL
22C0153-01 Z	Glass NM, Amber, 500 mL
22C0153-02 D	Glass NM, Amber, 1000 mL
22C0153-02 E	Glass NM, Amber, 1000 mL
22C0153-02 F	Glass NM, Amber, 1000 mL
22C0153-02 G	Glass NM, Amber, 1000 mL
22C0153-02 H	Glass NM, Amber, 1000 mL
22C0153-02 I	Glass NM, Amber, 1000 mL
22C0153-02 J	Glass NM, Amber, 1000 mL
22C0153-02 K	Glass NM, Amber, 1000 mL
22C0153-02 L	Glass NM, Amber, 500 mL
22C0153-02 L 01	Autosampler Vial, clear
22C0153-02 M	Glass NM, Amber, 500 mL
22C0153-02 N	Glass NM, Amber, 500 mL
22C0153-02 O	Glass NM, Amber, 500 mL
22C0153-02 P	HDPE NM, 500 mL, 1:1 HNO3
22C0153-02 Q	VOA Vial, Clear, 40 mL, HCL

22 Pass



WORK ORDER

22C0153

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

22C0153-02 R	VOA Vial, Clear, 40 mL, HCL	
22C0153-02 S	VOA Vial, Clear, 40 mL, HCL	
22C0153-02 T	VOA Vial, Amber, 40 mL, HCL	Bubble
22C0153-02 U	VOA Vial, Amber, 40 mL, HCL	
22C0153-03 A	Glass NM, Amber, 1000 mL	
22C0153-03 B	Glass NM, Amber, 1000 mL	
22C0153-03 C	Glass NM, Amber, 1000 mL	
22C0153-03 D	Glass NM, Amber, 1000 mL	
22C0153-03 E	Glass NM, Amber, 1000 mL	
22C0153-03 F	Glass NM, Amber, 1000 mL	
22C0153-03 G	Glass NM, Amber, 1000 mL	
22C0153-03 H	Glass NM, Amber, 1000 mL	
22C0153-03 I	Glass NM, Amber, 500 mL	
22C0153-03 I 01	Autosampler Vial, clear	
22C0153-03 J	Glass NM, Amber, 500 mL	
22C0153-03 K	Glass NM, Amber, 500 mL	
22C0153-03 L	Glass NM, Amber, 500 mL	
22C0153-03 M	HDPE NM, 500 mL, 1:1 HNO3	12 Pass
22C0153-03 N	VOA Vial, Clear, 40 mL, HCL	
22C0153-03 O	VOA Vial, Clear, 40 mL, HCL	
22C0153-03 P	VOA Vial, Clear, 40 mL, HCL	
22C0153-03 Q	VOA Vial, Amber, 40 mL, HCL	
22C0153-03 R	VOA Vial, Amber, 40 mL, HCL	
22C0153-04 A	VOA Vial, Clear, 40 mL, HCL	
22C0153-04 B	VOA Vial, Clear, 40 mL, HCL	
22C0153-04 C	VOA Vial, Clear, 40 mL, HCL	
22C0153-05 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	12 Pass

Preservation Confirmed By _____

Date _____

Reviewed By _____

Date _____



Cooler Receipt Form

ARI Client: Golden

Project Name: Landburg CW

COC No(s): _____ (NA)

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

Assigned ARI Job No: 22C0153

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were in tact, 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 1530 0.8 2.3 2.6 4.2 4.4 4.4

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 2565

Cooler Accepted by: DC Date: 3/7/22 Time: 1530

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 DC 3/9/22

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: DC Date: 3/7/22 Time: 1733 Labels checked by: _____

**** 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:

Bubble found in 1 vial, log to determine size.

By: DC Date: 3/10/22



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

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

Reported:
31-Mar-2022 13:37

LMW-2-0322
22C0153-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/07/2022 11:15

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 19:49

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BKC0362
Prepared: 03/15/2022

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 22C0153-01 AT

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



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

Reported:
31-Mar-2022 13:37

LMW-2-0322
22C0153-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/07/2022 11:15

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 19:49

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



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

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

Reported:
31-Mar-2022 13:37

LMW-2-0322
22C0153-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/07/2022 11:15

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 19:49

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	102	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	98.2	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	101	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	98.4	%	



Golder Associates
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Redmond WA, 98052-3333

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

Reported:
31-Mar-2022 13:37

LMW-2-0322
22C0153-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/07/2022 11:15

Instrument: NT6 Analyst: JZ

Analyzed: 03/16/2022 22:16

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BKC0295
Prepared: 03/14/2022

Sample Size: 500 mL
Final Volume: 0.5 mL

Extract ID: 22C0153-01 AG 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



Golder Associates
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Redmond WA, 98052-3333

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

Reported:
31-Mar-2022 13:37

LMW-2-0322
22C0153-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/07/2022 11:15

Instrument: NT6 Analyst: JZ

Analyzed: 03/16/2022 22:16

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
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 %	70.6	%	
<i>Surrogate: Phenol-d5</i>			38-120 %	71.6	%	
<i>Surrogate: 2-Chlorophenol-d4</i>			41-120 %	78.6	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			20-120 %	75.5	%	
<i>Surrogate: Nitrobenzene-d5</i>			27-120 %	76.0	%	



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

Reported:
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LMW-2-0322
22C0153-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/07/2022 11:15

Instrument: NT6 Analyst: JZ

Analyzed: 03/16/2022 22:16

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
<i>Surrogate: 2-Fluorobiphenyl</i>		33-120 %	82.5	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>		52-120 %	113	%	Q
<i>Surrogate: p-Terphenyl-d14</i>		28-120 %	88.6	%	



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 13:37
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LMW-2-0322
22C0153-01 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM Sampled: 03/07/2022 11:15
Instrument: NT6 Analyst: JZ Analyzed: 03/17/2022 06:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 22C0153-01 AD 01
Preparation Batch: BKC0294 Sample Size: 500 mL
Prepared: 03/14/2022 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	1.8	ug/L	
<i>Surrogate: 1,4-Dioxane-d8</i>			<i>33.6-120 %</i>	<i>56.6</i>	<i>%</i>	



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

Reported:
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LMW-2-0322
22C0153-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID

Sampled: 03/07/2022 11:15

Instrument: FID4 Analyst: JR

Analyzed: 03/14/2022 21:39

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BKC0252
Prepared: 03/11/2022

Sample Size: 500 mL
Final Volume: 1 mL

Extract ID: 22C0153-01 X 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 %	96.5	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	104	%	



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Project: Landsburg
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Project Manager: Gary Zimmerman

Reported:
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LMW-2-0322
22C0153-01 (Water)

Chlorinated Pesticides

Method: EPA 8081B Sampled: 03/07/2022 11:15
Instrument: ECD6 Analyst: YZ Analyzed: 03/28/2022 15:54

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKC0272 Prepared: 03/14/2022	Sample Size: 500 mL Final Volume: 5 mL	Extract ID: 22C0153-01 AA 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKC0171 Cleaned: 24-Mar-2022	Initial Volume: 5 mL Final Volume: 5 mL	Extract ID: 22C0153-01 AA 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CKC0170 Cleaned: 24-Mar-2022	Initial Volume: 5 uL Final Volume: 5 uL	Extract ID: 22C0153-01 AA 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
<i>Surrogate: Decachlorobiphenyl</i>			<i>11-144 %</i>	<i>107</i>	<i>%</i>	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			<i>11-144 %</i>	<i>94.1</i>	<i>%</i>	
<i>Surrogate: Tetrachlorometaxylene</i>			<i>30-120 %</i>	<i>51.5</i>	<i>%</i>	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			<i>30-120 %</i>	<i>56.6</i>	<i>%</i>	



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LMW-2-0322
22C0153-01 (Water)

Aroclor PCB

Method: EPA 8082A Sampled: 03/07/2022 11:15
Instrument: ECD7 Analyst: JGR Analyzed: 03/23/2022 15:35

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKC0271 Prepared: 03/14/2022	Sample Size: 1000 mL Final Volume: 0.5 mL	Extract ID: 22C0153-01 A 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKC0162 Cleansed: 23-Mar-2022	Initial Volume: 0.5 mL Final Volume: 0.5 mL	Extract ID: 22C0153-01 A 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKC0160 Cleansed: 23-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0153-01 A 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CKC0161 Cleansed: 23-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0153-01 A 01

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 %	67.6	%	
<i>Surrogate: Tetrachlorometaxylene</i>			32-120 %	66.9	%	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			29-120 %	67.3	%	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			32-120 %	64.9	%	



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

Reported:
31-Mar-2022 13:37

LMW-2-0322
22C0153-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 03/07/2022 11:15

Instrument: ICPMS1 Analyst: MCB

Analyzed: 03/17/2022 20:25

Analysis by: Analytical Resources, LLC

Sample Preparation:

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

Extract ID: 22C0153-01 AL 02

Preparation Batch: BKC0417

Sample Size: 25 mL

Prepared: 03/17/2022

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



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 13:37
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LMW-2-0322
22C0153-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED Sampled: 03/07/2022 11:15
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/17/2022 20:25

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0153-01 AL 02
Preparation Batch: BKC0417 Sample Size: 25 mL
Prepared: 03/17/2022 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-2-0322
22C0153-01 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 03/07/2022 11:15
Instrument: ICP2 Analyst: MVP Analyzed: 03/22/2022 15:38

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22C0153-01 AL 03
Preparation Batch: BKC0437 Sample Size: 25 mL
Prepared: 03/17/2022 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	104	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	64.5	mg/L	
Manganese	7439-96-5	1	0.0100	0.208	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	3.31	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	18.2	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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LMW-2-0322
22C0153-01 (Water)

Metals and Metallic Compounds

Method: EPA 7470A Sampled: 03/07/2022 11:15
Instrument: HYDRA Analyst: SKD Analyzed: 03/16/2022 14:57

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWM EPA 7470A Extract ID: 22C0153-01 AL
Preparation Batch: BKC0278 Sample Size: 20 mL
Prepared: 03/11/2022 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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Project: Landsburg
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Project Manager: Gary Zimmerman

Reported:
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LMW-2-0322-D
22C0153-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/07/2022 11:20

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 20:10

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BKC0362
Prepared: 03/15/2022

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 22C0153-02 S

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



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

Reported:
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LMW-2-0322-D
22C0153-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/07/2022 11:20

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 20:10

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



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LMW-2-0322-D
22C0153-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 03/07/2022 11:20
Instrument: NT2 Analyst: PKC Analyzed: 03/15/2022 20:10

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	102	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	98.4	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	103	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	99.9	%	



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LMW-2-0322-D
22C0153-02 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/07/2022 11:20

Instrument: NT6 Analyst: JZ

Analyzed: 03/16/2022 23:56

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BKC0295
Prepared: 03/14/2022

Sample Size: 500 mL
Final Volume: 0.5 mL

Extract ID: 22C0153-02 O 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



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LMW-2-0322-D
22C0153-02 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/07/2022 11:20

Instrument: NT6 Analyst: JZ

Analyzed: 03/16/2022 23:56

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
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 %	79.0	%	
<i>Surrogate: Phenol-d5</i>			38-120 %	79.4	%	
<i>Surrogate: 2-Chlorophenol-d4</i>			41-120 %	88.7	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			20-120 %	85.1	%	
<i>Surrogate: Nitrobenzene-d5</i>			27-120 %	84.9	%	



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LMW-2-0322-D
22C0153-02 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/07/2022 11:20

Instrument: NT6 Analyst: JZ

Analyzed: 03/16/2022 23:56

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
<i>Surrogate: 2-Fluorobiphenyl</i>		33-120 %	90.7	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>		52-120 %	122	%	*, Q
<i>Surrogate: p-Terphenyl-d14</i>		28-120 %	93.1	%	



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LMW-2-0322-D
22C0153-02 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM Sampled: 03/07/2022 11:20
Instrument: NT6 Analyst: JZ Analyzed: 03/17/2022 07:46

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 22C0153-02 N 01
Preparation Batch: BKC0294 Sample Size: 500 mL
Prepared: 03/14/2022 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	1.9	ug/L	
<i>Surrogate: 1,4-Dioxane-d8</i>			<i>33.6-120 %</i>	<i>59.1</i>	<i>%</i>	



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LMW-2-0322-D
22C0153-02 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID

Sampled: 03/07/2022 11:20

Instrument: FID4 Analyst: JR

Analyzed: 03/14/2022 21:58

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BKC0252
Prepared: 03/11/2022

Sample Size: 500 mL
Final Volume: 1 mL

Extract ID: 22C0153-02 L 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 %	110	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	122	%	



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LMW-2-0322-D
22C0153-02 (Water)

Chlorinated Pesticides

Method: EPA 8081B Sampled: 03/07/2022 11:20
Instrument: ECD6 Analyst: YZ Analyzed: 03/28/2022 16:48

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 22C0153-02 M 01
Preparation Batch: BKC0272 Sample Size: 500 mL
Prepared: 03/14/2022 Final Volume: 5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 22C0153-02 M 01
Cleanup Batch: CKC0171 Initial Volume: 5 mL
Cleaned: 24-Mar-2022 Final Volume: 5 mL

Sample Cleanup: Cleanup Method: Sulfur Extract ID: 22C0153-02 M 01
Cleanup Batch: CKC0170 Initial Volume: 5 uL
Cleaned: 24-Mar-2022 Final Volume: 5 uL

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
<i>Surrogate: Decachlorobiphenyl</i>			<i>11-144 %</i>	<i>103</i>	<i>%</i>	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			<i>11-144 %</i>	<i>101</i>	<i>%</i>	
<i>Surrogate: Tetrachlorometaxylene</i>			<i>30-120 %</i>	<i>54.3</i>	<i>%</i>	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			<i>30-120 %</i>	<i>61.3</i>	<i>%</i>	



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LMW-2-0322-D
22C0153-02 (Water)

Aroclor PCB

Method: EPA 8082A Sampled: 03/07/2022 11:20
Instrument: ECD7 Analyst: JGR Analyzed: 03/23/2022 16:40

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKC0271 Prepared: 03/14/2022	Sample Size: 1000 mL Final Volume: 0.5 mL	Extract ID: 22C0153-02 D 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKC0162 Cleansed: 23-Mar-2022	Initial Volume: 0.5 mL Final Volume: 0.5 mL	Extract ID: 22C0153-02 D 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKC0160 Cleansed: 23-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0153-02 D 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CKC0161 Cleansed: 23-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0153-02 D 01

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 %	66.2	%	
<i>Surrogate: Tetrachlorometaxylene</i>			32-120 %	59.2	%	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			29-120 %	65.5	%	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			32-120 %	57.8	%	



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LMW-2-0322-D
22C0153-02 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 Sampled: 03/07/2022 11:20
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/17/2022 20:20

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0153-02 P 02
Preparation Batch: BKC0417 Sample Size: 25 mL
Prepared: 03/17/2022 Final Volume: 25 mL

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



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LMW-2-0322-D
22C0153-02 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED Sampled: 03/07/2022 11:20
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/17/2022 20:20

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0153-02 P 02
Preparation Batch: BKC0417 Sample Size: 25 mL
Prepared: 03/17/2022 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-2-0322-D
22C0153-02 (Water)

Metals and Metallic Compounds

Method: EPA 6010D

Sampled: 03/07/2022 11:20

Instrument: ICP2 Analyst: MVP

Analyzed: 03/22/2022 15:27

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWC EPA 3010A
Preparation Batch: BKC0437
Prepared: 03/17/2022

Sample Size: 25 mL
Final Volume: 25 mL

Extract ID: 22C0153-02 P 03

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	104	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	65.0	mg/L	
Manganese	7439-96-5	1	0.0100	0.207	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	3.30	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	18.2	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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LMW-2-0322-D
22C0153-02 (Water)

Metals and Metallic Compounds

Method: EPA 7470A Sampled: 03/07/2022 11:20
Instrument: HYDRA Analyst: SKD Analyzed: 03/16/2022 15:06

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWM EPA 7470A Extract ID: 22C0153-02 P
Preparation Batch: BKC0278 Sample Size: 20 mL
Prepared: 03/11/2022 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-4-0322
22C0153-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/07/2022 13:20

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 20:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BKC0362
Prepared: 03/15/2022

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 22C0153-03 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	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U



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

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

Reported:
31-Mar-2022 13:37

LMW-4-0322
22C0153-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/07/2022 13:20

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 20:30

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 13:37
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LMW-4-0322
22C0153-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 03/07/2022 13:20
Instrument: NT2 Analyst: PKC Analyzed: 03/15/2022 20:30

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	105	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	98.3	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	99.9	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	99.9	%	



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

Reported:
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LMW-4-0322
22C0153-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/07/2022 13:20

Instrument: NT6 Analyst: JZ

Analyzed: 03/17/2022 00:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BKC0295
Prepared: 03/14/2022

Sample Size: 500 mL
Final Volume: 0.5 mL

Extract ID: 22C0153-03 L 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



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

Reported:
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LMW-4-0322
22C0153-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/07/2022 13:20

Instrument: NT6 Analyst: JZ

Analyzed: 03/17/2022 00:30

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
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 %	73.1	%	
<i>Surrogate: Phenol-d5</i>			38-120 %	72.0	%	
<i>Surrogate: 2-Chlorophenol-d4</i>			41-120 %	81.8	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			20-120 %	78.0	%	
<i>Surrogate: Nitrobenzene-d5</i>			27-120 %	77.8	%	



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LMW-4-0322
22C0153-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E Sampled: 03/07/2022 13:20
Instrument: NT6 Analyst: JZ Analyzed: 03/17/2022 00:30

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
<i>Surrogate: 2-Fluorobiphenyl</i>		33-120 %	84.3	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>		52-120 %	108	%	Q
<i>Surrogate: p-Terphenyl-d14</i>		28-120 %	84.3	%	



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 13:37
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LMW-4-0322
22C0153-03 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM Sampled: 03/07/2022 13:20
Instrument: NT6 Analyst: JZ Analyzed: 03/17/2022 08:11

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 22C0153-03 K 01
Preparation Batch: BKC0294 Sample Size: 500 mL
Prepared: 03/14/2022 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
1,4-Dioxane	123-91-1	1	0.4	1.9	ug/L	
<i>Surrogate: 1,4-Dioxane-d8</i>			33.6-120 %	58.4	%	



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 13:37
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LMW-4-0322
22C0153-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID Sampled: 03/07/2022 13:20
Instrument: FID4 Analyst: JR Analyzed: 03/14/2022 22:18

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 22C0153-03 I 01
Preparation Batch: BKC0252 Sample Size: 500 mL
Prepared: 03/11/2022 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 %	109	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	122	%	



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Redmond WA, 98052-3333

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

Reported:
31-Mar-2022 13:37

LMW-4-0322
22C0153-03 (Water)

Chlorinated Pesticides

Method: EPA 8081B Sampled: 03/07/2022 13:20
Instrument: ECD6 Analyst: YZ Analyzed: 03/28/2022 17:07

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 22C0153-03 J 01
Preparation Batch: BKC0272 Sample Size: 500 mL
Prepared: 03/14/2022 Final Volume: 5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 22C0153-03 J 01
Cleanup Batch: CKC0171 Initial Volume: 5 mL
Cleaned: 24-Mar-2022 Final Volume: 5 mL

Sample Cleanup: Cleanup Method: Sulfur Extract ID: 22C0153-03 J 01
Cleanup Batch: CKC0170 Initial Volume: 5 uL
Cleaned: 24-Mar-2022 Final Volume: 5 uL

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
<i>Surrogate: Decachlorobiphenyl</i>			<i>11-144 %</i>	<i>96.1</i>	<i>%</i>	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			<i>11-144 %</i>	<i>91.0</i>	<i>%</i>	
<i>Surrogate: Tetrachlorometaxylene</i>			<i>30-120 %</i>	<i>51.7</i>	<i>%</i>	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			<i>30-120 %</i>	<i>56.6</i>	<i>%</i>	



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LMW-4-0322
22C0153-03 (Water)

Aroclor PCB

Method: EPA 8082A Sampled: 03/07/2022 13:20
Instrument: ECD7 Analyst: JGR Analyzed: 03/23/2022 17:01

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKC0271 Prepared: 03/14/2022	Sample Size: 1000 mL Final Volume: 0.5 mL	Extract ID: 22C0153-03 A 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKC0162 Cleansed: 23-Mar-2022	Initial Volume: 0.5 mL Final Volume: 0.5 mL	Extract ID: 22C0153-03 A 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKC0160 Cleansed: 23-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0153-03 A 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CKC0161 Cleansed: 23-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0153-03 A 01

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 %	65.7	%	
<i>Surrogate: Tetrachlorometaxylene</i>			32-120 %	54.4	%	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			29-120 %	63.2	%	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			32-120 %	53.1	%	



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LMW-4-0322
22C0153-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 Sampled: 03/07/2022 13:20
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/17/2022 20:15

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0153-03 M 02
Preparation Batch: BKC0417 Sample Size: 25 mL
Prepared: 03/17/2022 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-4-0322
22C0153-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED Sampled: 03/07/2022 13:20
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/17/2022 20:15

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0153-03 M 02
Preparation Batch: BKC0417 Sample Size: 25 mL
Prepared: 03/17/2022 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-4-0322
22C0153-03 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 03/07/2022 13:20
Instrument: ICP2 Analyst: MVP Analyzed: 03/22/2022 15:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22C0153-03 M 03
Preparation Batch: BKC0437 Sample Size: 25 mL
Prepared: 03/17/2022 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	107	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	0.502	mg/L	
Magnesium	7439-95-4	1	0.500	65.5	mg/L	
Manganese	7439-96-5	1	0.0100	0.171	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	3.51	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	21.3	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-4-0322
22C0153-03 (Water)

Metals and Metallic Compounds

Method: EPA 7470A Sampled: 03/07/2022 13:20
Instrument: HYDRA Analyst: SKD Analyzed: 03/16/2022 15:08

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWM EPA 7470A Extract ID: 22C0153-03 M
Preparation Batch: BKC0278 Sample Size: 20 mL
Prepared: 03/11/2022 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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Trip Blank-0322-1
22C0153-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/07/2022 11:15

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 17:23

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BKC0362
Prepared: 03/15/2022

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 22C0153-04 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	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U



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Project Manager: Gary Zimmerman

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Trip Blank-0322-1
22C0153-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/07/2022 11:15

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 17:23

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



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Trip Blank-0322-1
22C0153-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 03/07/2022 11:15
Instrument: NT2 Analyst: PKC Analyzed: 03/15/2022 17:23

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	99.4	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	98.4	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	101	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	97.6	%	



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Project Manager: Gary Zimmerman

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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0362-BLK1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 16:41								
Chloromethane	ND	0.50	ug/L							U
Vinyl Chloride	ND	0.10	ug/L							U
Bromomethane	ND	1.00	ug/L							U
Chloroethane	ND	0.20	ug/L							U
Trichlorofluoromethane	ND	0.20	ug/L							U
Acrolein	ND	5.00	ug/L							U
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.20	ug/L							U
Acetone	ND	5.00	ug/L							U
1,1-Dichloroethene	ND	0.20	ug/L							U
Iodomethane	ND	1.00	ug/L							U
Methylene Chloride	ND	1.00	ug/L							U
Acrylonitrile	ND	1.00	ug/L							U
Carbon Disulfide	ND	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.20	ug/L							U
Vinyl Acetate	ND	0.20	ug/L							U
1,1-Dichloroethane	ND	0.20	ug/L							U
2-Butanone	ND	5.00	ug/L							U
2,2-Dichloropropane	ND	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Chloroform	ND	0.20	ug/L							U
Bromochloromethane	ND	0.20	ug/L							U
1,1,1-Trichloroethane	ND	0.20	ug/L							U
1,1-Dichloropropene	ND	0.10	ug/L							U
Carbon tetrachloride	ND	0.20	ug/L							U
1,2-Dichloroethane	ND	0.20	ug/L							U
Benzene	ND	0.20	ug/L							U
Trichloroethene	ND	0.20	ug/L							U
1,2-Dichloropropane	ND	0.20	ug/L							U
Bromodichloromethane	ND	0.20	ug/L							U
Dibromomethane	ND	0.20	ug/L							U
2-Chloroethyl vinyl ether	ND	1.00	ug/L							U
4-Methyl-2-Pentanone	ND	2.50	ug/L							U
cis-1,3-Dichloropropene	ND	0.20	ug/L							U
Toluene	ND	0.20	ug/L							U
trans-1,3-Dichloropropene	ND	0.20	ug/L							U



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Project Manager: Gary Zimmerman

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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0362-BLK1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 16:41								
2-Hexanone	ND	5.00	ug/L							U
1,1,2-Trichloroethane	ND	0.20	ug/L							U
1,3-Dichloropropane	ND	0.10	ug/L							U
Tetrachloroethene	ND	0.20	ug/L							U
Dibromochloromethane	ND	0.20	ug/L							U
1,2-Dibromoethane	ND	0.10	ug/L							U
Chlorobenzene	ND	0.20	ug/L							U
Ethylbenzene	ND	0.20	ug/L							U
1,1,1,2-Tetrachloroethane	ND	0.20	ug/L							U
m,p-Xylene	ND	0.40	ug/L							U
o-Xylene	ND	0.20	ug/L							U
Xylenes, total	ND	0.60	ug/L							U
Styrene	ND	0.20	ug/L							U
Bromoform	ND	0.20	ug/L							U
1,1,2,2-Tetrachloroethane	ND	0.20	ug/L							U
1,2,3-Trichloropropane	ND	0.25	ug/L							U
trans-1,4-Dichloro 2-Butene	ND	1.00	ug/L							U
n-Propylbenzene	ND	0.20	ug/L							U
Bromobenzene	ND	0.20	ug/L							U
Isopropyl Benzene	ND	0.20	ug/L							U
2-Chlorotoluene	ND	0.10	ug/L							U
4-Chlorotoluene	ND	0.20	ug/L							U
t-Butylbenzene	ND	0.20	ug/L							U
1,3,5-Trimethylbenzene	ND	0.20	ug/L							U
1,2,4-Trimethylbenzene	ND	0.20	ug/L							U
s-Butylbenzene	ND	0.20	ug/L							U
4-Isopropyl Toluene	ND	0.20	ug/L							U
1,3-Dichlorobenzene	ND	0.20	ug/L							U
1,4-Dichlorobenzene	ND	0.20	ug/L							U
n-Butylbenzene	ND	0.20	ug/L							U
1,2-Dichlorobenzene	ND	0.20	ug/L							U
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L							U
1,2,4-Trichlorobenzene	ND	0.50	ug/L							U
Hexachloro-1,3-Butadiene	0.56	0.50	ug/L							
Naphthalene	ND	0.50	ug/L							U



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

Reported:
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0362-BLK1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 16:41								
1,2,3-Trichlorobenzene	ND	0.50	ug/L							U
Dichlorodifluoromethane	ND	0.20	ug/L							U
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.86		ug/L	5.00		97.2	80-129			
<i>Surrogate: Toluene-d8</i>	4.94		ug/L	5.00		98.7	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.88		ug/L	5.00		97.6	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	5.09		ug/L	5.00		102	80-120			
LCS (BKC0362-BS1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:38								
Chloromethane	9.37	0.50	ug/L	10.0		93.7	60-138			
Vinyl Chloride	10.4	0.10	ug/L	10.0		104	66-133			
Bromomethane	9.40	1.00	ug/L	10.0		94.0	72-131			
Chloroethane	9.21	0.20	ug/L	10.0		92.1	60-155			
Trichlorofluoromethane	9.73	0.20	ug/L	10.0		97.3	62-141			
Acrolein	47.0	5.00	ug/L	50.0		94.0	52-190			
1,1,2-Trichloro-1,2,2-Trifluoroethane	9.64	0.20	ug/L	10.0		96.4	76-129			
Acetone	47.3	5.00	ug/L	50.0		94.6	58-142			
1,1-Dichloroethene	9.50	0.20	ug/L	10.0		95.0	69-135			
Iodomethane	9.51	1.00	ug/L	10.0		95.1	56-147			
Methylene Chloride	9.34	1.00	ug/L	10.0		93.4	65-135			
Acrylonitrile	8.44	1.00	ug/L	10.0		84.4	64-134			
Carbon Disulfide	9.93	0.20	ug/L	10.0		99.3	78-125			
trans-1,2-Dichloroethene	9.28	0.20	ug/L	10.0		92.8	78-128			
Vinyl Acetate	8.15	0.20	ug/L	10.0		81.5	55-138			
1,1-Dichloroethane	9.87	0.20	ug/L	10.0		98.7	76-124			
2-Butanone	46.3	5.00	ug/L	50.0		92.7	61-140			
2,2-Dichloropropane	10.1	0.20	ug/L	10.0		101	66-147			
cis-1,2-Dichloroethene	9.94	0.20	ug/L	10.0		99.4	80-121			
Chloroform	9.78	0.20	ug/L	10.0		97.8	80-122			
Bromochloromethane	9.37	0.20	ug/L	10.0		93.7	80-121			
1,1,1-Trichloroethane	9.97	0.20	ug/L	10.0		99.7	79-123			
1,1-Dichloropropene	9.79	0.10	ug/L	10.0		97.9	80-127			
Carbon tetrachloride	8.15	0.20	ug/L	10.0		81.5	53-137			
1,2-Dichloroethane	9.51	0.20	ug/L	10.0		95.1	75-123			
Benzene	9.71	0.20	ug/L	10.0		97.1	80-120			
Trichloroethene	9.65	0.20	ug/L	10.0		96.5	80-120			



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Project Number: Landsburg
Project Manager: Gary Zimmerman

Reported:
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BKC0362-BS1)				Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:38						
1,2-Dichloropropane	9.66	0.20	ug/L	10.0		96.6	80-120			
Bromodichloromethane	10.2	0.20	ug/L	10.0		102	80-121			
Dibromomethane	9.77	0.20	ug/L	10.0		97.7	80-120			
2-Chloroethyl vinyl ether	9.48	1.00	ug/L	10.0		94.8	64-120			
4-Methyl-2-Pentanone	36.3	2.50	ug/L	50.0		72.5	67-133			Q
cis-1,3-Dichloropropene	8.72	0.20	ug/L	10.0		87.2	80-124			
Toluene	9.29	0.20	ug/L	10.0		92.9	80-120			
trans-1,3-Dichloropropene	7.80	0.20	ug/L	10.0		78.0	71-127			Q
2-Hexanone	51.7	5.00	ug/L	50.0		103	69-133			
1,1,2-Trichloroethane	9.67	0.20	ug/L	10.0		96.7	80-121			
1,3-Dichloropropane	10.2	0.10	ug/L	10.0		102	80-120			
Tetrachloroethene	9.19	0.20	ug/L	10.0		91.9	80-120			
Dibromochloromethane	8.47	0.20	ug/L	10.0		84.7	65-135			
1,2-Dibromoethane	8.22	0.10	ug/L	10.0		82.2	80-121			
Chlorobenzene	9.94	0.20	ug/L	10.0		99.4	80-120			
Ethylbenzene	9.71	0.20	ug/L	10.0		97.1	80-120			
1,1,1,2-Tetrachloroethane	8.34	0.20	ug/L	10.0		83.4	80-120			
m,p-Xylene	19.6	0.40	ug/L	20.0		97.8	80-121			
o-Xylene	9.80	0.20	ug/L	10.0		98.0	80-121			
Xylenes, total	29.4	0.60	ug/L	30.0		97.9	76-127			
Styrene	10.4	0.20	ug/L	10.0		104	80-124			
Bromoform	7.97	0.20	ug/L	10.0		79.7	51-134			Q
1,1,2,2-Tetrachloroethane	10.4	0.20	ug/L	10.0		104	77-123			
1,2,3-Trichloropropane	8.28	0.25	ug/L	10.0		82.8	76-125			
trans-1,4-Dichloro 2-Butene	9.60	1.00	ug/L	10.0		96.0	55-129			
n-Propylbenzene	10.9	0.20	ug/L	10.0		109	78-130			
Bromobenzene	10.0	0.20	ug/L	10.0		100	80-120			
Isopropyl Benzene	10.6	0.20	ug/L	10.0		106	80-128			
2-Chlorotoluene	9.88	0.10	ug/L	10.0		98.8	78-122			
4-Chlorotoluene	10.3	0.20	ug/L	10.0		103	80-121			
t-Butylbenzene	10.4	0.20	ug/L	10.0		104	78-125			
1,3,5-Trimethylbenzene	10.5	0.20	ug/L	10.0		105	80-129			
1,2,4-Trimethylbenzene	10.5	0.20	ug/L	10.0		105	80-127			
s-Butylbenzene	10.5	0.20	ug/L	10.0		105	78-129			
4-Isopropyl Toluene	10.9	0.20	ug/L	10.0		109	79-130			



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

Reported:
31-Mar-2022 13:37

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BKC0362-BS1)				Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:38						
1,3-Dichlorobenzene	10.3	0.20	ug/L	10.0		103	80-120			
1,4-Dichlorobenzene	9.55	0.20	ug/L	10.0		95.5	80-120			
n-Butylbenzene	11.0	0.20	ug/L	10.0		110	74-129			
1,2-Dichlorobenzene	9.90	0.20	ug/L	10.0		99.0	80-120			
1,2-Dibromo-3-chloropropane	9.21	0.50	ug/L	10.0		92.1	62-123			
1,2,4-Trichlorobenzene	10.6	0.50	ug/L	10.0		106	64-124			
Hexachloro-1,3-Butadiene	11.2	0.50	ug/L	10.0		112	58-123			B
Naphthalene	10.6	0.50	ug/L	10.0		106	50-134			
1,2,3-Trichlorobenzene	10.5	0.50	ug/L	10.0		105	49-133			
Dichlorodifluoromethane	10.5	0.20	ug/L	10.0		105	48-147			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.89		ug/L	5.00		97.8	80-129			
<i>Surrogate: Toluene-d8</i>	4.97		ug/L	5.00		99.5	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	5.08		ug/L	5.00		102	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	4.95		ug/L	5.00		99.0	80-120			
LCS Dup (BKC0362-BS1)				Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:58						
Chloromethane	9.65	0.50	ug/L	10.0		96.5	60-138	2.98	30	
Vinyl Chloride	10.5	0.10	ug/L	10.0		105	66-133	0.76	30	
Bromomethane	9.67	1.00	ug/L	10.0		96.7	72-131	2.83	30	
Chloroethane	9.32	0.20	ug/L	10.0		93.2	60-155	1.14	30	
Trichlorofluoromethane	9.48	0.20	ug/L	10.0		94.8	62-141	2.63	30	
Acrolein	46.5	5.00	ug/L	50.0		93.0	52-190	1.08	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	9.52	0.20	ug/L	10.0		95.2	76-129	1.25	30	
Acetone	47.9	5.00	ug/L	50.0		95.9	58-142	1.38	30	
1,1-Dichloroethene	9.60	0.20	ug/L	10.0		96.0	69-135	1.12	30	
Iodomethane	9.42	1.00	ug/L	10.0		94.2	56-147	0.94	30	
Methylene Chloride	9.24	1.00	ug/L	10.0		92.4	65-135	1.06	30	
Acrylonitrile	8.53	1.00	ug/L	10.0		85.3	64-134	1.02	30	
Carbon Disulfide	9.82	0.20	ug/L	10.0		98.2	78-125	1.08	30	
trans-1,2-Dichloroethene	9.56	0.20	ug/L	10.0		95.6	78-128	3.04	30	
Vinyl Acetate	8.18	0.20	ug/L	10.0		81.8	55-138	0.30	30	
1,1-Dichloroethane	9.97	0.20	ug/L	10.0		99.7	76-124	0.99	30	
2-Butanone	48.5	5.00	ug/L	50.0		97.0	61-140	4.58	30	
2,2-Dichloropropane	10.1	0.20	ug/L	10.0		101	66-147	0.33	30	
cis-1,2-Dichloroethene	9.90	0.20	ug/L	10.0		99.0	80-121	0.37	30	



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Reported:
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BKC0362-BSD1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:58								
Chloroform	10.0	0.20	ug/L	10.0	100	80-122	2.21	30		
Bromochloromethane	9.58	0.20	ug/L	10.0	95.8	80-121	2.23	30		
1,1,1-Trichloroethane	9.98	0.20	ug/L	10.0	99.8	79-123	0.12	30		
1,1-Dichloropropene	9.65	0.10	ug/L	10.0	96.5	80-127	1.41	30		
Carbon tetrachloride	8.14	0.20	ug/L	10.0	81.4	53-137	0.02	30		
1,2-Dichloroethane	9.36	0.20	ug/L	10.0	93.6	75-123	1.66	30		
Benzene	9.67	0.20	ug/L	10.0	96.7	80-120	0.42	30		
Trichloroethene	9.47	0.20	ug/L	10.0	94.7	80-120	1.83	30		
1,2-Dichloropropane	9.67	0.20	ug/L	10.0	96.7	80-120	0.12	30		
Bromodichloromethane	9.93	0.20	ug/L	10.0	99.3	80-121	2.25	30		
Dibromomethane	9.71	0.20	ug/L	10.0	97.1	80-120	0.67	30		
2-Chloroethyl vinyl ether	9.73	1.00	ug/L	10.0	97.3	64-120	2.70	30		
4-Methyl-2-Pentanone	36.3	2.50	ug/L	50.0	72.6	67-133	0.17	30		Q
cis-1,3-Dichloropropene	8.62	0.20	ug/L	10.0	86.2	80-124	1.15	30		
Toluene	9.28	0.20	ug/L	10.0	92.8	80-120	0.17	30		
trans-1,3-Dichloropropene	7.73	0.20	ug/L	10.0	77.3	71-127	0.98	30		Q
2-Hexanone	55.1	5.00	ug/L	50.0	110	69-133	6.25	30		
1,1,2-Trichloroethane	9.77	0.20	ug/L	10.0	97.7	80-121	1.10	30		
1,3-Dichloropropane	10.7	0.10	ug/L	10.0	107	80-120	5.18	30		
Tetrachloroethene	9.30	0.20	ug/L	10.0	93.0	80-120	1.17	30		
Dibromochloromethane	8.76	0.20	ug/L	10.0	87.6	65-135	3.33	30		
1,2-Dibromoethane	8.70	0.10	ug/L	10.0	87.0	80-121	5.63	30		
Chlorobenzene	10.1	0.20	ug/L	10.0	101	80-120	1.70	30		
Ethylbenzene	9.83	0.20	ug/L	10.0	98.3	80-120	1.16	30		
1,1,1,2-Tetrachloroethane	8.62	0.20	ug/L	10.0	86.2	80-120	3.35	30		
m,p-Xylene	19.9	0.40	ug/L	20.0	99.5	80-121	1.80	30		
o-Xylene	10.2	0.20	ug/L	10.0	102	80-121	3.52	30		
Xylenes, total	30.1	0.60	ug/L	30.0	100	76-127	2.38	30		
Styrene	10.7	0.20	ug/L	10.0	107	80-124	2.51	30		
Bromoform	7.91	0.20	ug/L	10.0	79.1	51-134	0.83	30		Q
1,1,2,2-Tetrachloroethane	10.5	0.20	ug/L	10.0	105	77-123	1.53	30		
1,2,3-Trichloropropane	8.24	0.25	ug/L	10.0	82.4	76-125	0.56	30		
trans-1,4-Dichloro 2-Butene	9.84	1.00	ug/L	10.0	98.4	55-129	2.43	30		
n-Propylbenzene	11.0	0.20	ug/L	10.0	110	78-130	1.22	30		
Bromobenzene	10.1	0.20	ug/L	10.0	101	80-120	0.56	30		



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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BKC0362-BSD1)				Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:58						
Isopropyl Benzene	10.7	0.20	ug/L	10.0		107	80-128	0.91	30	
2-Chlorotoluene	10.0	0.10	ug/L	10.0		100	78-122	1.22	30	
4-Chlorotoluene	10.4	0.20	ug/L	10.0		104	80-121	0.61	30	
t-Butylbenzene	10.5	0.20	ug/L	10.0		105	78-125	0.86	30	
1,3,5-Trimethylbenzene	10.7	0.20	ug/L	10.0		107	80-129	1.64	30	
1,2,4-Trimethylbenzene	10.9	0.20	ug/L	10.0		109	80-127	3.04	30	
s-Butylbenzene	10.6	0.20	ug/L	10.0		106	78-129	0.78	30	
4-Isopropyl Toluene	10.9	0.20	ug/L	10.0		109	79-130	0.55	30	
1,3-Dichlorobenzene	10.2	0.20	ug/L	10.0		102	80-120	0.23	30	
1,4-Dichlorobenzene	9.94	0.20	ug/L	10.0		99.4	80-120	3.95	30	
n-Butylbenzene	11.2	0.20	ug/L	10.0		112	74-129	1.39	30	
1,2-Dichlorobenzene	10.2	0.20	ug/L	10.0		102	80-120	2.57	30	
1,2-Dibromo-3-chloropropane	9.67	0.50	ug/L	10.0		96.7	62-123	4.83	30	
1,2,4-Trichlorobenzene	10.3	0.50	ug/L	10.0		103	64-124	2.66	30	
Hexachloro-1,3-Butadiene	10.5	0.50	ug/L	10.0		105	58-123	6.53	30	B
Naphthalene	10.9	0.50	ug/L	10.0		109	50-134	2.89	30	
1,2,3-Trichlorobenzene	10.5	0.50	ug/L	10.0		105	49-133	0.32	30	
Dichlorodifluoromethane	11.0	0.20	ug/L	10.0		110	48-147	5.07	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.00		ug/L	5.00		99.9	80-129			
<i>Surrogate: Toluene-d8</i>	5.01		ug/L	5.00		100	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	5.23		ug/L	5.00		105	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	5.05		ug/L	5.00		101	80-120			

Matrix Spike (BKC0362-MS1)		Source: 22C0153-01		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 23:58						
Chloromethane	10.5	0.50	ug/L	10.0	ND	105	60-138			
Vinyl Chloride	10.6	0.10	ug/L	10.0	ND	106	66-133			
Bromomethane	10.1	1.00	ug/L	10.0	ND	101	72-131			
Chloroethane	12.6	0.20	ug/L	10.0	ND	126	60-155			
Trichlorofluoromethane	11.3	0.20	ug/L	10.0	ND	113	62-141			
Acrolein	52.6	5.00	ug/L	50.0	ND	105	52-190			
1,1,2-Trichloro-1,2,2-Trifluoroethane	9.94	0.20	ug/L	10.0	ND	99.4	76-129			
Acetone	58.6	5.00	ug/L	50.0	ND	117	58-142			
1,1-Dichloroethene	11.0	0.20	ug/L	10.0	ND	110	69-135			
Iodomethane	10.3	1.00	ug/L	10.0	ND	103	56-147			
Methylene Chloride	11.4	1.00	ug/L	10.0	ND	114	65-135			



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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BKC0362-MS1)										
		Source: 22C0153-01			Prepared: 15-Mar-2022		Analyzed: 15-Mar-2022 23:58			
Acrylonitrile	9.67	1.00	ug/L	10.0	ND	96.7	64-134			
Carbon Disulfide	10.8	0.20	ug/L	10.0	ND	108	78-125			
trans-1,2-Dichloroethene	11.0	0.20	ug/L	10.0	ND	110	78-128			
Vinyl Acetate	6.56	0.20	ug/L	10.0	ND	65.6	55-138			
1,1-Dichloroethane	11.0	0.20	ug/L	10.0	ND	110	76-124			
2-Butanone	58.3	5.00	ug/L	50.0	ND	117	61-140			
2,2-Dichloropropane	8.86	0.20	ug/L	10.0	ND	88.6	66-147			
cis-1,2-Dichloroethene	11.2	0.20	ug/L	10.0	ND	112	80-121			
Chloroform	11.2	0.20	ug/L	10.0	ND	112	80-122			
Bromochloromethane	10.8	0.20	ug/L	10.0	ND	108	80-121			
1,1,1-Trichloroethane	10.5	0.20	ug/L	10.0	ND	105	79-123			
1,1-Dichloropropene	10.3	0.10	ug/L	10.0	ND	103	80-127			
Carbon tetrachloride	8.28	0.20	ug/L	10.0	ND	82.8	53-137			
1,2-Dichloroethane	11.3	0.20	ug/L	10.0	ND	113	75-123			
Benzene	10.9	0.20	ug/L	10.0	ND	109	80-120			
Trichloroethene	10.4	0.20	ug/L	10.0	ND	104	80-120			
1,2-Dichloropropane	10.8	0.20	ug/L	10.0	ND	108	80-120			
Bromodichloromethane	11.3	0.20	ug/L	10.0	ND	113	80-121			
Dibromomethane	11.4	0.20	ug/L	10.0	ND	114	80-120			
2-Chloroethyl vinyl ether	ND	1.00	ug/L	10.0	ND		64-120			*, U
4-Methyl-2-Pentanone	40.9	2.50	ug/L	50.0	ND	81.8	67-133			Q
cis-1,3-Dichloropropene	9.12	0.20	ug/L	10.0	ND	91.2	80-124			
Toluene	10.4	0.20	ug/L	10.0	ND	104	80-120			
trans-1,3-Dichloropropene	8.23	0.20	ug/L	10.0	ND	82.3	71-127			Q
2-Hexanone	59.5	5.00	ug/L	50.0	ND	119	69-133			
1,1,2-Trichloroethane	11.5	0.20	ug/L	10.0	ND	115	80-121			
1,3-Dichloropropane	12.0	0.10	ug/L	10.0	ND	120	80-120			
Tetrachloroethene	10.1	0.20	ug/L	10.0	ND	101	80-120			
Dibromochloromethane	9.34	0.20	ug/L	10.0	ND	93.4	65-135			
1,2-Dibromoethane	10.2	0.10	ug/L	10.0	ND	102	80-121			
Chlorobenzene	11.1	0.20	ug/L	10.0	ND	111	80-120			
Ethylbenzene	10.9	0.20	ug/L	10.0	ND	109	80-120			
1,1,1,2-Tetrachloroethane	9.31	0.20	ug/L	10.0	ND	93.1	80-120			
m,p-Xylene	22.3	0.40	ug/L	20.0	ND	111	80-121			
o-Xylene	11.1	0.20	ug/L	10.0	ND	111	80-121			



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Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BKC0362-MS1)										
		Source: 22C0153-01			Prepared: 15-Mar-2022		Analyzed: 15-Mar-2022 23:58			
Xylenes, total	33.4	0.60	ug/L	30.0	ND	111	76-127			
Styrene	11.3	0.20	ug/L	10.0	ND	113	80-124			
Bromoform	7.68	0.20	ug/L	10.0	ND	76.8	51-134			Q
1,1,2,2-Tetrachloroethane	11.7	0.20	ug/L	10.0	ND	117	77-123			
1,2,3-Trichloropropane	9.03	0.25	ug/L	10.0	ND	90.3	76-125			
trans-1,4-Dichloro 2-Butene	9.26	1.00	ug/L	10.0	ND	92.6	55-129			
n-Propylbenzene	11.3	0.20	ug/L	10.0	ND	113	78-130			
Bromobenzene	10.7	0.20	ug/L	10.0	ND	107	80-120			
Isopropyl Benzene	10.9	0.20	ug/L	10.0	ND	109	80-128			
2-Chlorotoluene	10.5	0.10	ug/L	10.0	ND	105	78-122			
4-Chlorotoluene	10.6	0.20	ug/L	10.0	ND	106	80-121			
t-Butylbenzene	10.7	0.20	ug/L	10.0	ND	107	78-125			
1,3,5-Trimethylbenzene	11.1	0.20	ug/L	10.0	ND	111	80-129			
1,2,4-Trimethylbenzene	11.0	0.20	ug/L	10.0	ND	110	80-127			
s-Butylbenzene	10.6	0.20	ug/L	10.0	ND	106	78-129			
4-Isopropyl Toluene	10.8	0.20	ug/L	10.0	ND	108	79-130			
1,3-Dichlorobenzene	10.9	0.20	ug/L	10.0	ND	109	80-120			
1,4-Dichlorobenzene	10.3	0.20	ug/L	10.0	ND	103	80-120			
n-Butylbenzene	10.6	0.20	ug/L	10.0	ND	106	74-129			
1,2-Dichlorobenzene	10.7	0.20	ug/L	10.0	ND	107	80-120			
1,2-Dibromo-3-chloropropane	9.57	0.50	ug/L	10.0	ND	95.7	62-123			
1,2,4-Trichlorobenzene	10.1	0.50	ug/L	10.0	ND	101	64-124			
Hexachloro-1,3-Butadiene	9.11	0.50	ug/L	10.0	ND	91.1	58-123			B
Naphthalene	11.6	0.50	ug/L	10.0	ND	116	50-134			
1,2,3-Trichlorobenzene	10.6	0.50	ug/L	10.0	ND	106	49-133			
Dichlorodifluoromethane	11.3	0.20	ug/L	10.0	ND	113	48-147			
Surrogate: 1,2-Dichloroethane-d4	5.44		ug/L	5.00	5.08	109	80-129			
Surrogate: Toluene-d8	5.14		ug/L	5.00	4.91	103	80-120			
Surrogate: 4-Bromofluorobenzene	5.15		ug/L	5.00	5.04	103	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	4.74		ug/L	5.00	4.92	94.7	80-120			

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

Matrix Spike Dup (BKC0362-MSD1)										
		Source: 22C0153-01			Prepared: 15-Mar-2022		Analyzed: 16-Mar-2022 00:19			
Chloromethane	10.5	0.50	ug/L	10.0	ND	105	60-138	0.09	30	



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Project Number: Landsburg
Project Manager: Gary Zimmerman

Reported:
31-Mar-2022 13:37

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BKC0362-MSD1)										
Source: 22C0153-01			Prepared: 15-Mar-2022 Analyzed: 16-Mar-2022 00:19							
Vinyl Chloride	10.4	0.10	ug/L	10.0	ND	104	66-133	1.60	30	
Bromomethane	10.2	1.00	ug/L	10.0	ND	102	72-131	1.17	30	
Chloroethane	11.3	0.20	ug/L	10.0	ND	113	60-155	10.60	30	
Trichlorofluoromethane	10.5	0.20	ug/L	10.0	ND	105	62-141	7.31	30	
Acrolein	53.1	5.00	ug/L	50.0	ND	106	52-190	0.83	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	9.83	0.20	ug/L	10.0	ND	98.3	76-129	1.10	30	
Acetone	56.3	5.00	ug/L	50.0	ND	113	58-142	3.99	30	
1,1-Dichloroethene	10.9	0.20	ug/L	10.0	ND	109	69-135	1.54	30	
Iodomethane	10.2	1.00	ug/L	10.0	ND	102	56-147	0.63	30	
Methylene Chloride	10.9	1.00	ug/L	10.0	ND	109	65-135	4.99	30	
Acrylonitrile	9.63	1.00	ug/L	10.0	ND	96.3	64-134	0.46	30	
Carbon Disulfide	10.9	0.20	ug/L	10.0	ND	109	78-125	0.37	30	
trans-1,2-Dichloroethene	10.8	0.20	ug/L	10.0	ND	108	78-128	2.35	30	
Vinyl Acetate	6.43	0.20	ug/L	10.0	ND	64.3	55-138	1.98	30	
1,1-Dichloroethane	11.4	0.20	ug/L	10.0	ND	114	76-124	3.70	30	
2-Butanone	56.6	5.00	ug/L	50.0	ND	113	61-140	3.00	30	
2,2-Dichloropropane	8.74	0.20	ug/L	10.0	ND	87.4	66-147	1.37	30	
cis-1,2-Dichloroethene	11.2	0.20	ug/L	10.0	ND	112	80-121	0.25	30	
Chloroform	10.7	0.20	ug/L	10.0	ND	107	80-122	4.30	30	
Bromochloromethane	10.4	0.20	ug/L	10.0	ND	104	80-121	3.72	30	
1,1,1-Trichloroethane	10.3	0.20	ug/L	10.0	ND	103	79-123	1.87	30	
1,1-Dichloropropene	10.1	0.10	ug/L	10.0	ND	101	80-127	1.50	30	
Carbon tetrachloride	8.19	0.20	ug/L	10.0	ND	81.9	53-137	1.17	30	
1,2-Dichloroethane	10.8	0.20	ug/L	10.0	ND	108	75-123	4.32	30	
Benzene	10.5	0.20	ug/L	10.0	ND	105	80-120	4.31	30	
Trichloroethene	10.1	0.20	ug/L	10.0	ND	101	80-120	3.34	30	
1,2-Dichloropropane	10.8	0.20	ug/L	10.0	ND	108	80-120	0.33	30	
Bromodichloromethane	11.0	0.20	ug/L	10.0	ND	110	80-121	2.26	30	
Dibromomethane	11.1	0.20	ug/L	10.0	ND	111	80-120	3.22	30	
2-Chloroethyl vinyl ether	ND	1.00	ug/L	10.0	ND		64-120			*, U
4-Methyl-2-Pentanone	40.2	2.50	ug/L	50.0	ND	80.5	67-133	1.69	30	Q
cis-1,3-Dichloropropene	8.90	0.20	ug/L	10.0	ND	89.0	80-124	2.44	30	
Toluene	9.94	0.20	ug/L	10.0	ND	99.4	80-120	4.62	30	
trans-1,3-Dichloropropene	7.76	0.20	ug/L	10.0	ND	77.6	71-127	5.96	30	Q
2-Hexanone	56.4	5.00	ug/L	50.0	ND	113	69-133	5.40	30	



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Project: Landsburg
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Reported:
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BKC0362-MSD1)										
		Source: 22C0153-01			Prepared: 15-Mar-2022		Analyzed: 16-Mar-2022 00:19			
1,1,2-Trichloroethane	10.8	0.20	ug/L	10.0	ND	108	80-121	6.26	30	
1,3-Dichloropropane	11.6	0.10	ug/L	10.0	ND	116	80-120	3.73	30	
Tetrachloroethene	9.63	0.20	ug/L	10.0	ND	96.3	80-120	4.40	30	
Dibromochloromethane	9.24	0.20	ug/L	10.0	ND	92.4	65-135	1.09	30	
1,2-Dibromoethane	9.79	0.10	ug/L	10.0	ND	97.9	80-121	4.12	30	
Chlorobenzene	10.7	0.20	ug/L	10.0	ND	107	80-120	4.07	30	
Ethylbenzene	10.3	0.20	ug/L	10.0	ND	103	80-120	6.05	30	
1,1,1,2-Tetrachloroethane	8.80	0.20	ug/L	10.0	ND	88.0	80-120	5.62	30	
m,p-Xylene	21.4	0.40	ug/L	20.0	ND	107	80-121	4.17	30	
o-Xylene	10.5	0.20	ug/L	10.0	ND	105	80-121	5.59	30	
Xylenes, total	31.9	0.60	ug/L	30.0	ND	106	76-127	4.64	30	
Styrene	10.5	0.20	ug/L	10.0	ND	105	80-124	7.38	30	
Bromoform	7.57	0.20	ug/L	10.0	ND	75.7	51-134	1.39	30	Q
1,1,2,2-Tetrachloroethane	11.3	0.20	ug/L	10.0	ND	113	77-123	3.09	30	
1,2,3-Trichloropropane	8.98	0.25	ug/L	10.0	ND	89.8	76-125	0.57	30	
trans-1,4-Dichloro 2-Butene	8.88	1.00	ug/L	10.0	ND	88.8	55-129	4.18	30	
n-Propylbenzene	11.0	0.20	ug/L	10.0	ND	110	78-130	2.29	30	
Bromobenzene	10.5	0.20	ug/L	10.0	ND	105	80-120	1.91	30	
Isopropyl Benzene	10.8	0.20	ug/L	10.0	ND	108	80-128	0.99	30	
2-Chlorotoluene	10.2	0.10	ug/L	10.0	ND	102	78-122	2.35	30	
4-Chlorotoluene	10.4	0.20	ug/L	10.0	ND	104	80-121	1.78	30	
t-Butylbenzene	10.4	0.20	ug/L	10.0	ND	104	78-125	2.77	30	
1,3,5-Trimethylbenzene	11.0	0.20	ug/L	10.0	ND	110	80-129	0.98	30	
1,2,4-Trimethylbenzene	10.8	0.20	ug/L	10.0	ND	108	80-127	2.05	30	
s-Butylbenzene	10.4	0.20	ug/L	10.0	ND	104	78-129	2.21	30	
4-Isopropyl Toluene	10.6	0.20	ug/L	10.0	ND	106	79-130	1.57	30	
1,3-Dichlorobenzene	10.7	0.20	ug/L	10.0	ND	107	80-120	1.75	30	
1,4-Dichlorobenzene	10.4	0.20	ug/L	10.0	ND	104	80-120	1.05	30	
n-Butylbenzene	10.5	0.20	ug/L	10.0	ND	105	74-129	0.96	30	
1,2-Dichlorobenzene	10.7	0.20	ug/L	10.0	ND	107	80-120	0.03	30	
1,2-Dibromo-3-chloropropane	10.3	0.50	ug/L	10.0	ND	103	62-123	7.27	30	
1,2,4-Trichlorobenzene	10.2	0.50	ug/L	10.0	ND	102	64-124	1.19	30	
Hexachloro-1,3-Butadiene	9.62	0.50	ug/L	10.0	ND	96.2	58-123	5.49	30	B
Naphthalene	11.6	0.50	ug/L	10.0	ND	116	50-134	0.48	30	
1,2,3-Trichlorobenzene	10.8	0.50	ug/L	10.0	ND	108	49-133	1.46	30	



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Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BKC0362-MSD1)		Source: 22C0153-01		Prepared: 15-Mar-2022		Analyzed: 16-Mar-2022 00:19				
Dichlorodifluoromethane	10.6	0.20	ug/L	10.0	ND	106	48-147	6.27	30	
Surrogate: 1,2-Dichloroethane-d4	5.28		ug/L	5.00	5.08	106	80-129			
Surrogate: Toluene-d8	5.14		ug/L	5.00	4.91	103	80-120			
Surrogate: 4-Bromofluorobenzene	5.19		ug/L	5.00	5.04	104	80-120			
Surrogate: 1,2-Dichlorobenzene-d4	4.88		ug/L	5.00	4.92	97.5	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 BKC0295 - 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 (BKC0295-BLK1)		Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 18:20								
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 BKC0295 - 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 (BKC0295-BLK1)										
				Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 18:20						
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
<i>Surrogate: 2-Fluorophenol</i>	28.7		ug/L	37.5	76.5		33-120			
<i>Surrogate: Phenol-d5</i>	28.9		ug/L	37.5	77.1		38-120			
<i>Surrogate: 2-Chlorophenol-d4</i>	32.2		ug/L	37.5	85.9		41-120			



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Semivolatile Organic Compounds - Quality Control

Batch BKC0295 - 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 (BKC0295-BLK1)		Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 18:20								
Surrogate: 1,2-Dichlorobenzene-d4	21.1		ug/L	25.0	84.4		20-120			
Surrogate: Nitrobenzene-d5	20.7		ug/L	25.0	82.9		27-120			
Surrogate: 2-Fluorobiphenyl	22.2		ug/L	25.0	88.9		33-120			
Surrogate: 2,4,6-Tribromophenol	43.4		ug/L	37.5	116		52-120			Q
Surrogate: p-Terphenyl-d14	24.0		ug/L	25.0	96.1		28-120			
LCS (BKC0295-BS1)		Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 18:54								
Phenol	16.9	1.0	ug/L	25.0	67.6		35-120			
bis(2-chloroethyl) ether	17.9	1.0	ug/L	25.0	71.7		46.5-120			
2-Chlorophenol	18.7	1.0	ug/L	25.0	74.7		48-120			
1,3-Dichlorobenzene	18.8	1.0	ug/L	25.0	75.2		34.2-120			
1,4-Dichlorobenzene	19.8	1.0	ug/L	25.0	79.2		36-120			
Benzyl Alcohol	19.3	2.0	ug/L	25.0	77.1		27.4-120			
1,2-Dichlorobenzene	19.5	1.0	ug/L	25.0	78.0		38.4-120			
2-Methylphenol	17.5	1.0	ug/L	25.0	70.1		47.8-120			
2,2'-Oxybis(1-chloropropane)	15.3	1.0	ug/L	25.0	61.3		40.4-120			Q
4-Methylphenol	18.4	2.0	ug/L	25.0	73.6		52.3-120			
N-Nitroso-di-n-Propylamine	16.3	1.0	ug/L	25.0	65.1		51.4-120			
Hexachloroethane	18.4	2.0	ug/L	25.0	73.6		29.5-120			
Nitrobenzene	19.5	1.0	ug/L	25.0	78.0		51.5-120			
Isophorone	25.4	1.0	ug/L	25.0	102		62.3-128			
2-Nitrophenol	24.1	3.0	ug/L	25.0	96.3		58.6-124			
2,4-Dimethylphenol	39.9	3.0	ug/L	65.0	61.3		38.5-120			
Bis(2-Chloroethoxy)methane	20.8	1.0	ug/L	25.0	83.1		52.9-120			
Benzoic acid	82.1	20.0	ug/L	115	71.4		38.2-120			Q
2,4-Dichlorophenol	50.6	3.0	ug/L	65.0	77.9		43.6-120			
1,2,4-Trichlorobenzene	21.0	1.0	ug/L	25.0	83.9		38.6-120			
Naphthalene	20.9	1.0	ug/L	25.0	83.5		40.5-120			
4-Chloroaniline	43.9	5.0	ug/L	65.0	67.5		42.7-120			
Hexachlorobutadiene	21.8	3.0	ug/L	25.0	87.3		32.3-120			
4-Chloro-3-Methylphenol	50.2	3.0	ug/L	65.0	77.2		51.9-120			
2-Methylnaphthalene	22.1	1.0	ug/L	25.0	88.4		47.3-120			
Hexachlorocyclopentadiene	36.5	5.0	ug/L	65.0	56.2		23.3-120			
2,4,6-Trichlorophenol	53.7	3.0	ug/L	65.0	82.6		47-120			
2,4,5-Trichlorophenol	54.1	5.0	ug/L	65.0	83.3		48.4-120			



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Semivolatile Organic Compounds - Quality Control

Batch BKC0295 - 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 (BKC0295-BS1)				Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 18:54						
2-Chloronaphthalene	21.8	1.0	ug/L	25.0		87.3	47.7-123			
2-Nitroaniline	46.9	3.0	ug/L	65.0		72.1	56.8-120			
Dimethylphthalate	23.1	1.0	ug/L	25.0		92.6	65.2-125			
Acenaphthylene	23.0	1.0	ug/L	25.0		92.0	44.1-120			
2,6-Dinitrotoluene	57.8	3.0	ug/L	65.0		89.0	69.3-140			
3-Nitroaniline	54.0	3.0	ug/L	65.0		83.1	60.9-120			
Acenaphthene	22.3	1.0	ug/L	25.0		89.3	50.4-120			
2,4-Dinitrophenol	114	20.0	ug/L	115		98.9	33.7-183			Q
Dibenzofuran	23.2	1.0	ug/L	25.0		92.9	49.9-120			
4-Nitrophenol	61.8	10.0	ug/L	65.0		95.1	50.2-136			Q
2,4-Dinitrotoluene	56.9	3.0	ug/L	65.0		87.5	66.8-132			
Fluorene	22.7	1.0	ug/L	25.0		90.8	57.8-120			
Diethyl phthalate	23.3	1.0	ug/L	25.0		93.3	68.1-120			
4-Chlorophenylphenyl ether	23.6	1.0	ug/L	25.0		94.6	59.1-127			
4-Nitroaniline	55.1	3.0	ug/L	65.0		84.8	56-122			
4,6-Dinitro-2-methylphenol	107	10.0	ug/L	115		93.1	37.9-162			
N-Nitrosodiphenylamine	21.8	1.0	ug/L	25.0		87.2	59.6-120			
4-Bromophenyl phenyl ether	23.1	1.0	ug/L	25.0		92.5	59.6-120			
Hexachlorobenzene	23.8	1.0	ug/L	25.0		95.2	53.7-120			
Pentachlorophenol	63.3	10.0	ug/L	65.0		97.4	40.3-128			
Phenanthrene	23.3	1.0	ug/L	25.0		93.2	58.8-120			
Anthracene	22.5	1.0	ug/L	25.0		90.0	60.5-120			
Carbazole	22.7	1.0	ug/L	25.0		90.8	59.7-120			
Di-n-Butylphthalate	23.1	1.0	ug/L	25.0		92.6	71-120			
Fluoranthene	24.3	1.0	ug/L	25.0		97.1	66.7-120			
Pyrene	19.6	1.0	ug/L	25.0		78.5	62.7-127			
Butylbenzylphthalate	20.8	1.0	ug/L	25.0		83.3	67.4-128			
Benzo(a)anthracene	23.2	1.0	ug/L	25.0		92.6	58.3-128			
3,3'-Dichlorobenzidine	130	5.0	ug/L	65.0		201	34.1-120			*, Q
Chrysene	22.7	1.0	ug/L	25.0		90.7	58.9-120			
bis(2-Ethylhexyl)phthalate	22.7	3.0	ug/L	25.0		90.9	68.3-123			
Di-n-Octylphthalate	24.2	1.0	ug/L	25.0		96.7	61.5-120			
Benzo(a)pyrene	21.5	1.0	ug/L	25.0		86.2	70.6-120			
Indeno(1,2,3-cd)pyrene	21.3	1.0	ug/L	25.0		85.2	46.5-120			
Dibenzo(a,h)anthracene	21.8	1.0	ug/L	25.0		87.2	49.6-120			



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

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

Reported:
31-Mar-2022 13:37

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0295 - 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 (BKC0295-BS1)										
					Prepared: 14-Mar-2022	Analyzed: 16-Mar-2022 18:54				
Benzo(g,h,i)perylene	20.6	1.0	ug/L	25.0		82.4	37-120			
Benzo(a)fluoranthene, Total	45.2	2.0	ug/L	50.0		90.4	66.5-120			
1-Methylnaphthalene	23.2	1.0	ug/L	25.0		92.8	46.9-120			
Surrogate: 2-Fluorophenol	27.1		ug/L	37.5		72.3	33-120			
Surrogate: Phenol-d5	28.0		ug/L	37.5		74.5	38-120			
Surrogate: 2-Chlorophenol-d4	29.8		ug/L	37.5		79.4	41-120			
Surrogate: 1,2-Dichlorobenzene-d4	19.1		ug/L	25.0		76.6	20-120			
Surrogate: Nitrobenzene-d5	20.1		ug/L	25.0		80.6	27-120			
Surrogate: 2-Fluorobiphenyl	21.6		ug/L	25.0		86.4	33-120			
Surrogate: 2,4,6-Tribromophenol	44.6		ug/L	37.5		119	52-120			Q
Surrogate: p-Terphenyl-d14	21.6		ug/L	25.0		86.3	28-120			
LCS Dup (BKC0295-BSD1)										
					Prepared: 14-Mar-2022	Analyzed: 16-Mar-2022 19:28				
Phenol	18.5	1.0	ug/L	25.0		74.1	35-120	9.17	30	
bis(2-chloroethyl) ether	19.5	1.0	ug/L	25.0		78.1	46.5-120	8.61	30	
2-Chlorophenol	20.1	1.0	ug/L	25.0		80.4	48-120	7.34	30	
1,3-Dichlorobenzene	20.4	1.0	ug/L	25.0		81.7	34.2-120	8.25	30	
1,4-Dichlorobenzene	21.5	1.0	ug/L	25.0		86.2	36-120	8.50	30	
Benzyl Alcohol	21.1	2.0	ug/L	25.0		84.6	27.4-120	9.27	30	
1,2-Dichlorobenzene	21.0	1.0	ug/L	25.0		84.1	38.4-120	7.49	30	
2-Methylphenol	19.2	1.0	ug/L	25.0		77.0	47.8-120	9.30	30	
2,2'-Oxybis(1-chloropropane)	16.7	1.0	ug/L	25.0		66.6	40.4-120	8.39	30	Q
4-Methylphenol	20.4	2.0	ug/L	25.0		81.7	52.3-120	10.40	30	
N-Nitroso-di-n-Propylamine	18.1	1.0	ug/L	25.0		72.4	51.4-120	10.60	30	
Hexachloroethane	19.6	2.0	ug/L	25.0		78.6	29.5-120	6.57	30	
Nitrobenzene	21.1	1.0	ug/L	25.0		84.3	51.5-120	7.76	30	
Isophorone	27.8	1.0	ug/L	25.0		111	62.3-128	9.00	30	
2-Nitrophenol	25.9	3.0	ug/L	25.0		103	58.6-124	7.18	30	
2,4-Dimethylphenol	44.1	3.0	ug/L	65.0		67.9	38.5-120	10.20	30	
Bis(2-Chloroethoxy)methane	22.7	1.0	ug/L	25.0		91.0	52.9-120	9.03	30	
Benzoic acid	91.8	20.0	ug/L	115		79.8	38.2-120	11.20	30	Q
2,4-Dichlorophenol	54.8	3.0	ug/L	65.0		84.4	43.6-120	8.00	30	
1,2,4-Trichlorobenzene	22.7	1.0	ug/L	25.0		91.0	38.6-120	8.09	30	
Naphthalene	22.8	1.0	ug/L	25.0		91.1	40.5-120	8.65	30	
4-Chloroaniline	49.4	5.0	ug/L	65.0		76.0	42.7-120	11.80	30	



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Reported:
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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0295 - 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 (BKC0295-BSD1)		Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 19:28								
Hexachlorobutadiene	23.4	3.0	ug/L	25.0		93.7	32.3-120	7.06	30	
4-Chloro-3-Methylphenol	54.2	3.0	ug/L	65.0		83.4	51.9-120	7.70	30	
2-Methylnaphthalene	23.8	1.0	ug/L	25.0		95.0	47.3-120	7.21	30	
Hexachlorocyclopentadiene	44.2	5.0	ug/L	65.0		67.9	23.3-120	19.00	30	
2,4,6-Trichlorophenol	58.3	3.0	ug/L	65.0		89.6	47-120	8.15	30	
2,4,5-Trichlorophenol	58.2	5.0	ug/L	65.0		89.5	48.4-120	7.24	30	
2-Chloronaphthalene	23.2	1.0	ug/L	25.0		92.6	47.7-123	5.91	30	
2-Nitroaniline	51.4	3.0	ug/L	65.0		79.0	56.8-120	9.17	30	
Dimethylphthalate	25.5	1.0	ug/L	25.0		102	65.2-125	9.66	30	
Acenaphthylene	24.4	1.0	ug/L	25.0		97.7	44.1-120	6.06	30	
2,6-Dinitrotoluene	64.1	3.0	ug/L	65.0		98.6	69.3-140	10.30	30	
3-Nitroaniline	60.9	3.0	ug/L	65.0		93.7	60.9-120	12.00	30	
Acenaphthene	24.0	1.0	ug/L	25.0		96.1	50.4-120	7.38	30	
2,4-Dinitrophenol	131	20.0	ug/L	115		114	33.7-183	14.30	30	Q
Dibenzofuran	24.8	1.0	ug/L	25.0		99.3	49.9-120	6.73	30	
4-Nitrophenol	65.8	10.0	ug/L	65.0		101	50.2-136	6.34	30	Q
2,4-Dinitrotoluene	62.6	3.0	ug/L	65.0		96.3	66.8-132	9.61	30	
Fluorene	24.6	1.0	ug/L	25.0		98.6	57.8-120	8.20	30	
Diethyl phthalate	25.3	1.0	ug/L	25.0		101	68.1-120	8.20	30	
4-Chlorophenylphenyl ether	25.4	1.0	ug/L	25.0		101	59.1-127	7.02	30	
4-Nitroaniline	61.0	3.0	ug/L	65.0		93.9	56-122	10.10	30	
4,6-Dinitro-2-methylphenol	119	10.0	ug/L	115		103	37.9-162	10.40	30	
N-Nitrosodiphenylamine	23.8	1.0	ug/L	25.0		95.2	59.6-120	8.77	30	
4-Bromophenyl phenyl ether	25.5	1.0	ug/L	25.0		102	59.6-120	9.69	30	
Hexachlorobenzene	25.9	1.0	ug/L	25.0		104	53.7-120	8.53	30	
Pentachlorophenol	68.8	10.0	ug/L	65.0		106	40.3-128	8.22	30	
Phenanthrene	25.2	1.0	ug/L	25.0		101	58.8-120	7.93	30	
Anthracene	24.2	1.0	ug/L	25.0		97.0	60.5-120	7.47	30	
Carbazole	24.2	1.0	ug/L	25.0		96.9	59.7-120	6.50	30	
Di-n-Butylphthalate	24.9	1.0	ug/L	25.0		99.7	71-120	7.36	30	
Fluoranthene	25.6	1.0	ug/L	25.0		102	66.7-120	5.36	30	
Pyrene	22.4	1.0	ug/L	25.0		89.4	62.7-127	13.00	30	
Butylbenzylphthalate	23.4	1.0	ug/L	25.0		93.7	67.4-128	11.80	30	
Benzo(a)anthracene	25.6	1.0	ug/L	25.0		103	58.3-128	10.20	30	
3,3'-Dichlorobenzidine	148	5.0	ug/L	65.0		227	34.1-120	12.30	30	*, Q



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Project: Landsburg
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Reported:
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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0295 - 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 (BKC0295-BSD1)				Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 19:28						
Chrysene	24.6	1.0	ug/L	25.0		98.2	58.9-120	7.96	30	
bis(2-Ethylhexyl)phthalate	24.9	3.0	ug/L	25.0		99.7	68.3-123	9.24	30	
Di-n-Octylphthalate	26.3	1.0	ug/L	25.0		105	61.5-120	8.42	30	
Benzo(a)pyrene	23.4	1.0	ug/L	25.0		93.5	70.6-120	8.15	30	
Indeno(1,2,3-cd)pyrene	23.4	1.0	ug/L	25.0		93.5	46.5-120	9.23	30	
Dibenzo(a,h)anthracene	23.9	1.0	ug/L	25.0		95.4	49.6-120	9.07	30	
Benzo(g,h,i)perylene	22.5	1.0	ug/L	25.0		90.0	37-120	8.82	30	
Benzo(a)fluoranthene, Total	47.6	2.0	ug/L	50.0		95.3	66.5-120	5.28	30	
1-Methylnaphthalene	25.3	1.0	ug/L	25.0		101	46.9-120	8.58	30	
Surrogate: 2-Fluorophenol	27.6		ug/L	37.5		73.7	33-120			
Surrogate: Phenol-d5	29.0		ug/L	37.5		77.4	38-120			
Surrogate: 2-Chlorophenol-d4	31.0		ug/L	37.5		82.8	41-120			
Surrogate: 1,2-Dichlorobenzene-d4	19.3		ug/L	25.0		77.1	20-120			
Surrogate: Nitrobenzene-d5	21.0		ug/L	25.0		84.1	27-120			
Surrogate: 2-Fluorobiphenyl	21.8		ug/L	25.0		87.0	33-120			
Surrogate: 2,4,6-Tribromophenol	46.9		ug/L	37.5		125	52-120			* Q
Surrogate: p-Terphenyl-d14	23.8		ug/L	25.0		95.2	28-120			
Matrix Spike (BKC0295-MS1)				Source: 22C0153-01 Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 22:49						
Phenol	18.8	1.0	ug/L	25.0	ND	75.3	35-120			
bis(2-chloroethyl) ether	18.8	1.0	ug/L	25.0	ND	75.4	46.5-120			
2-Chlorophenol	19.3	1.0	ug/L	25.0	ND	77.3	48-120			
1,3-Dichlorobenzene	19.9	1.0	ug/L	25.0	ND	79.6	34.2-120			
1,4-Dichlorobenzene	20.8	1.0	ug/L	25.0	ND	83.4	36-120			
Benzyl Alcohol	20.4	2.0	ug/L	25.0	ND	81.4	27.4-120			
1,2-Dichlorobenzene	20.4	1.0	ug/L	25.0	ND	81.5	38.4-120			
2-Methylphenol	18.5	1.0	ug/L	25.0	ND	74.1	47.8-120			
2,2'-Oxybis(1-chloropropane)	16.0	1.0	ug/L	25.0	ND	64.2	40.4-120			Q
4-Methylphenol	19.4	2.0	ug/L	25.0	ND	77.5	52.3-120			
N-Nitroso-di-n-Propylamine	17.2	1.0	ug/L	25.0	ND	68.9	51.4-120			
Hexachloroethane	19.5	2.0	ug/L	25.0	ND	78.0	29.5-120			
Nitrobenzene	20.5	1.0	ug/L	25.0	ND	82.0	51.5-120			
Isophorone	26.2	1.0	ug/L	25.0	ND	105	62.3-120			
2-Nitrophenol	24.9	3.0	ug/L	25.0	ND	99.6	58.6-124			
2,4-Dimethylphenol	41.2	3.0	ug/L	65.0	ND	63.4	38.5-120			



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Project: Landsburg
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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0295 - 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
Matrix Spike (BKC0295-MS1)										
		Source: 22C0153-01			Prepared: 14-Mar-2022		Analyzed: 16-Mar-2022 22:49			
Bis(2-Chloroethoxy)methane	21.6	1.0	ug/L	25.0	ND	86.6	52.9-120			
Benzoic acid	95.1	20.0	ug/L	115	ND	82.7	38.2-120			Q
2,4-Dichlorophenol	52.8	3.0	ug/L	65.0	ND	81.2	43.6-120			
1,2,4-Trichlorobenzene	21.9	1.0	ug/L	25.0	ND	87.6	28.6-120			
Naphthalene	22.0	1.0	ug/L	25.0	ND	87.8	40.5-120			
4-Chloroaniline	47.2	5.0	ug/L	65.0	ND	72.6	42.7-132			
Hexachlorobutadiene	22.0	3.0	ug/L	25.0	ND	88.0	32.3-120			
4-Chloro-3-Methylphenol	52.2	3.0	ug/L	65.0	ND	80.3	51.9-120			
2-Methylnaphthalene	22.9	1.0	ug/L	25.0	ND	91.4	47.3-120			
Hexachlorocyclopentadiene	39.5	5.0	ug/L	65.0	ND	60.8	23.3-120			
2,4,6-Trichlorophenol	56.9	3.0	ug/L	65.0	ND	87.5	47-120			
2,4,5-Trichlorophenol	56.9	5.0	ug/L	65.0	ND	87.5	48.4-120			
2-Chloronaphthalene	22.9	1.0	ug/L	25.0	ND	91.6	47.7-123			
2-Nitroaniline	49.7	3.0	ug/L	65.0	ND	76.4	56.8-120			
Dimethylphthalate	24.1	1.0	ug/L	25.0	ND	96.3	65.2-125			
Acenaphthylene	23.8	1.0	ug/L	25.0	ND	95.2	44.1-120			
2,6-Dinitrotoluene	61.6	3.0	ug/L	65.0	ND	94.7	69.3-140			
3-Nitroaniline	58.0	3.0	ug/L	65.0	ND	89.3	60.9-120			
Acenaphthene	23.6	1.0	ug/L	25.0	ND	94.2	50.4-120			
2,4-Dinitrophenol	138	20.0	ug/L	115	ND	120	33.7-183			Q
Dibenzofuran	24.0	1.0	ug/L	25.0	ND	96.2	49.9-120			
4-Nitrophenol	64.0	10.0	ug/L	65.0	ND	98.4	50.2-136			Q
2,4-Dinitrotoluene	60.4	3.0	ug/L	65.0	ND	93.0	66.8-132			
Fluorene	23.6	1.0	ug/L	25.0	ND	94.2	57.8-120			
Diethyl phthalate	24.0	1.0	ug/L	25.0	ND	96.2	68.1-120			
4-Chlorophenylphenyl ether	24.3	1.0	ug/L	25.0	ND	97.1	59.1-127			
4-Nitroaniline	59.1	3.0	ug/L	65.0	ND	90.9	56-122			
4,6-Dinitro-2-methylphenol	119	10.0	ug/L	115	ND	104	37.9-162			
N-Nitrosodiphenylamine	23.3	1.0	ug/L	25.0	ND	93.3	59.6-120			
4-Bromophenyl phenyl ether	24.2	1.0	ug/L	25.0	ND	96.6	59.6-120			
Hexachlorobenzene	25.1	1.0	ug/L	25.0	ND	100	53.7-120			
Pentachlorophenol	67.7	10.0	ug/L	65.0	ND	104	40.3-128			
Phenanthrene	24.5	1.0	ug/L	25.0	ND	97.8	58.8-120			
Anthracene	23.8	1.0	ug/L	25.0	ND	95.1	60.5-120			
Carbazole	23.7	1.0	ug/L	25.0	ND	94.8	59.7-120			



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Semivolatile Organic Compounds - Quality Control

Batch BKC0295 - 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
Matrix Spike (BKC0295-MS1)										
		Source: 22C0153-01		Prepared: 14-Mar-2022		Analyzed: 16-Mar-2022 22:49				
Di-n-Butylphthalate	24.1	1.0	ug/L	25.0	ND	96.5	71-120			
Fluoranthene	25.3	1.0	ug/L	25.0	ND	101	66.7-120			
Pyrene	20.5	1.0	ug/L	25.0	ND	81.9	62.7-127			
Butylbenzylphthalate	21.8	1.0	ug/L	25.0	ND	87.1	67.4-128			
Benzo(a)anthracene	24.2	1.0	ug/L	25.0	ND	96.9	58.3-128			
3,3'-Dichlorobenzidine	145	5.0	ug/L	65.0	ND	223	34.1-120			*, Q
Chrysene	23.8	1.0	ug/L	25.0	ND	95.0	58.9-120			
bis(2-Ethylhexyl)phthalate	23.7	3.0	ug/L	25.0	ND	94.6	68.3-120			
Di-n-Octylphthalate	25.4	1.0	ug/L	25.0	ND	102	61.5-120			
Benzo(a)pyrene	22.5	1.0	ug/L	25.0	ND	90.1	70.6-120			
Indeno(1,2,3-cd)pyrene	22.3	1.0	ug/L	25.0	ND	89.3	46.5-120			
Dibenzo(a,h)anthracene	22.7	1.0	ug/L	25.0	ND	90.7	49.6-120			
Benzo(g,h,i)perylene	21.2	1.0	ug/L	25.0	ND	84.9	37-120			
Benzo(a)fluoranthene, Total	46.1	2.0	ug/L	50.0	ND	92.2	66.5-120			
1-Methylnaphthalene	24.4	1.0	ug/L	25.0	ND	97.4	46.9-120			
Surrogate: 2-Fluorophenol	27.9		ug/L	37.5	26.5	74.5	33-120			
Surrogate: Phenol-d5	28.7		ug/L	37.5	26.8	76.5	38-120			
Surrogate: 2-Chlorophenol-d4	30.6		ug/L	37.5	29.5	81.6	41-120			
Surrogate: 1,2-Dichlorobenzene-d4	19.7		ug/L	25.0	18.9	78.9	20-120			
Surrogate: Nitrobenzene-d5	20.7		ug/L	25.0	19.0	82.6	27-120			
Surrogate: 2-Fluorobiphenyl	22.7		ug/L	25.0	20.6	90.7	33-120			
Surrogate: 2,4,6-Tribromophenol	45.0		ug/L	37.5	42.3	120	52-120			Q
Surrogate: p-Terphenyl-d14	22.3		ug/L	25.0	22.2	89.3	28-120			

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

Matrix Spike Dup (BKC0295-MSD1)										
		Source: 22C0153-01		Prepared: 14-Mar-2022		Analyzed: 16-Mar-2022 23:23				
Phenol	18.6	1.0	ug/L	25.0	ND	74.4	35-120	1.16	30	
bis(2-chloroethyl) ether	18.4	1.0	ug/L	25.0	ND	73.8	46.5-120	2.16	30	
2-Chlorophenol	18.9	1.0	ug/L	25.0	ND	75.7	48-120	2.14	30	
1,3-Dichlorobenzene	19.5	1.0	ug/L	25.0	ND	77.9	34.2-120	2.25	30	
1,4-Dichlorobenzene	20.3	1.0	ug/L	25.0	ND	81.1	36-120	2.73	30	
Benzyl Alcohol	20.3	2.0	ug/L	25.0	ND	81.2	27.4-120	0.33	30	
1,2-Dichlorobenzene	20.0	1.0	ug/L	25.0	ND	80.0	38.4-120	1.87	30	
2-Methylphenol	18.3	1.0	ug/L	25.0	ND	73.3	47.8-120	1.00	30	



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

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

Reported:
31-Mar-2022 13:37

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0295 - 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
Matrix Spike Dup (BKC0295-MSD1)										
		Source: 22C0153-01			Prepared: 14-Mar-2022		Analyzed: 16-Mar-2022 23:23			
2,2'-Oxybis(1-chloropropane)	15.9	1.0	ug/L	25.0	ND	63.5	40.4-120	1.00	30	Q
4-Methylphenol	19.3	2.0	ug/L	25.0	ND	77.1	52.3-120	0.53	30	
N-Nitroso-di-n-Propylamine	16.9	1.0	ug/L	25.0	ND	67.6	51.4-120	1.88	30	
Hexachloroethane	18.6	2.0	ug/L	25.0	ND	74.4	29.5-120	4.74	30	
Nitrobenzene	20.0	1.0	ug/L	25.0	ND	80.1	51.5-120	2.39	30	
Isophorone	26.1	1.0	ug/L	25.0	ND	104	62.3-120	0.35	30	
2-Nitrophenol	25.4	3.0	ug/L	25.0	ND	101	58.6-124	1.94	30	
2,4-Dimethylphenol	40.9	3.0	ug/L	65.0	ND	62.9	38.5-120	0.74	30	
Bis(2-Chloroethoxy)methane	21.7	1.0	ug/L	25.0	ND	86.9	52.9-120	0.45	30	
Benzoic acid	98.0	20.0	ug/L	115	ND	85.2	38.2-120	3.03	30	Q
2,4-Dichlorophenol	52.6	3.0	ug/L	65.0	ND	80.9	43.6-120	0.42	30	
1,2,4-Trichlorobenzene	21.5	1.0	ug/L	25.0	ND	86.1	28.6-120	1.67	30	
Naphthalene	21.5	1.0	ug/L	25.0	ND	85.8	40.5-120	2.31	30	
4-Chloroaniline	48.0	5.0	ug/L	65.0	ND	73.8	42.7-132	1.58	30	
Hexachlorobutadiene	22.3	3.0	ug/L	25.0	ND	89.1	32.3-120	1.29	30	
4-Chloro-3-Methylphenol	52.6	3.0	ug/L	65.0	ND	81.0	51.9-120	0.76	30	
2-Methylnaphthalene	22.8	1.0	ug/L	25.0	ND	91.2	47.3-120	0.30	30	
Hexachlorocyclopentadiene	41.6	5.0	ug/L	65.0	ND	63.9	23.3-120	4.96	30	
2,4,6-Trichlorophenol	55.6	3.0	ug/L	65.0	ND	85.6	47-120	2.28	30	
2,4,5-Trichlorophenol	55.8	5.0	ug/L	65.0	ND	85.9	48.4-120	1.88	30	
2-Chloronaphthalene	22.1	1.0	ug/L	25.0	ND	88.5	47.7-123	3.49	30	
2-Nitroaniline	49.6	3.0	ug/L	65.0	ND	76.3	56.8-120	0.13	30	
Dimethylphthalate	23.9	1.0	ug/L	25.0	ND	95.7	65.2-125	0.54	30	
Acenaphthylene	23.2	1.0	ug/L	25.0	ND	92.8	44.1-120	2.49	30	
2,6-Dinitrotoluene	60.8	3.0	ug/L	65.0	ND	93.5	69.3-140	1.23	30	
3-Nitroaniline	56.2	3.0	ug/L	65.0	ND	86.4	60.9-120	3.21	30	
Acenaphthene	22.8	1.0	ug/L	25.0	ND	91.1	50.4-120	3.39	30	
2,4-Dinitrophenol	142	20.0	ug/L	115	ND	123	33.7-183	2.69	30	Q
Dibenzofuran	23.5	1.0	ug/L	25.0	ND	94.1	49.9-120	2.23	30	
4-Nitrophenol	61.2	10.0	ug/L	65.0	ND	94.1	50.2-136	4.44	30	Q
2,4-Dinitrotoluene	59.3	3.0	ug/L	65.0	ND	91.2	66.8-132	1.98	30	
Fluorene	23.1	1.0	ug/L	25.0	ND	92.2	57.8-120	2.18	30	
Diethyl phthalate	23.6	1.0	ug/L	25.0	ND	94.6	68.1-120	1.68	30	
4-Chlorophenylphenyl ether	23.8	1.0	ug/L	25.0	ND	95.2	59.1-127	1.92	30	
4-Nitroaniline	56.3	3.0	ug/L	65.0	ND	86.6	56-122	4.83	30	



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

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

Reported:
31-Mar-2022 13:37

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0295 - 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
Matrix Spike Dup (BKC0295-MSD1)										
		Source: 22C0153-01		Prepared: 14-Mar-2022		Analyzed: 16-Mar-2022 23:23				
4,6-Dinitro-2-methylphenol	119	10.0	ug/L	115	ND	104	37.9-162	0.28	30	
N-Nitrosodiphenylamine	22.9	1.0	ug/L	25.0	ND	91.6	59.6-120	1.90	30	
4-Bromophenyl phenyl ether	24.4	1.0	ug/L	25.0	ND	97.7	59.6-120	1.12	30	
Hexachlorobenzene	25.1	1.0	ug/L	25.0	ND	100	53.7-120	0.04	30	
Pentachlorophenol	65.5	10.0	ug/L	65.0	ND	101	40.3-128	3.34	30	
Phenanthrene	23.6	1.0	ug/L	25.0	ND	94.6	58.8-120	3.41	30	
Anthracene	23.4	1.0	ug/L	25.0	ND	93.8	60.5-120	1.38	30	
Carbazole	23.0	1.0	ug/L	25.0	ND	91.9	59.7-120	3.12	30	
Di-n-Butylphthalate	23.6	1.0	ug/L	25.0	ND	94.3	71-120	2.32	30	
Fluoranthene	24.3	1.0	ug/L	25.0	ND	97.1	66.7-120	3.98	30	
Pyrene	21.2	1.0	ug/L	25.0	ND	84.7	62.7-127	3.32	30	
Butylbenzylphthalate	22.1	1.0	ug/L	25.0	ND	88.3	67.4-128	1.43	30	
Benzo(a)anthracene	24.0	1.0	ug/L	25.0	ND	96.1	58.3-128	0.83	30	
3,3'-Dichlorobenzidine	141	5.0	ug/L	65.0	ND	217	34.1-120	2.85	30	*, Q
Chrysene	23.5	1.0	ug/L	25.0	ND	94.1	58.9-120	1.02	30	
bis(2-Ethylhexyl)phthalate	23.9	3.0	ug/L	25.0	ND	95.5	68.3-120	0.90	30	
Di-n-Octylphthalate	25.1	1.0	ug/L	25.0	ND	101	61.5-120	1.26	30	
Benzo(a)pyrene	22.3	1.0	ug/L	25.0	ND	89.2	70.6-120	0.90	30	
Indeno(1,2,3-cd)pyrene	22.2	1.0	ug/L	25.0	ND	88.9	46.5-120	0.47	30	
Dibenzo(a,h)anthracene	22.7	1.0	ug/L	25.0	ND	90.9	49.6-120	0.16	30	
Benzo(g,h,i)perylene	21.3	1.0	ug/L	25.0	ND	85.2	37-120	0.41	30	
Benzo(a)fluoranthene, Total	45.2	2.0	ug/L	50.0	ND	90.3	66.5-120	2.05	30	
1-Methylnaphthalene	24.1	1.0	ug/L	25.0	ND	96.4	46.9-120	1.09	30	
Surrogate: 2-Fluorophenol	26.4		ug/L	37.5	26.5	70.5	33-120			
Surrogate: Phenol-d5	27.5		ug/L	37.5	26.8	73.4	38-120			
Surrogate: 2-Chlorophenol-d4	29.3		ug/L	37.5	29.5	78.0	41-120			
Surrogate: 1,2-Dichlorobenzene-d4	18.9		ug/L	25.0	18.9	75.6	20-120			
Surrogate: Nitrobenzene-d5	20.0		ug/L	25.0	19.0	80.2	27-120			
Surrogate: 2-Fluorobiphenyl	21.4		ug/L	25.0	20.6	85.6	33-120			
Surrogate: 2,4,6-Tribromophenol	43.8		ug/L	37.5	42.3	117	52-120			Q
Surrogate: p-Terphenyl-d14	22.7		ug/L	25.0	22.2	90.6	28-120			

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



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 13:37
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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BKC0294 - 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 (BKC0294-BLK1)				Prepared: 14-Mar-2022 Analyzed: 17-Mar-2022 03:34						
1,4-Dioxane	ND	0.4	ug/L							U
<i>Surrogate: 1,4-Dioxane-d8</i>	11.8		ug/L	20.0	59.1		33.6-120			
LCS (BKC0294-BS1)				Prepared: 14-Mar-2022 Analyzed: 17-Mar-2022 03:59						
1,4-Dioxane	4.6	0.4	ug/L	10.0	45.6		39.9-120			
<i>Surrogate: 1,4-Dioxane-d8</i>	11.9		ug/L	20.0	59.7		33.6-120			
LCS Dup (BKC0294-BSD1)				Prepared: 14-Mar-2022 Analyzed: 17-Mar-2022 04:24						
1,4-Dioxane	4.4	0.4	ug/L	10.0	44.0		39.9-120	3.77	30	
<i>Surrogate: 1,4-Dioxane-d8</i>	11.6		ug/L	20.0	58.0		33.6-120			
Matrix Spike (BKC0294-MS1)				Source: 22C0153-01 Prepared: 14-Mar-2022 Analyzed: 17-Mar-2022 06:55						
1,4-Dioxane	5.7	0.4	ug/L	10.0	1.8	39.2	35.1-120			
<i>Surrogate: 1,4-Dioxane-d8</i>	11.2		ug/L	20.0	11.3	56.1	33.6-120			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BKC0294-MSD1)				Source: 22C0153-01 Prepared: 14-Mar-2022 Analyzed: 17-Mar-2022 07:20						
1,4-Dioxane	5.7	0.4	ug/L	10.0	1.8	39.6	35.1-120	0.82	30	
<i>Surrogate: 1,4-Dioxane-d8</i>	10.8		ug/L	20.0	11.3	53.8	33.6-120			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 13:37
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Analysis by: Analytical Resources, LLC

Petroleum Hydrocarbons - Quality Control

Batch BKC0252 - EPA 3510C SepF

Instrument: FID4 Analyst: JR/VTS/JW

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0252-BLK1)		Prepared: 11-Mar-2022 Analyzed: 14-Mar-2022 18:41								
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: <i>o</i> -Terphenyl	0.207		mg/L	0.225	92.1		50-150			
Surrogate: <i>n</i> -Triacontane	0.229		mg/L	0.225	102		50-150			



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

Reported:
31-Mar-2022 13:37

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BKC0272 - EPA 3510C SepF

Instrument: ECD6 Analyst: YZ/VTS

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0272-BLK1)										
					Prepared: 14-Mar-2022 Analyzed: 28-Mar-2022 13:27					
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
<i>Surrogate: Decachlorobiphenyl</i>	0.362		ug/L	0.400		90.4	11-144			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	0.368		ug/L	0.400		91.9	11-144			
<i>Surrogate: Tetrachlorometaxylene</i>	0.179		ug/L	0.400		44.8	30-120			
<i>Surrogate: Tetrachlorometaxylene [2C]</i>	0.192		ug/L	0.400		48.1	30-120			

LCS (BKC0272-BS1)										
					Prepared: 14-Mar-2022 Analyzed: 28-Mar-2022 13:45					
alpha-BHC [2C]	0.167	0.025	ug/L	0.200		83.3	54-124			
beta-BHC [2C]	0.166	0.025	ug/L	0.200		82.9	53-123			
gamma-BHC (Lindane) [2C]	0.172	0.025	ug/L	0.200		86.0	53-127			
delta-BHC [2C]	0.154	0.025	ug/L	0.200		76.8	53-122			
Heptachlor [2C]	0.150	0.025	ug/L	0.200		74.9	50-120			
Aldrin [2C]	0.133	0.025	ug/L	0.200		66.4	47-120			
Heptachlor Epoxide [2C]	0.171	0.050	ug/L	0.200		85.6	50-127			
trans-Chlordane (beta-Chlordane) [2C]	0.158	0.025	ug/L	0.200		78.8	47-127			



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Project: Landsburg
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Reported:
31-Mar-2022 13:37

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BKC0272 - EPA 3510C SepF

Instrument: ECD6 Analyst: YZ/VTS

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BKC0272-BS1)		Prepared: 14-Mar-2022 Analyzed: 28-Mar-2022 13:45								
cis-Chlordane (alpha-chlordane) [2C]	0.170	0.025	ug/L	0.200		84.8	51-132			
Endosulfan I [2C]	0.173	0.025	ug/L	0.200		86.7	48-137			
4,4'-DDE [2C]	0.335	0.050	ug/L	0.400		83.8	47-133			
Dieldrin [2C]	0.330	0.050	ug/L	0.400		82.4	55-130			
Endrin [2C]	0.339	0.050	ug/L	0.400		84.7	52-121			
Endosulfan II	0.383	0.050	ug/L	0.400		95.7	60-120			
4,4'-DDD	0.390	0.050	ug/L	0.400		97.5	60-120			
Endrin Aldehyde	0.366	0.050	ug/L	0.400		91.5	53-120			
4,4'-DDT	0.376	0.050	ug/L	0.400		94.0	57-122			
Endosulfan Sulfate [2C]	0.371	0.050	ug/L	0.400		92.7	56-120			
Endrin Ketone	0.399	0.050	ug/L	0.400		99.7	61-120			
Methoxychlor [2C]	1.85	0.250	ug/L	2.00		92.6	55-120			
<i>Surrogate: Decachlorobiphenyl</i>	0.375		ug/L	0.400		93.9	11-144			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	0.343		ug/L	0.400		85.8	11-144			
<i>Surrogate: Tetrachlorometaxylene</i>	0.250		ug/L	0.400		62.4	30-120			
<i>Surrogate: Tetrachlorometaxylene [2C]</i>	0.270		ug/L	0.400		67.6	30-120			
LCS (BKC0272-BS2)		Prepared: 14-Mar-2022 Analyzed: 28-Mar-2022 14:04								
Toxaphene	9.56	1.25	ug/L	10.0		95.6	0-200			
<i>Surrogate: Decachlorobiphenyl</i>	0.323		ug/L	0.400		80.7	11-144			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	0.308		ug/L	0.400		76.9	11-144			
<i>Surrogate: Tetrachlorometaxylene</i>	0.260		ug/L	0.400		65.0	30-120			
<i>Surrogate: Tetrachlorometaxylene [2C]</i>	0.295		ug/L	0.400		73.8	30-120			
LCS Dup (BKC0272-BSD1)		Prepared: 14-Mar-2022 Analyzed: 28-Mar-2022 14:22								
alpha-BHC [2C]	0.179	0.025	ug/L	0.200		89.3	54-124	6.94	30	
beta-BHC [2C]	0.175	0.025	ug/L	0.200		87.7	53-123	5.59	30	
gamma-BHC (Lindane) [2C]	0.181	0.025	ug/L	0.200		90.5	53-127	5.15	30	
delta-BHC [2C]	0.158	0.025	ug/L	0.200		78.8	53-122	2.69	30	
Heptachlor [2C]	0.158	0.025	ug/L	0.200		79.0	50-120	5.39	30	
Aldrin [2C]	0.138	0.025	ug/L	0.200		68.9	47-120	3.74	30	
Heptachlor Epoxide [2C]	0.178	0.050	ug/L	0.200		89.0	50-127	3.80	30	
trans-Chlordane (beta-Chlordane) [2C]	0.163	0.025	ug/L	0.200		81.7	47-127	3.66	30	
cis-Chlordane (alpha-chlordane) [2C]	0.176	0.025	ug/L	0.200		87.8	51-132	3.57	30	



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

Reported:
31-Mar-2022 13:37

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BKC0272 - EPA 3510C SepF

Instrument: ECD6 Analyst: YZ/VTS

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BKC0272-BSD1)										
					Prepared: 14-Mar-2022	Analyzed: 28-Mar-2022 14:22				
Endosulfan I [2C]	0.181	0.025	ug/L	0.200		90.3	48-137	4.07	30	
4,4'-DDE [2C]	0.348	0.050	ug/L	0.400		86.9	47-133	3.63	30	
Dieldrin [2C]	0.343	0.050	ug/L	0.400		85.6	55-130	3.78	30	
Endrin [2C]	0.340	0.050	ug/L	0.400		85.0	52-121	0.30	30	
Endosulfan II [2C]	0.372	0.050	ug/L	0.400		93.1	60-120	2.91	30	
4,4'-DDD	0.372	0.050	ug/L	0.400		92.9	60-120	4.83	30	
Endrin Aldehyde [2C]	0.341	0.050	ug/L	0.400		85.3	53-120	0.30	30	
4,4'-DDT [2C]	0.387	0.050	ug/L	0.400		96.7	57-122	4.44	30	
Endosulfan Sulfate [2C]	0.399	0.050	ug/L	0.400		99.8	56-120	7.37	30	
Endrin Ketone [2C]	0.420	0.050	ug/L	0.400		105	61-120	6.52	30	
Methoxychlor [2C]	1.90	0.250	ug/L	2.00		94.9	55-120	2.41	30	
<i>Surrogate: Decachlorobiphenyl</i>	0.351		ug/L	0.400		87.7	11-144			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	0.335		ug/L	0.400		83.8	11-144			
<i>Surrogate: Tetrachlorometaxylene</i>	0.260		ug/L	0.400		64.9	30-120			
<i>Surrogate: Tetrachlorometaxylene [2C]</i>	0.291		ug/L	0.400		72.8	30-120			
Matrix Spike (BKC0272-MS1)										
		Source: 22C0153-01			Prepared: 14-Mar-2022		Analyzed: 28-Mar-2022 16:12			
alpha-BHC	0.167	0.025	ug/L	0.200	ND	83.5	54-124			
beta-BHC	0.158	0.025	ug/L	0.200	ND	79.0	53-123			
gamma-BHC (Lindane)	0.169	0.025	ug/L	0.200	ND	84.7	53-127			
delta-BHC	0.157	0.025	ug/L	0.200	ND	78.4	53-122			
Heptachlor	0.156	0.025	ug/L	0.200	ND	78.2	50-120			
Aldrin	0.147	0.025	ug/L	0.200	ND	73.7	47-120			
Heptachlor Epoxide	0.159	0.050	ug/L	0.200	ND	79.4	50-127			
trans-Chlordane (beta-Chlordane)	0.162	0.025	ug/L	0.200	ND	81.0	47-127			
cis-Chlordane (alpha-chlordane)	0.143	0.025	ug/L	0.200	ND	71.6	51-132			
Endosulfan I	0.177	0.025	ug/L	0.200	ND	88.4	48-137			
4,4'-DDE	0.331	0.050	ug/L	0.400	ND	82.6	47-133			
Dieldrin	0.342	0.050	ug/L	0.400	ND	85.4	55-130			
Endrin	0.348	0.050	ug/L	0.400	ND	87.0	52-121			
Endosulfan II	0.400	0.050	ug/L	0.400	ND	100.0	60-120			
4,4'-DDD	0.422	0.050	ug/L	0.400	ND	106	60-120			
Endrin Aldehyde	0.363	0.050	ug/L	0.400	ND	90.8	53-120			
4,4'-DDT	0.405	0.050	ug/L	0.400	ND	101	57-122			
Endosulfan Sulfate	0.342	0.050	ug/L	0.400	ND	85.4	56-120			



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

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

Reported:
31-Mar-2022 13:37

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BKC0272 - EPA 3510C SepF

Instrument: ECD6 Analyst: YZ/VTS

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BKC0272-MS1)		Source: 22C0153-01		Prepared: 14-Mar-2022		Analyzed: 28-Mar-2022 16:12				
Endrin Ketone	0.419	0.050	ug/L	0.400	ND	105	61-120			
Methoxychlor	1.72	0.250	ug/L	2.00	ND	86.2	55-120			
Surrogate: Decachlorobiphenyl	0.435		ug/L	0.400		109	11-144			
Surrogate: Decachlorobiphenyl [2C]	0.356		ug/L	0.400		88.9	11-144			
Surrogate: Tetrachlorometaxylene	0.258		ug/L	0.400		64.5	30-120			
Surrogate: Tetrachlorometaxylene [2C]	0.300		ug/L	0.400		75.1	30-120			

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

Matrix Spike Dup (BKC0272-MSD1)		Source: 22C0153-01		Prepared: 14-Mar-2022		Analyzed: 28-Mar-2022 16:30				
alpha-BHC	0.156	0.025	ug/L	0.200	ND	77.8	54-124	7.07	30	
beta-BHC	0.157	0.025	ug/L	0.200	ND	78.3	53-123	0.81	30	
gamma-BHC (Lindane)	0.158	0.025	ug/L	0.200	ND	79.2	53-127	6.71	30	
delta-BHC	0.148	0.025	ug/L	0.200	ND	73.8	53-122	6.03	30	
Heptachlor	0.146	0.025	ug/L	0.200	ND	73.0	50-120	6.88	30	
Aldrin	0.137	0.025	ug/L	0.200	ND	68.3	47-120	7.68	30	
Heptachlor Epoxide	0.149	0.050	ug/L	0.200	ND	74.4	50-127	6.45	30	
trans-Chlordane (beta-Chlordane)	0.152	0.025	ug/L	0.200	ND	76.2	47-127	6.14	30	
cis-Chlordane (alpha-chlordane)	0.135	0.025	ug/L	0.200	ND	67.5	51-132	5.78	30	
Endosulfan I	0.165	0.025	ug/L	0.200	ND	82.6	48-137	6.83	30	
4,4'-DDE	0.316	0.050	ug/L	0.400	ND	78.9	47-133	4.64	30	
Dieldrin	0.320	0.050	ug/L	0.400	ND	80.0	55-130	6.63	30	
Endrin	0.326	0.050	ug/L	0.400	ND	81.6	52-121	6.55	30	
Endosulfan II	0.355	0.050	ug/L	0.400	ND	88.8	60-120	11.90	30	
4,4'-DDD	0.373	0.050	ug/L	0.400	ND	93.3	60-120	12.10	30	
Endrin Aldehyde	0.311	0.050	ug/L	0.400	ND	77.6	53-120	15.50	30	
4,4'-DDT	0.350	0.050	ug/L	0.400	ND	87.5	57-122	14.60	30	
Endosulfan Sulfate	0.308	0.050	ug/L	0.400	ND	76.9	56-120	10.50	30	
Endrin Ketone	0.380	0.050	ug/L	0.400	ND	95.1	61-120	9.74	30	
Methoxychlor	1.54	0.250	ug/L	2.00	ND	76.9	55-120	11.50	30	
Surrogate: Decachlorobiphenyl	0.391		ug/L	0.400		97.8	11-144			
Surrogate: Decachlorobiphenyl [2C]	0.379		ug/L	0.400		94.9	11-144			
Surrogate: Tetrachlorometaxylene	0.226		ug/L	0.400		56.5	30-120			
Surrogate: Tetrachlorometaxylene [2C]	0.248		ug/L	0.400		62.0	30-120			

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



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 13:37
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Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BKC0271 - 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 (BKC0271-BLK1)										
					Prepared: 14-Mar-2022 Analyzed: 23-Mar-2022 13:03					
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	0.0137		ug/L	0.0200		68.5	29-120			
Surrogate: Tetrachlorometaxylyene	0.0141		ug/L	0.0200		70.3	32-120			
Surrogate: Decachlorobiphenyl [2C]	0.0133		ug/L	0.0200		66.6	29-120			
Surrogate: Tetrachlorometaxylyene [2C]	0.0131		ug/L	0.0200		65.5	32-120			
LCS (BKC0271-BS1)										
					Prepared: 14-Mar-2022 Analyzed: 23-Mar-2022 13:25					
Aroclor 1016	0.045	0.010	ug/L	0.0500		89.1	54-120			
Aroclor 1260	0.054	0.010	ug/L	0.0500		108	51-128			
Surrogate: Decachlorobiphenyl	0.0140		ug/L	0.0200		70.1	29-120			
Surrogate: Tetrachlorometaxylyene	0.0139		ug/L	0.0200		69.6	32-120			
Surrogate: Decachlorobiphenyl [2C]	0.0136		ug/L	0.0200		67.8	29-120			
Surrogate: Tetrachlorometaxylyene [2C]	0.0135		ug/L	0.0200		67.7	32-120			
LCS Dup (BKC0271-BSD1)										
					Prepared: 14-Mar-2022 Analyzed: 23-Mar-2022 13:46					
Aroclor 1016 [2C]	0.044	0.010	ug/L	0.0500		87.5	54-120	0.39	30	
Aroclor 1260	0.053	0.010	ug/L	0.0500		106	51-128	1.38	30	
Surrogate: Decachlorobiphenyl	0.0133		ug/L	0.0200		66.3	29-120			
Surrogate: Tetrachlorometaxylyene	0.0140		ug/L	0.0200		70.2	32-120			
Surrogate: Decachlorobiphenyl [2C]	0.0126		ug/L	0.0200		62.8	29-120			
Surrogate: Tetrachlorometaxylyene [2C]	0.0137		ug/L	0.0200		68.3	32-120			
Matrix Spike (BKC0271-MS1)										
		Source: 22C0153-01			Prepared: 14-Mar-2022 Analyzed: 23-Mar-2022 15:56					
Aroclor 1016	0.042	0.010	ug/L	0.0500	ND	83.2	54-120			
Aroclor 1260	0.051	0.010	ug/L	0.0500	ND	102	51-128			
Surrogate: Decachlorobiphenyl	0.0134		ug/L	0.0200		66.8	29-120			
Surrogate: Tetrachlorometaxylyene	0.0131		ug/L	0.0200		65.5	32-120			
Surrogate: Decachlorobiphenyl [2C]	0.0148		ug/L	0.0200		73.9	29-120			



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 13:37
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Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BKC0271 - 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
Matrix Spike (BKC0271-MS1)		Source: 22C0153-01		Prepared: 14-Mar-2022		Analyzed: 23-Mar-2022 15:56				
Surrogate: Tetrachlorometaxylene [2C]	0.0127		ug/L	0.0200		63.4	32-120			

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

Matrix Spike Dup (BKC0271-MSD1)		Source: 22C0153-01		Prepared: 14-Mar-2022		Analyzed: 23-Mar-2022 16:18				
Aroclor 1016	0.036	0.010	ug/L	0.0500	ND	71.8	54-120	14.80	30	
Aroclor 1260	0.046	0.010	ug/L	0.0500	ND	92.0	51-128	10.40	30	
Surrogate: Decachlorobiphenyl	0.0119		ug/L	0.0200		59.4	29-120			
Surrogate: Tetrachlorometaxylene	0.0110		ug/L	0.0200		55.2	32-120			
Surrogate: Decachlorobiphenyl [2C]	0.0114		ug/L	0.0200		56.9	29-120			
Surrogate: Tetrachlorometaxylene [2C]	0.0108		ug/L	0.0200		54.0	32-120			

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



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 13:37
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0278 - TWM EPA 7470A

Instrument: HYDRA Analyst: SKD

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0278-BLK1)					Prepared: 11-Mar-2022 Analyzed: 16-Mar-2022 14:06					
Mercury	ND	0.00100	mg/L							U
LCS (BKC0278-BS1)					Prepared: 11-Mar-2022 Analyzed: 16-Mar-2022 14:09					
Mercury	0.00175	0.00100	mg/L	0.00200		87.5	80-120			
Duplicate (BKC0278-DUP1)					Source: 22C0153-01 Prepared: 11-Mar-2022 Analyzed: 16-Mar-2022 14:59					
Mercury	ND	0.00100	mg/L		ND					U
Matrix Spike (BKC0278-MS1)					Source: 22C0153-01 Prepared: 11-Mar-2022 Analyzed: 16-Mar-2022 15:01					
Mercury	ND	0.00100	mg/L	0.00100	ND	91.2	75-125			U

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

Matrix Spike Dup (BKC0278-MSD1)					Source: 22C0153-01 Prepared: 11-Mar-2022 Analyzed: 16-Mar-2022 15:04					
Mercury	ND	0.00100	mg/L	0.00100	ND	87.1	75-125			U

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



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

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

Reported:
31-Mar-2022 13:37

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0417 - 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 (BKC0417-BLK1)			Prepared: 17-Mar-2022 Analyzed: 17-Mar-2022 17:47								
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 (BKC0417-BS1)			Prepared: 17-Mar-2022 Analyzed: 17-Mar-2022 17:52								
Antimony	121	0.0252	0.00300	mg/L	0.0250		101	80-120			
Antimony	123	0.0247	0.00300	mg/L	0.0250		98.8	80-120			
Lead	208	0.0255	0.0100	mg/L	0.0250		102	80-120			
Thallium	205	0.0259	0.00200	mg/L	0.0250		104	80-120			
Arsenic	75a	0.0243	0.00300	mg/L	0.0250		97.4	80-120			
Selenium	78	0.0792	0.0250	mg/L	0.0800		99.0	80-120			
Duplicate (BKC0417-DUP1)			Source: 22C0153-01		Prepared: 17-Mar-2022 Analyzed: 17-Mar-2022 20:30						
Antimony	121	ND	0.00300	mg/L		ND					U
Lead	208	ND	0.0100	mg/L		ND					U
Thallium	205	ND	0.00200	mg/L		ND					U
Arsenic	75a	ND	0.00300	mg/L		ND					U
Selenium	78	ND	0.0250	mg/L		ND					U
Matrix Spike (BKC0417-MS1)			Source: 22C0153-01		Prepared: 17-Mar-2022 Analyzed: 17-Mar-2022 20:35						
Antimony	121	0.0252	0.00300	mg/L	0.0250	ND	101	75-125			
Lead	208	0.0221	0.0100	mg/L	0.0250	ND	88.4	75-125			
Thallium	205	0.0238	0.00200	mg/L	0.0250	ND	95.2	75-125			
Arsenic	75a	0.0254	0.00300	mg/L	0.0250	ND	102	75-125			
Selenium	78	0.0795	0.0250	mg/L	0.0800	ND	99.4	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BKC0417-MSD1)			Source: 22C0153-01		Prepared: 17-Mar-2022 Analyzed: 17-Mar-2022 20:40						
Antimony	121	0.0246	0.00300	mg/L	0.0250	ND	98.6	75-125	2.08	20	
Lead	208	0.0218	0.0100	mg/L	0.0250	ND	87.3	75-125	1.28	20	
Thallium	205	0.0233	0.00200	mg/L	0.0250	ND	93.3	75-125	2.04	20	
Arsenic	75a	0.0252	0.00300	mg/L	0.0250	ND	101	75-125	0.83	20	



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 13:37
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0417 - 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 (BKC0417-MSD1)			Source: 22C0153-01		Prepared: 17-Mar-2022		Analyzed: 17-Mar-2022 20:40				
Selenium	78	0.0801	0.0250	mg/L	0.0800	ND	100	75-125	0.74	20	

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



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 13:37
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0437 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0437-BLK1)		Prepared: 17-Mar-2022 Analyzed: 22-Mar-2022 14:30								
Aluminum	ND	1.00	mg/L							U
Barium	ND	0.500	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
Blank (BKC0437-BLK2)		Prepared: 17-Mar-2022 Analyzed: 22-Mar-2022 15:24								
Cadmium	ND	0.0020	mg/L							U
Blank (BKC0437-BLK3)		Prepared: 17-Mar-2022 Analyzed: 23-Mar-2022 15:24								
Beryllium	ND	0.0100	mg/L							U
LCS (BKC0437-BS1)		Prepared: 17-Mar-2022 Analyzed: 22-Mar-2022 14:58								
Aluminum	2.19	1.00	mg/L	2.00		109	80-120			
Barium	2.07	0.500	mg/L	2.00		104	80-120			
Cadmium	0.516	0.0020	mg/L	0.500		103	80-120			
Calcium	10.2	0.500	mg/L	10.0		102	80-120			
Chromium	0.515	0.0100	mg/L	0.500		103	80-120			
Cobalt	0.586	0.0100	mg/L	0.500		117	80-120			
Copper	0.507	0.0030	mg/L	0.500		101	80-120			
Iron	2.05	0.200	mg/L	2.00		102	80-120			
Magnesium	11.2	0.500	mg/L	10.0		112	80-120			
Manganese	0.519	0.0100	mg/L	0.500		104	80-120			
Nickel	0.531	0.0100	mg/L	0.500		106	80-120			



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

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

Reported:
31-Mar-2022 13:37

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0437 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BKC0437-BS1)		Prepared: 17-Mar-2022 Analyzed: 22-Mar-2022 14:58								
Potassium	10.7	0.500	mg/L	10.0		107	80-120			
Silver	0.534	0.0050	mg/L	0.500		107	80-120			
Sodium	10.7	0.500	mg/L	10.0		107	80-120			
Vanadium	0.520	0.0030	mg/L	0.500		104	80-120			
Zinc	0.535	0.0200	mg/L	0.500		107	80-120			
LCS (BKC0437-BS2)		Prepared: 17-Mar-2022 Analyzed: 23-Mar-2022 15:48								
Beryllium	0.526	0.0100	mg/L	0.500		105	80-120			
Duplicate (BKC0437-DUP1)		Source: 22C0153-01		Prepared: 17-Mar-2022 Analyzed: 22-Mar-2022 15:41						
Aluminum	ND	1.00	mg/L		ND					U
Barium	ND	0.500	mg/L		ND					U
Cadmium	ND	0.0020	mg/L		ND					U
Calcium	104	0.500	mg/L		104			0.16	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	64.9	0.500	mg/L		64.5			0.54	20	
Manganese	0.209	0.0100	mg/L		0.208			0.57	20	
Nickel	ND	0.0100	mg/L		ND					U
Potassium	3.32	0.500	mg/L		3.31			0.38	20	
Silver	ND	0.0050	mg/L		ND					U
Sodium	18.2	0.500	mg/L		18.2			0.03	20	
Vanadium	ND	0.0030	mg/L		ND					U
Zinc	ND	0.0200	mg/L		ND					U
Duplicate (BKC0437-DUP2)		Source: 22C0153-01		Prepared: 17-Mar-2022 Analyzed: 23-Mar-2022 15:38						
Beryllium	ND	0.0100	mg/L		ND					U
Matrix Spike (BKC0437-MS1)		Source: 22C0153-01		Prepared: 17-Mar-2022 Analyzed: 22-Mar-2022 15:44						
Aluminum	2.21	1.00	mg/L	2.00	ND	110	75-125			
Barium	2.49	0.500	mg/L	2.00	ND	108	75-125			
Cadmium	0.545	0.0020	mg/L	0.500	ND	109	75-125			
Calcium	126	0.500	mg/L	10.0	104	214	75-125			HC
Chromium	0.525	0.0100	mg/L	0.500	ND	105	75-125			



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

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

Reported:
31-Mar-2022 13:37

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0437 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BKC0437-MS1)		Source: 22C0153-01		Prepared: 17-Mar-2022		Analyzed: 22-Mar-2022 15:44				
Cobalt	0.525	0.0100	mg/L	0.500	ND	105	75-125			
Copper	0.463	0.0030	mg/L	0.500	ND	92.6	75-125			
Iron	2.26	0.200	mg/L	2.00	ND	104	75-125			
Magnesium	79.7	0.500	mg/L	10.0	64.5	152	75-125			HC
Manganese	0.758	0.0100	mg/L	0.500	0.208	110	75-125			
Nickel	0.521	0.0100	mg/L	0.500	ND	104	75-125			
Potassium	14.5	0.500	mg/L	10.0	3.31	112	75-125			
Silver	0.506	0.0050	mg/L	0.500	ND	101	75-125			
Sodium	30.9	0.500	mg/L	10.0	18.2	127	75-125			HC
Vanadium	0.498	0.0030	mg/L	0.500	ND	99.5	75-125			
Zinc	0.535	0.0200	mg/L	0.500	ND	107	75-125			

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

Matrix Spike (BKC0437-MS2)		Source: 22C0153-01		Prepared: 17-Mar-2022		Analyzed: 23-Mar-2022 15:41				
Beryllium	0.543	0.0100	mg/L	0.500	ND	109	75-125			

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

Matrix Spike Dup (BKC0437-MSD1)		Source: 22C0153-01		Prepared: 17-Mar-2022		Analyzed: 22-Mar-2022 15:48				
Aluminum	2.13	1.00	mg/L	2.00	ND	107	75-125	3.58	20	
Barium	2.43	0.500	mg/L	2.00	ND	104	75-125	2.58	20	
Cadmium	0.524	0.0020	mg/L	0.500	ND	105	75-125	3.95	20	
Calcium	124	0.500	mg/L	10.0	104	193	75-125	1.71	20	HC
Chromium	0.508	0.0100	mg/L	0.500	ND	102	75-125	3.33	20	
Cobalt	0.507	0.0100	mg/L	0.500	ND	101	75-125	3.58	20	
Copper	0.447	0.0030	mg/L	0.500	ND	89.3	75-125	3.60	20	
Iron	2.20	0.200	mg/L	2.00	ND	101	75-125	2.36	20	
Magnesium	78.3	0.500	mg/L	10.0	64.5	138	75-125	1.78	20	HC
Manganese	0.741	0.0100	mg/L	0.500	0.208	107	75-125	2.21	20	
Nickel	0.510	0.0100	mg/L	0.500	ND	102	75-125	2.09	20	
Potassium	14.0	0.500	mg/L	10.0	3.31	107	75-125	3.41	20	
Silver	0.487	0.0050	mg/L	0.500	ND	97.5	75-125	3.78	20	
Sodium	30.2	0.500	mg/L	10.0	18.2	120	75-125	2.32	20	
Sodium	ND	50.0	mg/L	10.0	21.0	124	75-125	3.20	20	U
Vanadium	0.479	0.0030	mg/L	0.500	ND	95.7	75-125	3.90	20	
Zinc	0.522	0.0200	mg/L	0.500	ND	104	75-125	2.47	20	



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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0437 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BKC0437-MSD1)		Source: 22C0153-01		Prepared: 17-Mar-2022		Analyzed: 22-Mar-2022 15:48				

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

Matrix Spike Dup (BKC0437-MSD2)		Source: 22C0153-01		Prepared: 17-Mar-2022		Analyzed: 23-Mar-2022 15:44				
Beryllium	0.526	0.0100	mg/L	0.500	ND	105	75-125	3.17	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 6010D 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
EPA 7470A in Water	
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8081B in Water	
alpha-BHC	DoD-ELAP,NELAP,WADOE
alpha-BHC [2C]	DoD-ELAP,NELAP,WADOE
beta-BHC	DoD-ELAP,NELAP,WADOE
beta-BHC [2C]	DoD-ELAP,NELAP,WADOE
gamma-BHC (Lindane)	DoD-ELAP,NELAP,WADOE
gamma-BHC (Lindane) [2C]	DoD-ELAP,NELAP,WADOE



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



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

EPA 8082A in Water

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



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EPA 8260D in Water

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



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

EPA 8270E in Water

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



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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
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



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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
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
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



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Redmond WA, 98052-3333

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

Reported:
31-Mar-2022 13:37

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

EPA 8270E-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	03/28/2023
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022



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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.
- M Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
- P The reported value is greater than 25% difference between the concentrations determined on two GC columns where applicable.
- P1 The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
- 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, LLC
Analytical Chemists and Consultants

31 March 2022

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

RE: Landsburg (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)
22C0185

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, LLC

Kelly Bottem, Client Services Manager

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



Analytical Resources, LLC
 Analytical Chemists and Consultants
 4611 South 134th Place, Suite 100
 Tukwila, WA 98168
 206-695-6200 206-695-6201 (fax)

ARI Assigned Number:	Turn-around Requested: <i>Standard</i>	Page: <i>1</i> of <i>1</i>
ARI Client Company: <i>Colder</i>	Phone:	Date: <i>3/10/22</i> Ice Present? <i>Yes</i>
Client Contact: <i>Gary Zimmerman/Joseph N</i>	No. of Coolers: <i>5</i>	Cooler Temps: <i>See CRF</i>

Client Project Name: <i>Landsburgs GW</i>	Analysis Requested	Notes/Comments											
Client Project #: <i>Chris K/Arden P</i>	<table border="1"> <tr> <td><i>NOCS</i></td> <td><i>client list</i></td> <td><i>1/4 acetone</i></td> <td><i>total metals</i></td> <td><i>clean list</i></td> <td><i>preserved metals (HPLC)</i></td> <td><i>TPH (GED)</i></td> <td><i>(HPLC) (HPLC)</i></td> <td><i>PCBS (CC)</i></td> <td><i>organochlorine pesticides</i></td> <td><i>NOCS client list</i></td> </tr> </table>	<i>NOCS</i>	<i>client list</i>	<i>1/4 acetone</i>	<i>total metals</i>	<i>clean list</i>	<i>preserved metals (HPLC)</i>	<i>TPH (GED)</i>	<i>(HPLC) (HPLC)</i>	<i>PCBS (CC)</i>	<i>organochlorine pesticides</i>	<i>NOCS client list</i>	<i>Analytical resources w/MSA between Colder + ARI</i>
<i>NOCS</i>	<i>client list</i>	<i>1/4 acetone</i>	<i>total metals</i>	<i>clean list</i>	<i>preserved metals (HPLC)</i>	<i>TPH (GED)</i>	<i>(HPLC) (HPLC)</i>	<i>PCBS (CC)</i>	<i>organochlorine pesticides</i>	<i>NOCS client list</i>			

Sample ID	Date	Time	Matrix	No. Containers	<i>NOCS</i>	<i>client list</i>	<i>1/4 acetone</i>	<i>total metals</i>	<i>clean list</i>	<i>preserved metals (HPLC)</i>	<i>TPH (GED)</i>	<i>(HPLC) (HPLC)</i>	<i>PCBS (CC)</i>	<i>organochlorine pesticides</i>	<i>NOCS client list</i>
<i>LMW-6-0322</i>	<i>3/9/22</i>	<i>18:40</i>	<i>GW</i>	<i>18</i>	<i>X</i>	<i>X</i>	<i>X</i>			<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	
<i>LMW-14-0322</i>	<i>3/9/22</i>	<i>9:35</i>	<i>GW</i>	<i>19</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>		<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	
<i>LMW-15-0322</i>	<i>3/9/22</i>	<i>13:55</i>	<i>GW</i>	<i>19</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>		<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	
<i>LMW-11-0322</i>	<i>3/9/22</i>	<i>11:30</i>	<i>GW</i>	<i>19</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>		<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	

Comments/Special Instructions <i>Ecology ERM EDD</i> <i>client specific</i> <i>RLS/analytical list</i>	Relinquished by: <i>Chris K</i>	Received by: <i>Arden Paist</i>	Relinquished by:	Received by:
	(Signature)	(Signature)	(Signature)	(Signature)
	Printed Name: <i>Chris Kubiak</i>	Printed Name: <i>Arden Paist</i>	Printed Name:	Printed Name:
	Company: <i>Colder Associates</i>	Company: <i>ARI</i>	Company:	Company:
Date & Time: <i>9:10 3/10/22</i>	Date & Time: <i>3/10/22 0910</i>	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: 31-Mar-2022 13:19
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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LMW-6-0322	22C0185-01	Water	09-Mar-2022 18:40	10-Mar-2022 09:10
LMW-14-0322	22C0185-02	Water	09-Mar-2022 09:55	10-Mar-2022 09:10
LMW-15-0322	22C0185-03	Water	09-Mar-2022 13:55	10-Mar-2022 09:10
LMW-11-0322	22C0185-04	Water	09-Mar-2022 11:30	10-Mar-2022 09:10
Trip Blanks	22C0185-08	Water	09-Mar-2022 09:55	10-Mar-2022 09:10



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

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

Reported:
31-Mar-2022 13:19

Work Order Case Narrative

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

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

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

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

1,4-Dioxane- EPA Method SW8270E

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

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 blank spike (BS/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:
31-Mar-2022 13:19

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

Volatiles - EPA Method SW8260D

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

Initial and continuing calibrations were within method requirements with the exception of all associated "Q" flagged analytes which are out of control low in the CCAL. All associated samples that contain analyte have been flagged with a "Q" qualifier.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) contained hexachloro-1,3-Butadiene. Samples that contain analyte have been flagged with a "B" qualifier.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

The samples were analyzed from vials that did not contain air bubbles.

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

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

Initial and continuing calibrations were within method requirements.

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

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

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



Golder Associates

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Redmond WA, 98052-3333

Project: Landsburg

Project Number: Landsburg

Project Manager: Gary Zimmerman

Reported:

31-Mar-2022 13:19

control limits.

Semivolatiles - EPA Method SW8270E

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

Initial and continuing calibrations were within method requirements with the exception of all associated "Q" flagged analytes which are out of control high in the CCAL and 2,2'-Oxybis(1-chloropropane) is out of control low. All associated samples that contain analyte have been flagged with a "Q" qualifier.

Internal standard areas were within limits.

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

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

The blank spike (BS/LCS) percent recoveries were within control limits with the exception of analytes flagged on the associated forms.



WORK ORDER

22C0185

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

Preservation Confirmation

Container ID	Container Type	pH
22C0185-01 A	VOA Vial, Clear, 40 mL, HCL	
22C0185-01 B	VOA Vial, Clear, 40 mL, HCL	
22C0185-01 C	VOA Vial, Clear, 40 mL, HCL	
22C0185-01 D	VOA Vial, Amber, 40 mL, HCL	
22C0185-01 E	VOA Vial, Amber, 40 mL, HCL	
22C0185-01 F	HDPE NM, 1000 mL, 1:1 HNO3	LL Pass
22C0185-01 G	Glass NM, Amber, 1000 mL	
22C0185-01 H	Glass NM, Amber, 1000 mL	
22C0185-01 I	Glass NM, Amber, 1000 mL	
22C0185-01 J	Glass NM, Amber, 1000 mL	
22C0185-01 K	Glass NM, Amber, 1000 mL	
22C0185-01 L	Glass NM, Amber, 1000 mL	
22C0185-01 M	Glass NM, Amber, 500 mL	
22C0185-01 N	Glass NM, Amber, 500 mL	
22C0185-01 O	Glass NM, Amber, 500 mL	
22C0185-01 P	Glass NM, Amber, 500 mL	
22C0185-01 Q	Glass NM, Amber, 500 mL	
22C0185-01 R	Glass NM, Amber, 500 mL	
22C0185-02 A	VOA Vial, Clear, 40 mL, HCL	
22C0185-02 B	VOA Vial, Clear, 40 mL, HCL	
22C0185-02 C	VOA Vial, Clear, 40 mL, HCL	Bubble
22C0185-02 D	VOA Vial, Amber, 40 mL, HCL	
22C0185-02 E	VOA Vial, Amber, 40 mL, HCL	
22C0185-02 F	HDPE NM, 1000 mL, 1:1 HNO3	LL Pass
22C0185-02 G	Glass NM, Amber, 1000 mL	
22C0185-02 H	Glass NM, Amber, 1000 mL	
22C0185-02 I	Glass NM, Amber, 1000 mL	
22C0185-02 J	Glass NM, Amber, 1000 mL	
22C0185-02 K	Glass NM, Amber, 1000 mL	
22C0185-02 L	Glass NM, Amber, 1000 mL	
22C0185-02 M	Glass NM, Amber, 500 mL	
22C0185-02 N	Glass NM, Amber, 500 mL	
22C0185-02 O	Glass NM, Amber, 500 mL	
22C0185-02 P	Glass NM, Amber, 500 mL	



WORK ORDER

22C0185

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

Client: Golder Associates	Project Manager: Kelly Bottem
Project: Landsburg	Project Number: Landsburg

22C0185-02 Q	Glass NM, Amber, 500 mL	
22C0185-02 R	Glass NM, Amber, 500 mL	
22C0185-03 A	VOA Vial, Clear, 40 mL, HCL	
22C0185-03 B	VOA Vial, Clear, 40 mL, HCL	
22C0185-03 C	VOA Vial, Clear, 40 mL, HCL	
22C0185-03 D	VOA Vial, Amber, 40 mL, HCL	
22C0185-03 E	VOA Vial, Amber, 40 mL, HCL	
22C0185-03 F	HDPE NM, 1000 mL, 1:1 HNO3	LL Pass
22C0185-03 G	Glass NM, Amber, 1000 mL	
22C0185-03 H	Glass NM, Amber, 1000 mL	
22C0185-03 I	Glass NM, Amber, 1000 mL	
22C0185-03 J	Glass NM, Amber, 1000 mL	
22C0185-03 K	Glass NM, Amber, 1000 mL	
22C0185-03 L	Glass NM, Amber, 1000 mL	
22C0185-03 M	Glass NM, Amber, 500 mL	
22C0185-03 N	Glass NM, Amber, 500 mL	
22C0185-03 O	Glass NM, Amber, 500 mL	
22C0185-03 P	Glass NM, Amber, 500 mL	
22C0185-03 Q	Glass NM, Amber, 500 mL	
22C0185-03 R	Glass NM, Amber, 500 mL	
22C0185-04 A	VOA Vial, Clear, 40 mL, HCL	
22C0185-04 B	VOA Vial, Clear, 40 mL, HCL	
22C0185-04 C	VOA Vial, Clear, 40 mL, HCL	
22C0185-04 D	VOA Vial, Amber, 40 mL, HCL	
22C0185-04 E	VOA Vial, Amber, 40 mL, HCL	
22C0185-04 F	HDPE NM, 1000 mL, 1:1 HNO3	LL Pass
22C0185-04 G	Glass NM, Amber, 1000 mL	
22C0185-04 H	Glass NM, Amber, 1000 mL	
22C0185-04 I	Glass NM, Amber, 1000 mL	
22C0185-04 J	Glass NM, Amber, 1000 mL	
22C0185-04 K	Glass NM, Amber, 1000 mL	
22C0185-04 L	Glass NM, Amber, 1000 mL	
22C0185-04 M	Glass NM, Amber, 500 mL	
22C0185-04 N	Glass NM, Amber, 500 mL	
22C0185-04 O	Glass NM, Amber, 500 mL	
22C0185-04 P	Glass NM, Amber, 500 mL	



WORK ORDER

22C0185

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

Client: Golder Associates	Project Manager: Kelly Bottem
Project: Landsburg	Project Number: Landsburg

22C0185-04 Q	Glass NM, Amber, 500 mL		
22C0185-04 R	Glass NM, Amber, 500 mL		
22C0185-05 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	CC	Pass
22C0185-06 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	CC	Pass
22C0185-07 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	CC	Pass

DC

Preservation Confirmed By _____

3/14/22

Date _____



Cooler Receipt Form

ARI Client: Golder

Project Name: _____

COC No(s): _____ (NA)

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

Assigned ARI Job No: 22C0185

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were in tact, 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 0910 0.4 0.3 0.1 0.7 1.5

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: J009708

Cooler Accepted by: AP Date: 3/10/22 Time: 0910

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 3/5/22

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

Samples Logged by: DC/KB Date: 3/4/22 Time: 1731 Labels checked by: _____

**** 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: _____



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

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

Reported:
31-Mar-2022 13:19

LMW-6-0322
22C0185-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/09/2022 18:40

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 20:52

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BKC0362
Prepared: 03/15/2022

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 22C0185-01 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	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U



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

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

Reported:
31-Mar-2022 13:19

LMW-6-0322
22C0185-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/09/2022 18:40

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 20:52

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



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LMW-6-0322
22C0185-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 03/09/2022 18:40
Instrument: NT2 Analyst: PKC Analyzed: 03/15/2022 20:52

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	102	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	97.4	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	102	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	100	%	



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LMW-6-0322
22C0185-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/09/2022 18:40

Instrument: NT6 Analyst: JZ

Analyzed: 03/18/2022 22:42

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BKC0325
Prepared: 03/15/2022

Sample Size: 500 mL
Final Volume: 0.5 mL

Extract ID: 22C0185-01 O 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



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LMW-6-0322
22C0185-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/09/2022 18:40

Instrument: NT6 Analyst: JZ

Analyzed: 03/18/2022 22:42

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
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 %	80.7	%	
<i>Surrogate: Phenol-d5</i>			38-120 %	83.0	%	
<i>Surrogate: 2-Chlorophenol-d4</i>			41-120 %	91.3	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			20-120 %	87.9	%	
<i>Surrogate: Nitrobenzene-d5</i>			27-120 %	88.4	%	



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LMW-6-0322
22C0185-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E Sampled: 03/09/2022 18:40
Instrument: NT6 Analyst: JZ Analyzed: 03/18/2022 22:42

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
<i>Surrogate: 2-Fluorobiphenyl</i>		33-120 %	97.8	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>		52-120 %	128	%	*, Q
<i>Surrogate: p-Terphenyl-d14</i>		28-120 %	102	%	



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LMW-6-0322
22C0185-01 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM Sampled: 03/09/2022 18:40
Instrument: NT6 Analyst: JZ Analyzed: 03/18/2022 14:29

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 22C0185-01 N 01
Preparation Batch: BKC0324 Sample Size: 500 mL
Prepared: 03/15/2022 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
<i>Surrogate: 1,4-Dioxane-d8</i>			<i>33.6-120 %</i>	<i>61.4</i>	<i>%</i>	



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LMW-6-0322
22C0185-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID Sampled: 03/09/2022 18:40
Instrument: FID4 Analyst: JR Analyzed: 03/16/2022 21:33

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 22C0185-01 M 01
Preparation Batch: BKC0323 Sample Size: 500 mL
Prepared: 03/15/2022 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 %	112	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	121	%	



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LMW-6-0322
22C0185-01 (Water)

Chlorinated Pesticides

Method: EPA 8081B Sampled: 03/09/2022 18:40
Instrument: ECD6 Analyst: YZ Analyzed: 03/30/2022 13:10

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 22C0185-01 P 01
Preparation Batch: BKC0326 Sample Size: 500 mL
Prepared: 03/15/2022 Final Volume: 5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 22C0185-01 P 01
Cleanup Batch: CKC0169 Initial Volume: 5 mL
Cleaned: 24-Mar-2022 Final Volume: 5 mL

Sample Cleanup: Cleanup Method: Sulfur Extract ID: 22C0185-01 P 01
Cleanup Batch: CKC0168 Initial Volume: 5 uL
Cleaned: 24-Mar-2022 Final Volume: 5 uL

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 %	89.0	%
Surrogate: Decachlorobiphenyl [2C]	11-144 %	78.8	%
Surrogate: Tetrachlorometaxylene	30-120 %	57.3	%
Surrogate: Tetrachlorometaxylene [2C]	30-120 %	58.6	%



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LMW-6-0322
22C0185-01 (Water)

Aroclor PCB

Method: EPA 8082A Sampled: 03/09/2022 18:40
Instrument: ECD7 Analyst: JGR Analyzed: 03/21/2022 19:28

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKC0368 Prepared: 03/16/2022	Sample Size: 1000 mL Final Volume: 0.5 mL	Extract ID: 22C0185-01 G 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKC0141 Cleared: 21-Mar-2022	Initial Volume: 0.5 mL Final Volume: 0.5 mL	Extract ID: 22C0185-01 G 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKC0139 Cleared: 21-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0185-01 G 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CKC0140 Cleared: 21-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0185-01 G 01

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 %	61.7	%	
<i>Surrogate: Tetrachlorometaxylene</i>			32-120 %	60.3	%	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			29-120 %	59.2	%	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			32-120 %	59.4	%	



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LMW-6-0322
22C0185-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 Sampled: 03/09/2022 18:40
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/21/2022 19:11

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0185-01 F 02
Preparation Batch: BKC0495 Sample Size: 25 mL
Prepared: 03/21/2022 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-6-0322
22C0185-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED Sampled: 03/09/2022 18:40
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/21/2022 19:11

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0185-01 F 02
Preparation Batch: BKC0495 Sample Size: 25 mL
Prepared: 03/21/2022 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-6-0322
22C0185-01 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 03/09/2022 18:40
Instrument: ICP2 Analyst: MVP Analyzed: 03/22/2022 17:43

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22C0185-01 F 03
Preparation Batch: BKC0508 Sample Size: 25 mL
Prepared: 03/21/2022 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	25.3	mg/L	
Chromium	7440-47-3	1	0.0100	ND	mg/L	U
Cobalt	7440-48-4	1	0.0100	ND	mg/L	U
Copper	7440-50-8	1	0.0030	ND	mg/L	U
Iron	7439-89-6	1	0.200	1.74	mg/L	
Magnesium	7439-95-4	1	0.500	12.9	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	0.640	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	6.63	mg/L	
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22C0185-01 F 04
Preparation Batch: BKC0584 Sample Size: 25 mL
Prepared: 03/23/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	1	0.0100	0.0206	mg/L	



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LMW-6-0322
22C0185-01 (Water)

Metals and Metallic Compounds

Method: EPA 7470A Sampled: 03/09/2022 18:40
Instrument: HYDRA Analyst: SKD Analyzed: 03/16/2022 15:29

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWM EPA 7470A Extract ID: 22C0185-01 F
Preparation Batch: BKC0321 Sample Size: 20 mL
Prepared: 03/14/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00100	ND	mg/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:
31-Mar-2022 13:19

LMW-14-0322
22C0185-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/09/2022 09:55

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 21:13

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BKC0362
Prepared: 03/15/2022

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 22C0185-02 E

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



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LMW-14-0322
22C0185-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/09/2022 09:55

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 21:13

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 13:19
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LMW-14-0322
22C0185-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 03/09/2022 09:55
Instrument: NT2 Analyst: PKC Analyzed: 03/15/2022 21:13

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	107	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	98.2	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	104	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	100	%	



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Project: Landsburg
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Project Manager: Gary Zimmerman

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LMW-14-0322
22C0185-02 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/09/2022 09:55

Instrument: NT6 Analyst: JZ

Analyzed: 03/18/2022 23:16

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BKC0325
Prepared: 03/15/2022

Sample Size: 500 mL
Final Volume: 0.5 mL

Extract ID: 22C0185-02 O 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



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Project Number: Landsburg
Project Manager: Gary Zimmerman

Reported:
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LMW-14-0322
22C0185-02 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/09/2022 09:55

Instrument: NT6 Analyst: JZ

Analyzed: 03/18/2022 23:16

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
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 %	67.8	%	
<i>Surrogate: Phenol-d5</i>			38-120 %	71.0	%	
<i>Surrogate: 2-Chlorophenol-d4</i>			41-120 %	78.2	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			20-120 %	69.9	%	
<i>Surrogate: Nitrobenzene-d5</i>			27-120 %	75.5	%	



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LMW-14-0322
22C0185-02 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E Sampled: 03/09/2022 09:55
Instrument: NT6 Analyst: JZ Analyzed: 03/18/2022 23:16

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
<i>Surrogate: 2-Fluorobiphenyl</i>		33-120 %	83.5	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>		52-120 %	119	%	Q
<i>Surrogate: p-Terphenyl-d14</i>		28-120 %	94.8	%	



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LMW-14-0322
22C0185-02 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM Sampled: 03/09/2022 09:55
Instrument: NT6 Analyst: JZ Analyzed: 03/18/2022 14:54

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 22C0185-02 N 01
Preparation Batch: BKC0324 Sample Size: 500 mL
Prepared: 03/15/2022 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
<i>Surrogate: 1,4-Dioxane-d8</i>			<i>33.6-120 %</i>	<i>62.5</i>	<i>%</i>	



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LMW-14-0322
22C0185-02 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID Sampled: 03/09/2022 09:55
Instrument: FID4 Analyst: JR Analyzed: 03/16/2022 21:52

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 22C0185-02 M 01
Preparation Batch: BKC0323 Sample Size: 500 mL
Prepared: 03/15/2022 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 %	118	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	126	%	



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Project: Landsburg
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Project Manager: Gary Zimmerman

Reported:
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LMW-14-0322
22C0185-02 (Water)

Chlorinated Pesticides

Method: EPA 8081B
Instrument: ECD6 Analyst: YZ

Sampled: 03/09/2022 09:55
Analyzed: 03/30/2022 13:28

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BKC0326
Prepared: 03/15/2022

Sample Size: 500 mL
Final Volume: 5 mL

Extract ID: 22C0185-02 P 01

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CKC0169
Cleaned: 24-Mar-2022

Initial Volume: 5 mL
Final Volume: 5 mL

Extract ID: 22C0185-02 P 01

Sample Cleanup: Cleanup Method: Sulfur
Cleanup Batch: CKC0168
Cleaned: 24-Mar-2022

Initial Volume: 5 uL
Final Volume: 5 uL

Extract ID: 22C0185-02 P 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
<i>Surrogate: Decachlorobiphenyl</i>			<i>11-144 %</i>	<i>98.5</i>	<i>%</i>	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			<i>11-144 %</i>	<i>86.7</i>	<i>%</i>	
<i>Surrogate: Tetrachlorometaxylene</i>			<i>30-120 %</i>	<i>53.0</i>	<i>%</i>	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			<i>30-120 %</i>	<i>54.0</i>	<i>%</i>	



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

Reported:
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LMW-14-0322
22C0185-02 (Water)

Aroclor PCB

Method: EPA 8082A Sampled: 03/09/2022 09:55
Instrument: ECD7 Analyst: JGR Analyzed: 03/21/2022 19:49

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKC0368 Prepared: 03/16/2022	Sample Size: 1000 mL Final Volume: 0.5 mL	Extract ID: 22C0185-02 G 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKC0141 Cleaned: 21-Mar-2022	Initial Volume: 0.5 mL Final Volume: 0.5 mL	Extract ID: 22C0185-02 G 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKC0139 Cleaned: 21-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0185-02 G 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CKC0140 Cleaned: 21-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0185-02 G 01

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 %	54.4	%	
<i>Surrogate: Tetrachlorometaxylene</i>			32-120 %	72.4	%	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			29-120 %	51.5	%	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			32-120 %	69.5	%	



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LMW-14-0322
22C0185-02 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 Sampled: 03/09/2022 09:55
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/21/2022 19:06

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0185-02 F 02
Preparation Batch: BKC0495 Sample Size: 25 mL
Prepared: 03/21/2022 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-14-0322
22C0185-02 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED Sampled: 03/09/2022 09:55
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/21/2022 19:06

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0185-02 F 02
Preparation Batch: BKC0495 Sample Size: 25 mL
Prepared: 03/21/2022 Final Volume: 25 mL

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



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LMW-14-0322
22C0185-02 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 03/09/2022 09:55
Instrument: ICP2 Analyst: MVP Analyzed: 03/22/2022 18:06

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22C0185-02 F 03
Preparation Batch: BKC0508 Sample Size: 25 mL
Prepared: 03/21/2022 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	221	mg/L	
Chromium	7440-47-3	1	0.0100	ND	mg/L	U
Cobalt	7440-48-4	1	0.0100	0.0174	mg/L	
Copper	7440-50-8	1	0.0030	ND	mg/L	U
Iron	7439-89-6	1	0.200	24.1	mg/L	
Magnesium	7439-95-4	1	0.500	121	mg/L	
Nickel	7440-02-0	1	0.0100	0.0178	mg/L	
Potassium	7440-09-7	1	0.500	4.52	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	47.6	mg/L	
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22C0185-02 F 04
Preparation Batch: BKC0584 Sample Size: 25 mL
Prepared: 03/23/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	1	0.0100	0.828	mg/L	



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LMW-14-0322
22C0185-02 (Water)

Metals and Metallic Compounds

Method: EPA 7470A Sampled: 03/09/2022 09:55
Instrument: HYDRA Analyst: SKD Analyzed: 03/16/2022 15:32

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWM EPA 7470A Extract ID: 22C0185-02 F
Preparation Batch: BKC0321 Sample Size: 20 mL
Prepared: 03/14/2022 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-15-0322
22C0185-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/09/2022 13:55

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 21:34

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BKC0362
Prepared: 03/15/2022

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 22C0185-03 E

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



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LMW-15-0322
22C0185-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/09/2022 13:55

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 21:34

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



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LMW-15-0322
22C0185-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 03/09/2022 13:55
Instrument: NT2 Analyst: PKC Analyzed: 03/15/2022 21:34

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	98.8	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	92.4	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	101	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	102	%	



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LMW-15-0322
22C0185-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/09/2022 13:55

Instrument: NT6 Analyst: JZ

Analyzed: 03/18/2022 23:49

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BKC0325
Prepared: 03/15/2022

Sample Size: 500 mL
Final Volume: 0.5 mL

Extract ID: 22C0185-03 O 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



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LMW-15-0322
22C0185-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/09/2022 13:55

Instrument: NT6 Analyst: JZ

Analyzed: 03/18/2022 23:49

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
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 %	73.6	%	
<i>Surrogate: Phenol-d5</i>			38-120 %	74.4	%	
<i>Surrogate: 2-Chlorophenol-d4</i>			41-120 %	82.5	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			20-120 %	75.7	%	
<i>Surrogate: Nitrobenzene-d5</i>			27-120 %	79.1	%	



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LMW-15-0322
22C0185-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/09/2022 13:55

Instrument: NT6 Analyst: JZ

Analyzed: 03/18/2022 23:49

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
<i>Surrogate: 2-Fluorobiphenyl</i>		33-120 %	85.6	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>		52-120 %	120	%	Q
<i>Surrogate: p-Terphenyl-d14</i>		28-120 %	96.2	%	



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LMW-15-0322
22C0185-03 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM Sampled: 03/09/2022 13:55
Instrument: NT6 Analyst: JZ Analyzed: 03/18/2022 15:20

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 22C0185-03 N 01
Preparation Batch: BKC0324 Sample Size: 500 mL
Prepared: 03/15/2022 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
<i>Surrogate: 1,4-Dioxane-d8</i>			<i>33.6-120 %</i>	55.2	%	



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LMW-15-0322
22C0185-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID Sampled: 03/09/2022 13:55
Instrument: FID4 Analyst: JR Analyzed: 03/16/2022 22:12

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 22C0185-03 M 01
Preparation Batch: BKC0323 Sample Size: 500 mL
Prepared: 03/15/2022 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 %	119	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	126	%	



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LMW-15-0322
22C0185-03 (Water)

Chlorinated Pesticides

Method: EPA 8081B Sampled: 03/09/2022 13:55
Instrument: ECD6 Analyst: YZ Analyzed: 03/30/2022 13:46

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 22C0185-03 P 01
Preparation Batch: BKC0326 Sample Size: 500 mL
Prepared: 03/15/2022 Final Volume: 5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 22C0185-03 P 01
Cleanup Batch: CKC0169 Initial Volume: 5 mL
Cleaned: 24-Mar-2022 Final Volume: 5 mL

Sample Cleanup: Cleanup Method: Sulfur Extract ID: 22C0185-03 P 01
Cleanup Batch: CKC0168 Initial Volume: 5 uL
Cleaned: 24-Mar-2022 Final Volume: 5 uL

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
<i>Surrogate: Decachlorobiphenyl</i>			<i>11-144 %</i>	<i>111</i>	<i>%</i>	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			<i>11-144 %</i>	<i>94.2</i>	<i>%</i>	
<i>Surrogate: Tetrachlorometaxylene</i>			<i>30-120 %</i>	<i>52.4</i>	<i>%</i>	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			<i>30-120 %</i>	<i>54.2</i>	<i>%</i>	



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LMW-15-0322
22C0185-03 (Water)

Aroclor PCB

Method: EPA 8082A Sampled: 03/09/2022 13:55
Instrument: ECD7 Analyst: JGR Analyzed: 03/21/2022 20:11

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKC0368 Prepared: 03/16/2022	Sample Size: 1000 mL Final Volume: 0.5 mL	Extract ID: 22C0185-03 G 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKC0141 Cleared: 21-Mar-2022	Initial Volume: 0.5 mL Final Volume: 0.5 mL	Extract ID: 22C0185-03 G 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKC0139 Cleared: 21-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0185-03 G 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CKC0140 Cleared: 21-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0185-03 G 01

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 %	61.3	%	
<i>Surrogate: Tetrachlorometaxylene</i>			32-120 %	64.6	%	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			29-120 %	59.0	%	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			32-120 %	63.2	%	



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LMW-15-0322
22C0185-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 Sampled: 03/09/2022 13:55
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/21/2022 19:01

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0185-03 F 02
Preparation Batch: BKC0495 Sample Size: 25 mL
Prepared: 03/21/2022 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-15-0322
22C0185-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED Sampled: 03/09/2022 13:55
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/21/2022 19:01

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0185-03 F 02
Preparation Batch: BKC0495 Sample Size: 25 mL
Prepared: 03/21/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.00300	0.00315	mg/L	
Selenium	7782-49-2	1	0.0250	ND	mg/L	U



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LMW-15-0322
22C0185-03 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 03/09/2022 13:55
Instrument: ICP2 Analyst: MVP Analyzed: 03/22/2022 18:09

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22C0185-03 F 02
Preparation Batch: BKC0508 Sample Size: 25 mL
Prepared: 03/21/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1.00	ND	mg/L	U
Barium	7440-39-3	1	0.500	ND	mg/L	U
Beryllium	7440-41-7	1	0.0100	ND	mg/L	U
Cadmium	7440-43-9	1	0.0020	ND	mg/L	U
Calcium	7440-70-2	1	0.500	59.7	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	4.06	mg/L	
Magnesium	7439-95-4	1	0.500	25.3	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	1.93	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	12.5	mg/L	
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U



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LMW-15-0322
22C0185-03 (Water)

Metals and Metallic Compounds

Method: EPA 7470A Sampled: 03/09/2022 13:55
Instrument: HYDRA Analyst: SKD Analyzed: 03/16/2022 15:34

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWM EPA 7470A Extract ID: 22C0185-03 F
Preparation Batch: BKC0321 Sample Size: 20 mL
Prepared: 03/14/2022 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-15-0322
22C0185-03RE2 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 03/09/2022 13:55
Instrument: ICP2 Analyst: MVP Analyzed: 03/24/2022 18:51

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22C0185-03RE2 F 04
Preparation Batch: BKC0508 Sample Size: 25 mL
Prepared: 03/21/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Aluminum	7429-90-5	1	1.00	ND	mg/L	U
Beryllium	7440-41-7	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
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	1.84	mg/L	
Sodium	7440-23-5	1	0.500	12.0	mg/L	
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22C0185-03RE2 F 04
Preparation Batch: BKC0584 Sample Size: 25 mL
Prepared: 03/23/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	1	0.0100	0.366	mg/L	



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LMW-11-0322
22C0185-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/09/2022 11:30

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 21:54

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BKC0362
Prepared: 03/15/2022

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 22C0185-04 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	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U



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Reported:
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LMW-11-0322
22C0185-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/09/2022 11:30

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 21:54

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



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LMW-11-0322
22C0185-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/09/2022 11:30

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 21:54

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	99.4	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	96.2	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	99.7	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	102	%	



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LMW-11-0322
22C0185-04 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/09/2022 11:30

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2022 00:23

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BKC0325
Prepared: 03/15/2022

Sample Size: 500 mL
Final Volume: 0.5 mL

Extract ID: 22C0185-04 O 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



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LMW-11-0322
22C0185-04 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/09/2022 11:30

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2022 00:23

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
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 %	68.2	%	
<i>Surrogate: Phenol-d5</i>			38-120 %	71.7	%	
<i>Surrogate: 2-Chlorophenol-d4</i>			41-120 %	78.5	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			20-120 %	74.9	%	
<i>Surrogate: Nitrobenzene-d5</i>			27-120 %	75.3	%	



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LMW-11-0322
22C0185-04 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E Sampled: 03/09/2022 11:30
Instrument: NT6 Analyst: JZ Analyzed: 03/19/2022 00:23

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
<i>Surrogate: 2-Fluorobiphenyl</i>		33-120 %	84.6	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>		52-120 %	114	%	Q
<i>Surrogate: p-Terphenyl-d14</i>		28-120 %	97.1	%	



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LMW-11-0322
22C0185-04 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM Sampled: 03/09/2022 11:30
Instrument: NT6 Analyst: JZ Analyzed: 03/18/2022 15:46

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 22C0185-04 N 01
Preparation Batch: BKC0324 Sample Size: 500 mL
Prepared: 03/15/2022 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
<i>Surrogate: 1,4-Dioxane-d8</i>			<i>33.6-120 %</i>	<i>57.4</i>	<i>%</i>	



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LMW-11-0322
22C0185-04 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID Sampled: 03/09/2022 11:30
Instrument: FID4 Analyst: JR Analyzed: 03/16/2022 22:32

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 22C0185-04 M 01
Preparation Batch: BKC0323 Sample Size: 500 mL
Prepared: 03/15/2022 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 %	116	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	125	%	



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LMW-11-0322
22C0185-04 (Water)

Chlorinated Pesticides

Method: EPA 8081B Sampled: 03/09/2022 11:30
Instrument: ECD6 Analyst: YZ Analyzed: 03/30/2022 14:05

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKC0326 Prepared: 03/15/2022	Sample Size: 500 mL Final Volume: 5 mL	Extract ID: 22C0185-04 P 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKC0169 Cleaned: 24-Mar-2022	Initial Volume: 5 mL Final Volume: 5 mL	Extract ID: 22C0185-04 P 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CKC0168 Cleaned: 24-Mar-2022	Initial Volume: 5 uL Final Volume: 5 uL	Extract ID: 22C0185-04 P 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 %	106	%
Surrogate: Decachlorobiphenyl [2C]	11-144 %	87.7	%
Surrogate: Tetrachlorometaxylene	30-120 %	48.0	%
Surrogate: Tetrachlorometaxylene [2C]	30-120 %	47.7	%



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

Reported:
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LMW-11-0322
22C0185-04 (Water)

Aroclor PCB

Method: EPA 8082A Sampled: 03/09/2022 11:30
Instrument: ECD7 Analyst: JGR Analyzed: 03/21/2022 20:33

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKC0368 Prepared: 03/16/2022	Sample Size: 1000 mL Final Volume: 0.5 mL	Extract ID: 22C0185-04 G 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKC0141 Cleaned: 21-Mar-2022	Initial Volume: 0.5 mL Final Volume: 0.5 mL	Extract ID: 22C0185-04 G 01
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKC0139 Cleaned: 21-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0185-04 G 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CKC0140 Cleaned: 21-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0185-04 G 01

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 %	68.7	%	
<i>Surrogate: Tetrachlorometaxylene</i>			32-120 %	70.1	%	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			29-120 %	67.8	%	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			32-120 %	68.9	%	



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LMW-11-0322
22C0185-04 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 Sampled: 03/09/2022 11:30
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/21/2022 18:56

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0185-04 F 02
Preparation Batch: BKC0495 Sample Size: 25 mL
Prepared: 03/21/2022 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-11-0322
22C0185-04 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED Sampled: 03/09/2022 11:30
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/21/2022 18:56

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0185-04 F 02
Preparation Batch: BKC0495 Sample Size: 25 mL
Prepared: 03/21/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.00300	0.00657	mg/L	
Selenium	7782-49-2	1	0.0250	ND	mg/L	U



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LMW-11-0322
22C0185-04 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 03/09/2022 11:30
Instrument: ICP2 Analyst: MVP Analyzed: 03/22/2022 18:12

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22C0185-04 F 02
Preparation Batch: BKC0508 Sample Size: 25 mL
Prepared: 03/21/2022 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	ND	mg/L	U
Iron	7439-89-6	1	0.200	0.570	mg/L	
Magnesium	7439-95-4	1	0.500	25.8	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	2.01	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	23.9	mg/L	
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22C0185-04 F 04
Preparation Batch: BKC0584 Sample Size: 25 mL
Prepared: 03/23/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	1	0.0100	0.176	mg/L	



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LMW-11-0322
22C0185-04 (Water)

Metals and Metallic Compounds

Method: EPA 7470A Sampled: 03/09/2022 11:30
Instrument: HYDRA Analyst: SKD Analyzed: 03/16/2022 15:36

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWM EPA 7470A Extract ID: 22C0185-04 F
Preparation Batch: BKC0321 Sample Size: 20 mL
Prepared: 03/14/2022 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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Project: Landsburg
Project Number: Landsburg
Project Manager: Gary Zimmerman

Reported:
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Trip Blanks
22C0185-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/09/2022 09:55

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 17:44

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BKC0362
Prepared: 03/15/2022

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 22C0185-08 B

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



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Trip Blanks
22C0185-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/09/2022 09:55

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 17:44

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



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

Reported:
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Trip Blanks
22C0185-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/09/2022 09:55

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 17:44

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	99.8	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	99.1	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	103	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	101	%	



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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0362-BLK1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 16:41								
Chloromethane	ND	0.50	ug/L							U
Vinyl Chloride	ND	0.10	ug/L							U
Bromomethane	ND	1.00	ug/L							U
Chloroethane	ND	0.20	ug/L							U
Trichlorofluoromethane	ND	0.20	ug/L							U
Acrolein	ND	5.00	ug/L							U
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.20	ug/L							U
Acetone	ND	5.00	ug/L							U
1,1-Dichloroethene	ND	0.20	ug/L							U
Iodomethane	ND	1.00	ug/L							U
Methylene Chloride	ND	1.00	ug/L							U
Acrylonitrile	ND	1.00	ug/L							U
Carbon Disulfide	ND	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.20	ug/L							U
Vinyl Acetate	ND	0.20	ug/L							U
1,1-Dichloroethane	ND	0.20	ug/L							U
2-Butanone	ND	5.00	ug/L							U
2,2-Dichloropropane	ND	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Chloroform	ND	0.20	ug/L							U
Bromochloromethane	ND	0.20	ug/L							U
1,1,1-Trichloroethane	ND	0.20	ug/L							U
1,1-Dichloropropene	ND	0.10	ug/L							U
Carbon tetrachloride	ND	0.20	ug/L							U
1,2-Dichloroethane	ND	0.20	ug/L							U
Benzene	ND	0.20	ug/L							U
Trichloroethene	ND	0.20	ug/L							U
1,2-Dichloropropane	ND	0.20	ug/L							U
Bromodichloromethane	ND	0.20	ug/L							U
Dibromomethane	ND	0.20	ug/L							U
2-Chloroethyl vinyl ether	ND	1.00	ug/L							U
4-Methyl-2-Pentanone	ND	2.50	ug/L							U
cis-1,3-Dichloropropene	ND	0.20	ug/L							U
Toluene	ND	0.20	ug/L							U
trans-1,3-Dichloropropene	ND	0.20	ug/L							U



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

Reported:
31-Mar-2022 13:19

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0362-BLK1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 16:41								
2-Hexanone	ND	5.00	ug/L							U
1,1,2-Trichloroethane	ND	0.20	ug/L							U
1,3-Dichloropropane	ND	0.10	ug/L							U
Tetrachloroethene	ND	0.20	ug/L							U
Dibromochloromethane	ND	0.20	ug/L							U
1,2-Dibromoethane	ND	0.10	ug/L							U
Chlorobenzene	ND	0.20	ug/L							U
Ethylbenzene	ND	0.20	ug/L							U
1,1,1,2-Tetrachloroethane	ND	0.20	ug/L							U
m,p-Xylene	ND	0.40	ug/L							U
o-Xylene	ND	0.20	ug/L							U
Xylenes, total	ND	0.60	ug/L							U
Styrene	ND	0.20	ug/L							U
Bromoform	ND	0.20	ug/L							U
1,1,2,2-Tetrachloroethane	ND	0.20	ug/L							U
1,2,3-Trichloropropane	ND	0.25	ug/L							U
trans-1,4-Dichloro 2-Butene	ND	1.00	ug/L							U
n-Propylbenzene	ND	0.20	ug/L							U
Bromobenzene	ND	0.20	ug/L							U
Isopropyl Benzene	ND	0.20	ug/L							U
2-Chlorotoluene	ND	0.10	ug/L							U
4-Chlorotoluene	ND	0.20	ug/L							U
t-Butylbenzene	ND	0.20	ug/L							U
1,3,5-Trimethylbenzene	ND	0.20	ug/L							U
1,2,4-Trimethylbenzene	ND	0.20	ug/L							U
s-Butylbenzene	ND	0.20	ug/L							U
4-Isopropyl Toluene	ND	0.20	ug/L							U
1,3-Dichlorobenzene	ND	0.20	ug/L							U
1,4-Dichlorobenzene	ND	0.20	ug/L							U
n-Butylbenzene	ND	0.20	ug/L							U
1,2-Dichlorobenzene	ND	0.20	ug/L							U
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L							U
1,2,4-Trichlorobenzene	ND	0.50	ug/L							U
Hexachloro-1,3-Butadiene	0.56	0.50	ug/L							
Naphthalene	ND	0.50	ug/L							U



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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0362-BLK1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 16:41								
1,2,3-Trichlorobenzene	ND	0.50	ug/L							U
Dichlorodifluoromethane	ND	0.20	ug/L							U
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.86		ug/L	5.00		97.2	80-129			
<i>Surrogate: Toluene-d8</i>	4.94		ug/L	5.00		98.7	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.88		ug/L	5.00		97.6	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	5.09		ug/L	5.00		102	80-120			
LCS (BKC0362-BS1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:38								
Chloromethane	9.37	0.50	ug/L	10.0		93.7	60-138			
Vinyl Chloride	10.4	0.10	ug/L	10.0		104	66-133			
Bromomethane	9.40	1.00	ug/L	10.0		94.0	72-131			
Chloroethane	9.21	0.20	ug/L	10.0		92.1	60-155			
Trichlorofluoromethane	9.73	0.20	ug/L	10.0		97.3	62-141			
Acrolein	47.0	5.00	ug/L	50.0		94.0	52-190			
1,1,2-Trichloro-1,2,2-Trifluoroethane	9.64	0.20	ug/L	10.0		96.4	76-129			
Acetone	47.3	5.00	ug/L	50.0		94.6	58-142			
1,1-Dichloroethene	9.50	0.20	ug/L	10.0		95.0	69-135			
Iodomethane	9.51	1.00	ug/L	10.0		95.1	56-147			
Methylene Chloride	9.34	1.00	ug/L	10.0		93.4	65-135			
Acrylonitrile	8.44	1.00	ug/L	10.0		84.4	64-134			
Carbon Disulfide	9.93	0.20	ug/L	10.0		99.3	78-125			
trans-1,2-Dichloroethene	9.28	0.20	ug/L	10.0		92.8	78-128			
Vinyl Acetate	8.15	0.20	ug/L	10.0		81.5	55-138			
1,1-Dichloroethane	9.87	0.20	ug/L	10.0		98.7	76-124			
2-Butanone	46.3	5.00	ug/L	50.0		92.7	61-140			
2,2-Dichloropropane	10.1	0.20	ug/L	10.0		101	66-147			
cis-1,2-Dichloroethene	9.94	0.20	ug/L	10.0		99.4	80-121			
Chloroform	9.78	0.20	ug/L	10.0		97.8	80-122			
Bromochloromethane	9.37	0.20	ug/L	10.0		93.7	80-121			
1,1,1-Trichloroethane	9.97	0.20	ug/L	10.0		99.7	79-123			
1,1-Dichloropropene	9.79	0.10	ug/L	10.0		97.9	80-127			
Carbon tetrachloride	8.15	0.20	ug/L	10.0		81.5	53-137			
1,2-Dichloroethane	9.51	0.20	ug/L	10.0		95.1	75-123			
Benzene	9.71	0.20	ug/L	10.0		97.1	80-120			
Trichloroethene	9.65	0.20	ug/L	10.0		96.5	80-120			



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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BKC0362-BS1)				Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:38						
1,2-Dichloropropane	9.66	0.20	ug/L	10.0		96.6	80-120			
Bromodichloromethane	10.2	0.20	ug/L	10.0		102	80-121			
Dibromomethane	9.77	0.20	ug/L	10.0		97.7	80-120			
2-Chloroethyl vinyl ether	9.48	1.00	ug/L	10.0		94.8	64-120			
4-Methyl-2-Pentanone	36.3	2.50	ug/L	50.0		72.5	67-133			Q
cis-1,3-Dichloropropene	8.72	0.20	ug/L	10.0		87.2	80-124			
Toluene	9.29	0.20	ug/L	10.0		92.9	80-120			
trans-1,3-Dichloropropene	7.80	0.20	ug/L	10.0		78.0	71-127			Q
2-Hexanone	51.7	5.00	ug/L	50.0		103	69-133			
1,1,2-Trichloroethane	9.67	0.20	ug/L	10.0		96.7	80-121			
1,3-Dichloropropane	10.2	0.10	ug/L	10.0		102	80-120			
Tetrachloroethene	9.19	0.20	ug/L	10.0		91.9	80-120			
Dibromochloromethane	8.47	0.20	ug/L	10.0		84.7	65-135			
1,2-Dibromoethane	8.22	0.10	ug/L	10.0		82.2	80-121			
Chlorobenzene	9.94	0.20	ug/L	10.0		99.4	80-120			
Ethylbenzene	9.71	0.20	ug/L	10.0		97.1	80-120			
1,1,1,2-Tetrachloroethane	8.34	0.20	ug/L	10.0		83.4	80-120			
m,p-Xylene	19.6	0.40	ug/L	20.0		97.8	80-121			
o-Xylene	9.80	0.20	ug/L	10.0		98.0	80-121			
Xylenes, total	29.4	0.60	ug/L	30.0		97.9	76-127			
Styrene	10.4	0.20	ug/L	10.0		104	80-124			
Bromoform	7.97	0.20	ug/L	10.0		79.7	51-134			Q
1,1,2,2-Tetrachloroethane	10.4	0.20	ug/L	10.0		104	77-123			
1,2,3-Trichloropropane	8.28	0.25	ug/L	10.0		82.8	76-125			
trans-1,4-Dichloro 2-Butene	9.60	1.00	ug/L	10.0		96.0	55-129			
n-Propylbenzene	10.9	0.20	ug/L	10.0		109	78-130			
Bromobenzene	10.0	0.20	ug/L	10.0		100	80-120			
Isopropyl Benzene	10.6	0.20	ug/L	10.0		106	80-128			
2-Chlorotoluene	9.88	0.10	ug/L	10.0		98.8	78-122			
4-Chlorotoluene	10.3	0.20	ug/L	10.0		103	80-121			
t-Butylbenzene	10.4	0.20	ug/L	10.0		104	78-125			
1,3,5-Trimethylbenzene	10.5	0.20	ug/L	10.0		105	80-129			
1,2,4-Trimethylbenzene	10.5	0.20	ug/L	10.0		105	80-127			
s-Butylbenzene	10.5	0.20	ug/L	10.0		105	78-129			
4-Isopropyl Toluene	10.9	0.20	ug/L	10.0		109	79-130			



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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BKC0362-BS1)				Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:38						
1,3-Dichlorobenzene	10.3	0.20	ug/L	10.0		103	80-120			
1,4-Dichlorobenzene	9.55	0.20	ug/L	10.0		95.5	80-120			
n-Butylbenzene	11.0	0.20	ug/L	10.0		110	74-129			
1,2-Dichlorobenzene	9.90	0.20	ug/L	10.0		99.0	80-120			
1,2-Dibromo-3-chloropropane	9.21	0.50	ug/L	10.0		92.1	62-123			
1,2,4-Trichlorobenzene	10.6	0.50	ug/L	10.0		106	64-124			
Hexachloro-1,3-Butadiene	11.2	0.50	ug/L	10.0		112	58-123			B
Naphthalene	10.6	0.50	ug/L	10.0		106	50-134			
1,2,3-Trichlorobenzene	10.5	0.50	ug/L	10.0		105	49-133			
Dichlorodifluoromethane	10.5	0.20	ug/L	10.0		105	48-147			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.89		ug/L	5.00		97.8	80-129			
<i>Surrogate: Toluene-d8</i>	4.97		ug/L	5.00		99.5	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	5.08		ug/L	5.00		102	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	4.95		ug/L	5.00		99.0	80-120			
LCS Dup (BKC0362-BS1)				Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:58						
Chloromethane	9.65	0.50	ug/L	10.0		96.5	60-138	2.98	30	
Vinyl Chloride	10.5	0.10	ug/L	10.0		105	66-133	0.76	30	
Bromomethane	9.67	1.00	ug/L	10.0		96.7	72-131	2.83	30	
Chloroethane	9.32	0.20	ug/L	10.0		93.2	60-155	1.14	30	
Trichlorofluoromethane	9.48	0.20	ug/L	10.0		94.8	62-141	2.63	30	
Acrolein	46.5	5.00	ug/L	50.0		93.0	52-190	1.08	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	9.52	0.20	ug/L	10.0		95.2	76-129	1.25	30	
Acetone	47.9	5.00	ug/L	50.0		95.9	58-142	1.38	30	
1,1-Dichloroethene	9.60	0.20	ug/L	10.0		96.0	69-135	1.12	30	
Iodomethane	9.42	1.00	ug/L	10.0		94.2	56-147	0.94	30	
Methylene Chloride	9.24	1.00	ug/L	10.0		92.4	65-135	1.06	30	
Acrylonitrile	8.53	1.00	ug/L	10.0		85.3	64-134	1.02	30	
Carbon Disulfide	9.82	0.20	ug/L	10.0		98.2	78-125	1.08	30	
trans-1,2-Dichloroethene	9.56	0.20	ug/L	10.0		95.6	78-128	3.04	30	
Vinyl Acetate	8.18	0.20	ug/L	10.0		81.8	55-138	0.30	30	
1,1-Dichloroethane	9.97	0.20	ug/L	10.0		99.7	76-124	0.99	30	
2-Butanone	48.5	5.00	ug/L	50.0		97.0	61-140	4.58	30	
2,2-Dichloropropane	10.1	0.20	ug/L	10.0		101	66-147	0.33	30	
cis-1,2-Dichloroethene	9.90	0.20	ug/L	10.0		99.0	80-121	0.37	30	



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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BKC0362-BSD1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:58								
Chloroform	10.0	0.20	ug/L	10.0	100	80-122	2.21	30		
Bromochloromethane	9.58	0.20	ug/L	10.0	95.8	80-121	2.23	30		
1,1,1-Trichloroethane	9.98	0.20	ug/L	10.0	99.8	79-123	0.12	30		
1,1-Dichloropropene	9.65	0.10	ug/L	10.0	96.5	80-127	1.41	30		
Carbon tetrachloride	8.14	0.20	ug/L	10.0	81.4	53-137	0.02	30		
1,2-Dichloroethane	9.36	0.20	ug/L	10.0	93.6	75-123	1.66	30		
Benzene	9.67	0.20	ug/L	10.0	96.7	80-120	0.42	30		
Trichloroethene	9.47	0.20	ug/L	10.0	94.7	80-120	1.83	30		
1,2-Dichloropropane	9.67	0.20	ug/L	10.0	96.7	80-120	0.12	30		
Bromodichloromethane	9.93	0.20	ug/L	10.0	99.3	80-121	2.25	30		
Dibromomethane	9.71	0.20	ug/L	10.0	97.1	80-120	0.67	30		
2-Chloroethyl vinyl ether	9.73	1.00	ug/L	10.0	97.3	64-120	2.70	30		
4-Methyl-2-Pentanone	36.3	2.50	ug/L	50.0	72.6	67-133	0.17	30		Q
cis-1,3-Dichloropropene	8.62	0.20	ug/L	10.0	86.2	80-124	1.15	30		
Toluene	9.28	0.20	ug/L	10.0	92.8	80-120	0.17	30		
trans-1,3-Dichloropropene	7.73	0.20	ug/L	10.0	77.3	71-127	0.98	30		Q
2-Hexanone	55.1	5.00	ug/L	50.0	110	69-133	6.25	30		
1,1,2-Trichloroethane	9.77	0.20	ug/L	10.0	97.7	80-121	1.10	30		
1,3-Dichloropropane	10.7	0.10	ug/L	10.0	107	80-120	5.18	30		
Tetrachloroethene	9.30	0.20	ug/L	10.0	93.0	80-120	1.17	30		
Dibromochloromethane	8.76	0.20	ug/L	10.0	87.6	65-135	3.33	30		
1,2-Dibromoethane	8.70	0.10	ug/L	10.0	87.0	80-121	5.63	30		
Chlorobenzene	10.1	0.20	ug/L	10.0	101	80-120	1.70	30		
Ethylbenzene	9.83	0.20	ug/L	10.0	98.3	80-120	1.16	30		
1,1,1,2-Tetrachloroethane	8.62	0.20	ug/L	10.0	86.2	80-120	3.35	30		
m,p-Xylene	19.9	0.40	ug/L	20.0	99.5	80-121	1.80	30		
o-Xylene	10.2	0.20	ug/L	10.0	102	80-121	3.52	30		
Xylenes, total	30.1	0.60	ug/L	30.0	100	76-127	2.38	30		
Styrene	10.7	0.20	ug/L	10.0	107	80-124	2.51	30		
Bromoform	7.91	0.20	ug/L	10.0	79.1	51-134	0.83	30		Q
1,1,2,2-Tetrachloroethane	10.5	0.20	ug/L	10.0	105	77-123	1.53	30		
1,2,3-Trichloropropane	8.24	0.25	ug/L	10.0	82.4	76-125	0.56	30		
trans-1,4-Dichloro 2-Butene	9.84	1.00	ug/L	10.0	98.4	55-129	2.43	30		
n-Propylbenzene	11.0	0.20	ug/L	10.0	110	78-130	1.22	30		
Bromobenzene	10.1	0.20	ug/L	10.0	101	80-120	0.56	30		



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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BKC0362-BSD1)				Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:58						
Isopropyl Benzene	10.7	0.20	ug/L	10.0		107	80-128	0.91	30	
2-Chlorotoluene	10.0	0.10	ug/L	10.0		100	78-122	1.22	30	
4-Chlorotoluene	10.4	0.20	ug/L	10.0		104	80-121	0.61	30	
t-Butylbenzene	10.5	0.20	ug/L	10.0		105	78-125	0.86	30	
1,3,5-Trimethylbenzene	10.7	0.20	ug/L	10.0		107	80-129	1.64	30	
1,2,4-Trimethylbenzene	10.9	0.20	ug/L	10.0		109	80-127	3.04	30	
s-Butylbenzene	10.6	0.20	ug/L	10.0		106	78-129	0.78	30	
4-Isopropyl Toluene	10.9	0.20	ug/L	10.0		109	79-130	0.55	30	
1,3-Dichlorobenzene	10.2	0.20	ug/L	10.0		102	80-120	0.23	30	
1,4-Dichlorobenzene	9.94	0.20	ug/L	10.0		99.4	80-120	3.95	30	
n-Butylbenzene	11.2	0.20	ug/L	10.0		112	74-129	1.39	30	
1,2-Dichlorobenzene	10.2	0.20	ug/L	10.0		102	80-120	2.57	30	
1,2-Dibromo-3-chloropropane	9.67	0.50	ug/L	10.0		96.7	62-123	4.83	30	
1,2,4-Trichlorobenzene	10.3	0.50	ug/L	10.0		103	64-124	2.66	30	
Hexachloro-1,3-Butadiene	10.5	0.50	ug/L	10.0		105	58-123	6.53	30	B
Naphthalene	10.9	0.50	ug/L	10.0		109	50-134	2.89	30	
1,2,3-Trichlorobenzene	10.5	0.50	ug/L	10.0		105	49-133	0.32	30	
Dichlorodifluoromethane	11.0	0.20	ug/L	10.0		110	48-147	5.07	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.00		ug/L	5.00		99.9	80-129			
<i>Surrogate: Toluene-d8</i>	5.01		ug/L	5.00		100	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	5.23		ug/L	5.00		105	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	5.05		ug/L	5.00		101	80-120			



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

Reported:
31-Mar-2022 13:19

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0325 - 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 (BKC0325-BLK1)		Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 21:01								
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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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0325 - 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 (BKC0325-BLK1)										
						Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 21:01				
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
<i>Surrogate: 2-Fluorophenol</i>	29.3		ug/L	37.5		78.1	33-120			
<i>Surrogate: Phenol-d5</i>	30.8		ug/L	37.5		82.0	38-120			
<i>Surrogate: 2-Chlorophenol-d4</i>	33.0		ug/L	37.5		88.0	41-120			



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0325 - 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 (BKC0325-BLK1)				Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 21:01					
Surrogate: 1,2-Dichlorobenzene-d4	20.3		ug/L	25.0	81.4	20-120			
Surrogate: Nitrobenzene-d5	21.7		ug/L	25.0	86.7	27-120			
Surrogate: 2-Fluorobiphenyl	23.1		ug/L	25.0	92.3	33-120			
Surrogate: 2,4,6-Tribromophenol	48.7		ug/L	37.5	130	52-120			* Q
Surrogate: p-Terphenyl-d14	25.6		ug/L	25.0	102	28-120			
LCS (BKC0325-BS1)				Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 21:35					
Phenol	17.3	1.0	ug/L	25.0	69.3	35-120			
bis(2-chloroethyl) ether	18.5	1.0	ug/L	25.0	74.0	46.5-120			
2-Chlorophenol	18.9	1.0	ug/L	25.0	75.8	48-120			
1,3-Dichlorobenzene	16.8	1.0	ug/L	25.0	67.4	34.2-120			
1,4-Dichlorobenzene	17.8	1.0	ug/L	25.0	71.2	36-120			
Benzyl Alcohol	20.2	2.0	ug/L	25.0	81.0	27.4-120			
1,2-Dichlorobenzene	17.6	1.0	ug/L	25.0	70.5	38.4-120			
2-Methylphenol	18.3	1.0	ug/L	25.0	73.4	47.8-120			
2,2'-Oxybis(1-chloropropane)	15.3	1.0	ug/L	25.0	61.1	40.4-120			Q
4-Methylphenol	19.6	2.0	ug/L	25.0	78.3	52.3-120			
N-Nitroso-di-n-Propylamine	17.8	1.0	ug/L	25.0	71.1	51.4-120			
Hexachloroethane	15.7	2.0	ug/L	25.0	62.7	29.5-120			
Nitrobenzene	19.7	1.0	ug/L	25.0	78.6	51.5-120			
Isophorone	26.0	1.0	ug/L	25.0	104	62.3-128			
2-Nitrophenol	24.3	3.0	ug/L	25.0	97.2	58.6-124			
2,4-Dimethylphenol	43.7	3.0	ug/L	65.0	67.3	38.5-120			
Bis(2-Chloroethoxy)methane	21.4	1.0	ug/L	25.0	85.8	52.9-120			
Benzoic acid	91.5	20.0	ug/L	115	79.6	38.2-120			
2,4-Dichlorophenol	54.0	3.0	ug/L	65.0	83.1	43.6-120			
1,2,4-Trichlorobenzene	18.8	1.0	ug/L	25.0	75.1	38.6-120			
Naphthalene	20.1	1.0	ug/L	25.0	80.2	40.5-120			
4-Chloroaniline	47.1	5.0	ug/L	65.0	72.5	42.7-120			
Hexachlorobutadiene	18.8	3.0	ug/L	25.0	75.1	32.3-120			
4-Chloro-3-Methylphenol	53.5	3.0	ug/L	65.0	82.3	51.9-120			
2-Methylnaphthalene	21.7	1.0	ug/L	25.0	87.0	47.3-120			
Hexachlorocyclopentadiene	38.5	5.0	ug/L	65.0	59.3	23.3-120			
2,4,6-Trichlorophenol	58.2	3.0	ug/L	65.0	89.5	47-120			
2,4,5-Trichlorophenol	57.2	5.0	ug/L	65.0	88.0	48.4-120			



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Project: Landsburg
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Reported:
31-Mar-2022 13:19

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0325 - 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 (BKC0325-BS1)				Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 21:35						
2-Chloronaphthalene	21.6	1.0	ug/L	25.0		86.5	47.7-123			
2-Nitroaniline	48.5	3.0	ug/L	65.0		74.6	56.8-120			
Dimethylphthalate	24.6	1.0	ug/L	25.0		98.3	65.2-125			
Acenaphthylene	23.5	1.0	ug/L	25.0		94.0	44.1-120			
2,6-Dinitrotoluene	60.9	3.0	ug/L	65.0		93.8	69.3-140			
3-Nitroaniline	58.5	3.0	ug/L	65.0		90.0	60.9-120			
Acenaphthene	22.9	1.0	ug/L	25.0		91.5	50.4-120			
2,4-Dinitrophenol	154	20.0	ug/L	115		134	33.7-183			Q
Dibenzofuran	23.8	1.0	ug/L	25.0		95.3	49.9-120			
4-Nitrophenol	61.0	10.0	ug/L	65.0		93.8	50.2-136			
2,4-Dinitrotoluene	59.9	3.0	ug/L	65.0		92.1	66.8-132			
Fluorene	23.9	1.0	ug/L	25.0		95.6	57.8-120			
Diethyl phthalate	24.4	1.0	ug/L	25.0		97.5	68.1-120			
4-Chlorophenylphenyl ether	24.5	1.0	ug/L	25.0		97.9	59.1-127			
4-Nitroaniline	57.7	3.0	ug/L	65.0		88.8	56-122			
4,6-Dinitro-2-methylphenol	126	10.0	ug/L	115		109	37.9-162			Q
N-Nitrosodiphenylamine	22.1	1.0	ug/L	25.0		88.6	59.6-120			
4-Bromophenyl phenyl ether	24.2	1.0	ug/L	25.0		96.8	59.6-120			
Hexachlorobenzene	24.7	1.0	ug/L	25.0		99.0	53.7-120			
Pentachlorophenol	64.8	10.0	ug/L	65.0		99.7	40.3-128			
Phenanthrene	24.7	1.0	ug/L	25.0		98.7	58.8-120			
Anthracene	23.1	1.0	ug/L	25.0		92.4	60.5-120			
Carbazole	24.2	1.0	ug/L	25.0		97.0	59.7-120			
Di-n-Butylphthalate	24.5	1.0	ug/L	25.0		97.9	71-120			
Fluoranthene	24.6	1.0	ug/L	25.0		98.6	66.7-120			
Pyrene	21.4	1.0	ug/L	25.0		85.6	62.7-127			
Butylbenzylphthalate	23.3	1.0	ug/L	25.0		93.1	67.4-128			
Benzo(a)anthracene	25.7	1.0	ug/L	25.0		103	58.3-128			
3,3'-Dichlorobenzidine	141	5.0	ug/L	65.0		216	34.1-120			*, Q
Chrysene	23.8	1.0	ug/L	25.0		95.0	58.9-120			
bis(2-Ethylhexyl)phthalate	24.3	3.0	ug/L	25.0		97.2	68.3-123			
Di-n-Octylphthalate	25.6	1.0	ug/L	25.0		102	61.5-120			
Benzo(a)pyrene	22.5	1.0	ug/L	25.0		90.0	70.6-120			
Indeno(1,2,3-cd)pyrene	21.8	1.0	ug/L	25.0		87.1	46.5-120			
Dibenzo(a,h)anthracene	22.2	1.0	ug/L	25.0		88.7	49.6-120			



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Reported:
31-Mar-2022 13:19

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0325 - 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 (BKC0325-BS1)				Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 21:35						
Benzo(g,h,i)perylene	20.7	1.0	ug/L	25.0		83.0	37-120			
Benzo(a)fluoranthene, Total	47.1	2.0	ug/L	50.0		94.2	66.5-120			
1-Methylnaphthalene	23.3	1.0	ug/L	25.0		93.1	46.9-120			
Surrogate: 2-Fluorophenol	27.3		ug/L	37.5		72.9	33-120			
Surrogate: Phenol-d5	28.9		ug/L	37.5		77.2	38-120			
Surrogate: 2-Chlorophenol-d4	30.8		ug/L	37.5		82.1	41-120			
Surrogate: 1,2-Dichlorobenzene-d4	18.9		ug/L	25.0		75.8	20-120			
Surrogate: Nitrobenzene-d5	20.4		ug/L	25.0		81.6	27-120			
Surrogate: 2-Fluorobiphenyl	22.6		ug/L	25.0		90.3	33-120			
Surrogate: 2,4,6-Tribromophenol	47.4		ug/L	37.5		126	52-120			* Q
Surrogate: p-Terphenyl-d14	24.5		ug/L	25.0		98.0	28-120			

LCS Dup (BKC0325-bsd1)				Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 22:08						
Phenol	17.6	1.0	ug/L	25.0		70.5	35-120	1.78	30	
bis(2-chloroethyl) ether	18.9	1.0	ug/L	25.0		75.5	46.5-120	2.06	30	
2-Chlorophenol	19.6	1.0	ug/L	25.0		78.3	48-120	3.28	30	
1,3-Dichlorobenzene	17.9	1.0	ug/L	25.0		71.7	34.2-120	6.26	30	
1,4-Dichlorobenzene	19.0	1.0	ug/L	25.0		76.2	36-120	6.75	30	
Benzyl Alcohol	20.9	2.0	ug/L	25.0		83.5	27.4-120	3.01	30	
1,2-Dichlorobenzene	18.9	1.0	ug/L	25.0		75.8	38.4-120	7.24	30	
2-Methylphenol	18.9	1.0	ug/L	25.0		75.7	47.8-120	3.10	30	
2,2'-Oxybis(1-chloropropane)	15.8	1.0	ug/L	25.0		63.3	40.4-120	3.52	30	Q
4-Methylphenol	20.1	2.0	ug/L	25.0		80.4	52.3-120	2.56	30	
N-Nitroso-di-n-Propylamine	18.5	1.0	ug/L	25.0		74.1	51.4-120	4.21	30	
Hexachloroethane	16.9	2.0	ug/L	25.0		67.4	29.5-120	7.21	30	
Nitrobenzene	20.5	1.0	ug/L	25.0		81.8	51.5-120	3.99	30	
Isophorone	27.0	1.0	ug/L	25.0		108	62.3-128	3.85	30	
2-Nitrophenol	26.2	3.0	ug/L	25.0		105	58.6-124	7.41	30	
2,4-Dimethylphenol	44.2	3.0	ug/L	65.0		68.0	38.5-120	1.01	30	
Bis(2-Chloroethoxy)methane	22.5	1.0	ug/L	25.0		90.2	52.9-120	5.03	30	
Benzoic acid	96.1	20.0	ug/L	115		83.6	38.2-120	4.94	30	
2,4-Dichlorophenol	56.0	3.0	ug/L	65.0		86.2	43.6-120	3.72	30	
1,2,4-Trichlorobenzene	20.3	1.0	ug/L	25.0		81.2	38.6-120	7.80	30	
Naphthalene	21.5	1.0	ug/L	25.0		85.8	40.5-120	6.75	30	
4-Chloroaniline	50.1	5.0	ug/L	65.0		77.1	42.7-120	6.23	30	



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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0325 - 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 (BKC0325-BSD1)				Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 22:08						
Hexachlorobutadiene	20.1	3.0	ug/L	25.0		80.2	32.3-120	6.64	30	
4-Chloro-3-Methylphenol	55.3	3.0	ug/L	65.0		85.1	51.9-120	3.30	30	
2-Methylnaphthalene	22.8	1.0	ug/L	25.0		91.3	47.3-120	4.83	30	
Hexachlorocyclopentadiene	42.0	5.0	ug/L	65.0		64.5	23.3-120	8.54	30	
2,4,6-Trichlorophenol	59.7	3.0	ug/L	65.0		91.9	47-120	2.60	30	
2,4,5-Trichlorophenol	58.5	5.0	ug/L	65.0		90.0	48.4-120	2.29	30	
2-Chloronaphthalene	22.6	1.0	ug/L	25.0		90.4	47.7-123	4.41	30	
2-Nitroaniline	50.7	3.0	ug/L	65.0		78.0	56.8-120	4.38	30	
Dimethylphthalate	25.1	1.0	ug/L	25.0		101	65.2-125	2.27	30	
Acenaphthylene	24.3	1.0	ug/L	25.0		97.2	44.1-120	3.33	30	
2,6-Dinitrotoluene	64.1	3.0	ug/L	65.0		98.5	69.3-140	4.99	30	
3-Nitroaniline	61.0	3.0	ug/L	65.0		93.8	60.9-120	4.13	30	
Acenaphthene	23.9	1.0	ug/L	25.0		95.4	50.4-120	4.16	30	
2,4-Dinitrophenol	157	20.0	ug/L	115		136	33.7-183	1.75	30	Q
Dibenzofuran	24.5	1.0	ug/L	25.0		98.0	49.9-120	2.81	30	
4-Nitrophenol	63.2	10.0	ug/L	65.0		97.2	50.2-136	3.57	30	
2,4-Dinitrotoluene	62.1	3.0	ug/L	65.0		95.5	66.8-132	3.61	30	
Fluorene	24.6	1.0	ug/L	25.0		98.3	57.8-120	2.79	30	
Diethyl phthalate	24.8	1.0	ug/L	25.0		99.4	68.1-120	1.97	30	
4-Chlorophenylphenyl ether	25.4	1.0	ug/L	25.0		102	59.1-127	3.88	30	
4-Nitroaniline	59.2	3.0	ug/L	65.0		91.1	56-122	2.61	30	
4,6-Dinitro-2-methylphenol	130	10.0	ug/L	115		113	37.9-162	3.18	30	Q
N-Nitrosodiphenylamine	22.7	1.0	ug/L	25.0		91.0	59.6-120	2.69	30	
4-Bromophenyl phenyl ether	25.1	1.0	ug/L	25.0		100	59.6-120	3.77	30	
Hexachlorobenzene	26.2	1.0	ug/L	25.0		105	53.7-120	5.90	30	
Pentachlorophenol	70.4	10.0	ug/L	65.0		108	40.3-128	8.33	30	
Phenanthrene	26.2	1.0	ug/L	25.0		105	58.8-120	6.13	30	
Anthracene	23.9	1.0	ug/L	25.0		95.7	60.5-120	3.51	30	
Carbazole	24.7	1.0	ug/L	25.0		98.9	59.7-120	1.93	30	
Di-n-Butylphthalate	24.8	1.0	ug/L	25.0		99.3	71-120	1.50	30	
Fluoranthene	25.1	1.0	ug/L	25.0		100	66.7-120	1.68	30	
Pyrene	23.1	1.0	ug/L	25.0		92.2	62.7-127	7.45	30	
Butylbenzylphthalate	24.1	1.0	ug/L	25.0		96.5	67.4-128	3.66	30	
Benzo(a)anthracene	26.6	1.0	ug/L	25.0		107	58.3-128	3.51	30	
3,3'-Dichlorobenzidine	145	5.0	ug/L	65.0		224	34.1-120	3.46	30	*, Q



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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:
31-Mar-2022 13:19

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0325 - 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 (BKC0325-BSD1)				Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 22:08						
Chrysene	24.6	1.0	ug/L	25.0		98.4	58.9-120	3.49	30	
bis(2-Ethylhexyl)phthalate	25.4	3.0	ug/L	25.0		102	68.3-123	4.60	30	
Di-n-Octylphthalate	26.1	1.0	ug/L	25.0		104	61.5-120	1.93	30	
Benzo(a)pyrene	23.0	1.0	ug/L	25.0		91.8	70.6-120	1.98	30	
Indeno(1,2,3-cd)pyrene	22.8	1.0	ug/L	25.0		91.1	46.5-120	4.43	30	
Dibenzo(a,h)anthracene	23.2	1.0	ug/L	25.0		92.7	49.6-120	4.42	30	
Benzo(g,h,i)perylene	22.2	1.0	ug/L	25.0		88.7	37-120	6.70	30	
Benzo(a)fluoranthene, Total	48.5	2.0	ug/L	50.0		97.0	66.5-120	2.92	30	
1-Methylnaphthalene	24.3	1.0	ug/L	25.0		97.3	46.9-120	4.44	30	
<i>Surrogate: 2-Fluorophenol</i>	26.7		ug/L	37.5		71.2	33-120			
<i>Surrogate: Phenol-d5</i>	28.9		ug/L	37.5		77.0	38-120			
<i>Surrogate: 2-Chlorophenol-d4</i>	30.5		ug/L	37.5		81.3	41-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	19.4		ug/L	25.0		77.4	20-120			
<i>Surrogate: Nitrobenzene-d5</i>	20.6		ug/L	25.0		82.3	27-120			
<i>Surrogate: 2-Fluorobiphenyl</i>	22.5		ug/L	25.0		90.2	33-120			
<i>Surrogate: 2,4,6-Tribromophenol</i>	46.4		ug/L	37.5		124	52-120			* Q
<i>Surrogate: p-Terphenyl-d14</i>	24.3		ug/L	25.0		97.1	28-120			



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

Reported:
31-Mar-2022 13:19

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BKC0324 - 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 (BKC0324-BLK1)				Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 13:12						
1,4-Dioxane	ND	0.4	ug/L							U
<i>Surrogate: 1,4-Dioxane-d8</i>	5.99		ug/L	10.0	59.9		33.6-120			
LCS (BKC0324-BS1)				Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 13:37						
1,4-Dioxane	4.5	0.4	ug/L	10.0	44.5		39.9-120			
<i>Surrogate: 1,4-Dioxane-d8</i>	6.49		ug/L	10.0	64.9		33.6-120			
LCS Dup (BKC0324-BS1)				Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 14:03						
1,4-Dioxane	4.6	0.4	ug/L	10.0	45.9		39.9-120	3.13	30	
<i>Surrogate: 1,4-Dioxane-d8</i>	6.42		ug/L	10.0	64.2		33.6-120			



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

Reported:
31-Mar-2022 13:19

Analysis by: Analytical Resources, LLC

Petroleum Hydrocarbons - Quality Control

Batch BKC0323 - EPA 3510C SepF

Instrument: FID4 Analyst: JR/VTS/JW

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0323-BLK1)		Prepared: 15-Mar-2022 Analyzed: 16-Mar-2022 20:33								
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
<i>Surrogate: o-Terphenyl</i>	0.240		mg/L	0.225	107		50-150			
<i>Surrogate: n-Triacontane</i>	0.259		mg/L	0.225	115		50-150			



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

Reported:
31-Mar-2022 13:19

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BKC0326 - EPA 3510C SepF

Instrument: ECD6 Analyst: YZ/VTS

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0326-BLK1)										
Prepared: 15-Mar-2022 Analyzed: 30-Mar-2022 11:57										
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
<i>Surrogate: Decachlorobiphenyl</i>	0.395		ug/L	0.400		98.7	11-144			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	0.325		ug/L	0.400		81.3	11-144			
<i>Surrogate: Tetrachlorometaxylene</i>	0.269		ug/L	0.400		67.2	30-120			
<i>Surrogate: Tetrachlorometaxylene [2C]</i>	0.269		ug/L	0.400		67.3	30-120			

LCS (BKC0326-BS1)										
Prepared: 15-Mar-2022 Analyzed: 30-Mar-2022 12:15										
alpha-BHC [2C]	0.180	0.025	ug/L	0.200		89.9	54-124			
beta-BHC [2C]	0.181	0.025	ug/L	0.200		90.3	53-123			
gamma-BHC (Lindane) [2C]	0.182	0.025	ug/L	0.200		91.2	53-127			
delta-BHC [2C]	0.161	0.025	ug/L	0.200		80.3	53-122			
Heptachlor [2C]	0.165	0.025	ug/L	0.200		82.5	50-120			
Aldrin [2C]	0.143	0.025	ug/L	0.200		71.6	47-120			
Heptachlor Epoxide [2C]	0.182	0.050	ug/L	0.200		90.8	50-127			
trans-Chlordane (beta-Chlordane) [2C]	0.163	0.025	ug/L	0.200		81.6	47-127			



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Project: Landsburg
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Project Manager: Gary Zimmerman

Reported:
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Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BKC0326 - EPA 3510C SepF

Instrument: ECD6 Analyst: YZ/VTS

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BKC0326-BS1)										
					Prepared: 15-Mar-2022 Analyzed: 30-Mar-2022 12:15					
cis-Chlordane (alpha-chlordane) [2C]	0.176	0.025	ug/L	0.200		88.2	51-132			
Endosulfan I [2C]	0.182	0.025	ug/L	0.200		90.8	48-137			
4,4'-DDE [2C]	0.345	0.050	ug/L	0.400		86.4	47-133			
Dieldrin [2C]	0.345	0.050	ug/L	0.400		86.2	55-130			
Endrin [2C]	0.351	0.050	ug/L	0.400		87.8	52-121			
Endosulfan II [2C]	0.337	0.050	ug/L	0.400		84.3	60-120			
4,4'-DDD	0.372	0.050	ug/L	0.400		92.9	60-120			
Endrin Aldehyde	0.305	0.050	ug/L	0.400		76.2	53-120			
4,4'-DDT	0.356	0.050	ug/L	0.400		89.0	57-122			
Endosulfan Sulfate [2C]	0.350	0.050	ug/L	0.400		87.4	56-120			
Endrin Ketone	0.372	0.050	ug/L	0.400		92.9	61-120			
Methoxychlor [2C]	1.71	0.250	ug/L	2.00		85.4	55-120			
<i>Surrogate: Decachlorobiphenyl</i>	0.414		ug/L	0.400	104		11-144			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	0.347		ug/L	0.400	86.6		11-144			
<i>Surrogate: Tetrachlorometaxylene</i>	0.251		ug/L	0.400	62.8		30-120			
<i>Surrogate: Tetrachlorometaxylene [2C]</i>	0.281		ug/L	0.400	70.3		30-120			
LCS (BKC0326-BS2)										
					Prepared: 15-Mar-2022 Analyzed: 30-Mar-2022 12:33					
Toxaphene	7.91	1.25	ug/L	10.0		79.1	0-200			
<i>Surrogate: Decachlorobiphenyl</i>	0.328		ug/L	0.400	82.0		11-144			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	0.291		ug/L	0.400	72.6		11-144			
<i>Surrogate: Tetrachlorometaxylene</i>	0.215		ug/L	0.400	53.7		30-120			
<i>Surrogate: Tetrachlorometaxylene [2C]</i>	0.238		ug/L	0.400	59.5		30-120			
LCS Dup (BKC0326-BSD1)										
					Prepared: 15-Mar-2022 Analyzed: 30-Mar-2022 12:52					
alpha-BHC [2C]	0.176	0.025	ug/L	0.200		88.0	54-124	2.10	30	
beta-BHC [2C]	0.171	0.025	ug/L	0.200		85.6	53-123	5.31	30	
gamma-BHC (Lindane) [2C]	0.178	0.025	ug/L	0.200		88.9	53-127	2.61	30	
delta-BHC [2C]	0.157	0.025	ug/L	0.200		78.3	53-122	2.52	30	
Heptachlor [2C]	0.161	0.025	ug/L	0.200		80.3	50-120	2.70	30	
Aldrin [2C]	0.143	0.025	ug/L	0.200		71.7	47-120	0.13	30	
Heptachlor Epoxide [2C]	0.175	0.050	ug/L	0.200		87.7	50-127	3.50	30	
trans-Chlordane (beta-Chlordane) [2C]	0.160	0.025	ug/L	0.200		79.8	47-127	2.29	30	
cis-Chlordane (alpha-chlordane) [2C]	0.174	0.025	ug/L	0.200		86.8	51-132	1.64	30	



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 13:19
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Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BKC0326 - EPA 3510C SepF

Instrument: ECD6 Analyst: YZ/VTS

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BKC0326-BSD1)		Prepared: 15-Mar-2022 Analyzed: 30-Mar-2022 12:52								
Endosulfan I [2C]	0.176	0.025	ug/L	0.200		88.1	48-137	3.03	30	
4,4'-DDE [2C]	0.329	0.050	ug/L	0.400		82.3	47-133	4.86	30	
Dieldrin	0.335	0.050	ug/L	0.400		83.8	55-130	1.96	30	
Endrin	0.330	0.050	ug/L	0.400		82.5	52-121	3.21	30	
Endosulfan II	0.334	0.050	ug/L	0.400		83.5	60-120	6.92	30	
4,4'-DDD	0.366	0.050	ug/L	0.400		91.6	60-120	1.44	30	
Endrin Aldehyde	0.321	0.050	ug/L	0.400		80.4	53-120	5.28	30	
4,4'-DDT	0.333	0.050	ug/L	0.400		83.2	57-122	6.75	30	
Endosulfan Sulfate [2C]	0.328	0.050	ug/L	0.400		82.0	56-120	6.44	30	
Endrin Ketone	0.370	0.050	ug/L	0.400		92.4	61-120	0.58	30	
Methoxychlor [2C]	1.59	0.250	ug/L	2.00		79.3	55-120	7.41	30	
<i>Surrogate: Decachlorobiphenyl</i>	0.355		ug/L	0.400		88.6	11-144			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	0.296		ug/L	0.400		74.0	11-144			
<i>Surrogate: Tetrachlorometaxylene</i>	0.254		ug/L	0.400		63.5	30-120			
<i>Surrogate: Tetrachlorometaxylene [2C]</i>	0.274		ug/L	0.400		68.6	30-120			



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

Reported:
31-Mar-2022 13:19

Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BKC0368 - 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 (BKC0368-BLK1)										
					Prepared: 16-Mar-2022 Analyzed: 21-Mar-2022 18:01					
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	0.0132		ug/L	0.0200	66.1		29-120			
Surrogate: Tetrachlorometaxylene	0.0122		ug/L	0.0200	61.1		32-120			
Surrogate: Decachlorobiphenyl [2C]	0.0127		ug/L	0.0200	63.6		29-120			
Surrogate: Tetrachlorometaxylene [2C]	0.0120		ug/L	0.0200	59.9		32-120			
LCS (BKC0368-BS1)										
					Prepared: 16-Mar-2022 Analyzed: 21-Mar-2022 18:23					
Aroclor 1016	0.039	0.010	ug/L	0.0500		77.5	54-120			
Aroclor 1260	0.046	0.010	ug/L	0.0500		91.7	51-128			
Surrogate: Decachlorobiphenyl	0.0123		ug/L	0.0200	61.4		29-120			
Surrogate: Tetrachlorometaxylene	0.0126		ug/L	0.0200	63.2		32-120			
Surrogate: Decachlorobiphenyl [2C]	0.0117		ug/L	0.0200	58.7		29-120			
Surrogate: Tetrachlorometaxylene [2C]	0.0124		ug/L	0.0200	61.8		32-120			
LCS Dup (BKC0368-BSD1)										
					Prepared: 16-Mar-2022 Analyzed: 21-Mar-2022 18:44					
Aroclor 1016 [2C]	0.041	0.010	ug/L	0.0500		81.8	54-120	5.77	30	
Aroclor 1260	0.049	0.010	ug/L	0.0500		97.8	51-128	6.49	30	
Surrogate: Decachlorobiphenyl	0.0128		ug/L	0.0200	64.0		29-120			
Surrogate: Tetrachlorometaxylene	0.0132		ug/L	0.0200	66.1		32-120			
Surrogate: Decachlorobiphenyl [2C]	0.0151		ug/L	0.0200	75.6		29-120			
Surrogate: Tetrachlorometaxylene [2C]	0.0133		ug/L	0.0200	66.5		32-120			



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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0321 - TWM EPA 7470A

Instrument: HYDRA Analyst: SKD

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0321-BLK1)					Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 14:22					
Mercury	ND	0.00100	mg/L							U
LCS (BKC0321-BS1)					Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 14:24					
Mercury	0.00170	0.00100	mg/L	0.00200		85.1	80-120			



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

Reported:
31-Mar-2022 13:19

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0495 - 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 (BKC0495-BLK1)			Prepared: 21-Mar-2022 Analyzed: 21-Mar-2022 17:09								
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 (BKC0495-BS1)			Prepared: 21-Mar-2022 Analyzed: 21-Mar-2022 17:14								
Antimony	121	0.0247	0.00300	mg/L	0.0250		98.7	80-120			
Antimony	123	0.0255	0.00300	mg/L	0.0250		102	80-120			
Lead	208	0.0256	0.0100	mg/L	0.0250		102	80-120			
Thallium	205	0.0257	0.00200	mg/L	0.0250		103	80-120			
Arsenic	75a	0.0243	0.00300	mg/L	0.0250		97.4	80-120			
Selenium	78	0.0810	0.0250	mg/L	0.0800		101	80-120			
Duplicate (BKC0495-DUP1)			Source: 22C0185-01		Prepared: 21-Mar-2022 Analyzed: 21-Mar-2022 19:16						
Antimony	121	ND	0.00300	mg/L		ND					U
Lead	208	ND	0.0100	mg/L		ND					U
Thallium	205	ND	0.00200	mg/L		ND					U
Arsenic	75a	ND	0.00300	mg/L		ND					U
Selenium	78	ND	0.0250	mg/L		ND					U
Matrix Spike (BKC0495-MS1)			Source: 22C0185-01		Prepared: 21-Mar-2022 Analyzed: 21-Mar-2022 19:21						
Antimony	121	0.0248	0.00300	mg/L	0.0250	ND	99.0	75-125			
Lead	208	0.0271	0.0100	mg/L	0.0250	ND	108	75-125			
Thallium	205	0.0277	0.00200	mg/L	0.0250	ND	111	75-125			
Arsenic	75a	0.0256	0.00300	mg/L	0.0250	ND	102	75-125			
Selenium	78	0.0794	0.0250	mg/L	0.0800	ND	99.3	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BKC0495-MSD1)			Source: 22C0185-01		Prepared: 21-Mar-2022 Analyzed: 21-Mar-2022 19:26						
Antimony	121	0.0242	0.00300	mg/L	0.0250	ND	96.9	75-125	2.20	20	
Lead	208	0.0260	0.0100	mg/L	0.0250	ND	104	75-125	4.06	20	
Thallium	205	0.0270	0.00200	mg/L	0.0250	ND	108	75-125	2.55	20	
Arsenic	75a	0.0251	0.00300	mg/L	0.0250	ND	100	75-125	1.98	20	



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 13:19
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0495 - 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 (BKC0495-MSD1)			Source: 22C0185-01		Prepared: 21-Mar-2022		Analyzed: 21-Mar-2022 19:26				
Selenium	78	0.0791	0.0250	mg/L	0.0800	ND	98.9	75-125	0.40	20	

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



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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0508 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0508-BLK1)										
Prepared: 21-Mar-2022 Analyzed: 22-Mar-2022 17:29										
Aluminum	ND	1.00	mg/L							U
Barium	ND	0.500	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
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
Blank (BKC0508-BLK2)										
Prepared: 21-Mar-2022 Analyzed: 23-Mar-2022 16:01										
Beryllium	ND	0.0100	mg/L							U
LCS (BKC0508-BS1)										
Prepared: 21-Mar-2022 Analyzed: 22-Mar-2022 17:56										
Aluminum	1.99	1.00	mg/L	2.00		99.7	80-120			
Barium	1.93	0.500	mg/L	2.00		96.5	80-120			
Cadmium	0.483	0.0020	mg/L	0.500		96.6	80-120			
Calcium	9.58	0.500	mg/L	10.0		95.8	80-120			
Chromium	0.481	0.0100	mg/L	0.500		96.3	80-120			
Cobalt	0.554	0.0100	mg/L	0.500		111	80-120			
Copper	0.470	0.0030	mg/L	0.500		94.1	80-120			
Iron	1.92	0.200	mg/L	2.00		95.9	80-120			
Magnesium	10.5	0.500	mg/L	10.0		105	80-120			
Nickel	0.501	0.0100	mg/L	0.500		100	80-120			
Potassium	9.86	0.500	mg/L	10.0		98.6	80-120			
Silver	0.492	0.0050	mg/L	0.500		98.4	80-120			
Sodium	9.94	0.500	mg/L	10.0		99.4	80-120			
Sodium	ND	50.0	mg/L	10.0		111	80-120			U



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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0508 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BKC0508-BS1)					Prepared: 21-Mar-2022 Analyzed: 22-Mar-2022 17:56					
Vanadium	0.482	0.0030	mg/L	0.500		96.3	80-120			
Zinc	0.507	0.0200	mg/L	0.500		101	80-120			
LCS (BKC0508-BS2)					Prepared: 21-Mar-2022 Analyzed: 23-Mar-2022 16:31					
Beryllium	0.539	0.0100	mg/L	0.500		108	80-120			
Duplicate (BKC0508-DUP1)					Source: 22C0185-01 Prepared: 21-Mar-2022 Analyzed: 22-Mar-2022 17:46					
Aluminum	ND	1.00	mg/L		ND					U
Barium	ND	0.500	mg/L		ND					U
Cadmium	ND	0.0020	mg/L		ND					U
Calcium	25.7	0.500	mg/L		25.3			1.69	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	1.72	0.200	mg/L		1.74			1.12	20	
Magnesium	12.7	0.500	mg/L		12.9			1.38	20	
Nickel	ND	0.0100	mg/L		ND					U
Potassium	0.689	0.500	mg/L		0.640			7.37	20	
Silver	ND	0.0050	mg/L		ND					U
Sodium	6.52	0.500	mg/L		6.63			1.64	20	
Vanadium	ND	0.0030	mg/L		ND					U
Zinc	ND	0.0200	mg/L		ND					U
Duplicate (BKC0508-DUP2)					Source: 22C0185-01 Prepared: 21-Mar-2022 Analyzed: 23-Mar-2022 16:20					
Beryllium	ND	0.0100	mg/L		ND					U
Matrix Spike (BKC0508-MS1)					Source: 22C0185-01 Prepared: 21-Mar-2022 Analyzed: 22-Mar-2022 17:49					
Aluminum	2.16	1.00	mg/L	2.00	ND	108	75-125			
Barium	2.18	0.500	mg/L	2.00	ND	104	75-125			
Cadmium	0.530	0.0020	mg/L	0.500	ND	106	75-125			
Calcium	36.6	0.500	mg/L	10.0	25.3	113	75-125			
Chromium	0.518	0.0100	mg/L	0.500	ND	104	75-125			
Cobalt	0.533	0.0100	mg/L	0.500	ND	107	75-125			
Copper	0.451	0.0030	mg/L	0.500	ND	90.3	75-125			
Iron	3.86	0.200	mg/L	2.00	1.74	106	75-125			
Magnesium	26.7	0.500	mg/L	10.0	12.9	138	75-125			HC



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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0508 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BKC0508-MS1) Source: 22C0185-01 Prepared: 21-Mar-2022 Analyzed: 22-Mar-2022 17:49										
Nickel	0.521	0.0100	mg/L	0.500	ND	104	75-125			
Potassium	11.2	0.500	mg/L	10.0	0.640	105	75-125			
Silver	0.490	0.0050	mg/L	0.500	ND	97.9	75-125			
Sodium	17.6	0.500	mg/L	10.0	6.63	109	75-125			
Vanadium	0.484	0.0030	mg/L	0.500	ND	96.8	75-125			
Zinc	0.536	0.0200	mg/L	0.500	ND	107	75-125			

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

Matrix Spike (BKC0508-MS2) Source: 22C0185-01 Prepared: 21-Mar-2022 Analyzed: 23-Mar-2022 16:23										
Beryllium	0.546	0.0100	mg/L	0.500	ND	109	75-125			

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

Matrix Spike Dup (BKC0508-MSD1) Source: 22C0185-01 Prepared: 21-Mar-2022 Analyzed: 22-Mar-2022 17:52										
Aluminum	2.06	1.00	mg/L	2.00	ND	103	75-125	4.57	20	
Barium	2.09	0.500	mg/L	2.00	ND	99.8	75-125	4.06	20	
Cadmium	0.518	0.0020	mg/L	0.500	ND	104	75-125	2.21	20	
Calcium	35.2	0.500	mg/L	10.0	25.3	99.7	75-125	3.79	20	
Chromium	0.496	0.0100	mg/L	0.500	ND	99.2	75-125	4.28	20	
Cobalt	0.520	0.0100	mg/L	0.500	ND	104	75-125	2.46	20	
Copper	0.441	0.0030	mg/L	0.500	ND	88.2	75-125	2.35	20	
Iron	3.71	0.200	mg/L	2.00	1.74	98.3	75-125	4.00	20	
Magnesium	25.5	0.500	mg/L	10.0	12.9	126	75-125	4.52	20	HC
Nickel	0.497	0.0100	mg/L	0.500	ND	99.4	75-125	4.78	20	
Potassium	10.8	0.500	mg/L	10.0	0.640	102	75-125	3.06	20	
Silver	0.478	0.0050	mg/L	0.500	ND	95.6	75-125	2.38	20	
Sodium	17.0	0.500	mg/L	10.0	6.63	103	75-125	3.51	20	
Vanadium	0.470	0.0030	mg/L	0.500	ND	94.1	75-125	2.82	20	
Zinc	0.518	0.0200	mg/L	0.500	ND	104	75-125	3.31	20	

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

Matrix Spike Dup (BKC0508-MSD2) Source: 22C0185-01 Prepared: 21-Mar-2022 Analyzed: 23-Mar-2022 16:27										
Beryllium	0.547	0.0100	mg/L	0.500	ND	109	75-125	0.25	20	

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



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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0584 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0584-BLK1)					Prepared: 23-Mar-2022 Analyzed: 24-Mar-2022 18:34					
Manganese	ND	0.0100	mg/L							U

LCS (BKC0584-BS1)					Prepared: 23-Mar-2022 Analyzed: 24-Mar-2022 19:30					
Manganese	0.482	0.0100	mg/L	0.500		96.5	80-120			

Duplicate (BKC0584-DUP1)					Source: 22C0185-03RE2 Prepared: 23-Mar-2022 Analyzed: 24-Mar-2022 18:54					
Aluminum	ND	1.00	mg/L		ND					L, U
Barium	ND	0.500	mg/L		0.158			6.41	20	U
Beryllium	ND	0.0100	mg/L		ND					U
Cadmium	ND	0.0020	mg/L		ND					U
Calcium	60.6	0.500	mg/L		56.7			6.60	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
Magnesium	24.7	0.500	mg/L		23.2			6.30	20	
Manganese	0.392	0.0100	mg/L		0.366			6.75	20	
Nickel	ND	0.0100	mg/L		ND					U
Potassium	1.93	0.500	mg/L		1.84			4.84	20	
Silver	ND	0.0050	mg/L		ND					U
Sodium	12.7	0.500	mg/L		12.0			5.97	20	
Vanadium	ND	0.0030	mg/L		ND					U
Zinc	ND	0.0200	mg/L		ND					U

Matrix Spike (BKC0584-MS1)					Source: 22C0185-03RE2 Prepared: 23-Mar-2022 Analyzed: 24-Mar-2022 18:58					
Manganese	0.871	0.0100	mg/L	0.500	0.366	101	75-125			

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

Matrix Spike Dup (BKC0584-MSD1)					Source: 22C0185-03RE2 Prepared: 23-Mar-2022 Analyzed: 24-Mar-2022 19:02					
Manganese	0.875	0.0100	mg/L	0.500	0.366	102	75-125	0.48	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 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 6010D 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
EPA 7470A in Water	
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8081B in Water	
alpha-BHC	DoD-ELAP,NELAP,WADOE
alpha-BHC [2C]	DoD-ELAP,NELAP,WADOE
beta-BHC	DoD-ELAP,NELAP,WADOE
beta-BHC [2C]	DoD-ELAP,NELAP,WADOE
gamma-BHC (Lindane)	DoD-ELAP,NELAP,WADOE
gamma-BHC (Lindane) [2C]	DoD-ELAP,NELAP,WADOE



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



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

EPA 8082A in Water

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



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EPA 8260D in Water

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



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

EPA 8270E in Water

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



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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
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



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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
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
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



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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

EPA 8270E-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	03/28/2023
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022



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Reported:
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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
- P The reported value is greater than 25% difference between the concentrations determined on two GC columns where applicable.
- P1 The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
- 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, LLC
Analytical Chemists and Consultants

31 March 2022

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

RE: Landsburg (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)
22C0188

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, LLC

Kelly Bottem, Client Services Manager

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



Analytical Resources, LLC
 Analytical Chemists and Consultants
 4611 South 134th Place, Suite 100
 Tukwila, WA 98168
 206-695-6200 206-695-6201 (fax)

ARI Assigned Number:	Turn-around Requested: <i>Standard</i>	Page:	of
ARI Client Company: <i>Goldier</i>	Phone: <i>425 883 0777</i>	Date:	Ice Present? <i>DI 3/10/22</i>
Client Contact: <i>Gary Zimmerman / Joseph Xi</i>		No. of Coolers:	Cooler Temps: <i>4 Sec CAF</i>

Client Project Name: <i>Lead Sub, GW</i>	Analysis Requested	Notes/Comments								
Client Project #: <i>GL923100007.202</i>	<table border="1"> <tr> <td>VOC's Client list</td> <td>1,4 Dioxane</td> <td>Total Metals Sulfate list</td> <td>Missed metals (Hold)</td> <td>TMH-HCDO (High Temping)</td> <td>PCBS</td> <td>Organohalogen pesticides</td> <td>SUOC's Client list</td> </tr> </table>	VOC's Client list	1,4 Dioxane	Total Metals Sulfate list	Missed metals (Hold)	TMH-HCDO (High Temping)	PCBS	Organohalogen pesticides	SUOC's Client list	<i>Analyze & reconcile w/mst between Goldier & ART</i>
VOC's Client list	1,4 Dioxane	Total Metals Sulfate list	Missed metals (Hold)	TMH-HCDO (High Temping)	PCBS	Organohalogen pesticides	SUOC's Client list			

Sample ID	Date	Time	Matrix	No. Containers	VOC's Client list	1,4 Dioxane	Total Metals Sulfate list	Missed metals (Hold)	TMH-HCDO (High Temping)	PCBS	Organohalogen pesticides	SUOC's Client list
<i>LMW-5-0322</i>	<i>3/10/22</i>	<i>15:45</i>	<i>GW</i>	<i>19</i>	<i>x</i>	<i>x</i>	<i>x</i>		<i>x</i>	<i>x</i>	<i>x</i>	<i>x</i>
<i>LMW-3-0322</i>	<i>3/10/22</i>	<i>14:25</i>	<i>GW</i>	<i>19</i>	<i>x</i>	<i>x</i>	<i>x</i>		<i>x</i>	<i>x</i>	<i>x</i>	<i>x</i>
<i>LMW-8-0322</i>	<i>3/10/22</i>	<i>10:20</i>	<i>GW</i>	<i>19</i>	<i>x</i>	<i>x</i>	<i>x</i>		<i>x</i>	<i>x</i>	<i>x</i>	<i>x</i>
<i>LMW-9-0322</i>	<i>3/10/22</i>	<i>12:35</i>	<i>GW</i>	<i>19</i>	<i>x</i>	<i>x</i>	<i>x</i>		<i>x</i>	<i>x</i>	<i>x</i>	<i>x</i>
<i>LMW-7-0322</i>	<i>3/8/22</i>	<i>17:40</i>	<i>GW</i>	<i>19</i>	<i>x</i>	<i>x</i>	<i>x</i>		<i>x</i>	<i>x</i>	<i>x</i>	<i>x</i>

Comments/Special Instructions <i>ECOLGY ERM EDD Client Specific RLS Analyte list</i>	Relinquished by: (Signature) <i>[Signature]</i>	Received by: (Signature) <i>[Signature]</i>	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: <i>Christopher Kubicki</i>	Printed Name: <i>Dominic Lamondre</i>	Printed Name:	Printed Name:
	Company: <i>Goldier</i>	Company: <i>ART</i>	Company:	Company:
	Date & Time: <i>3/10/22 17:00</i>	Date & Time: <i>3/10/22 17:17</i>	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.



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

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

Reported:
31-Mar-2022 14:24

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LMW-5-0322	22C0188-01	Water	10-Mar-2022 15:45	10-Mar-2022 17:17
LMW-3-0322	22C0188-02	Water	10-Mar-2022 14:25	10-Mar-2022 17:17
LMW-8-0322	22C0188-03	Water	10-Mar-2022 10:20	10-Mar-2022 17:17
LMW-9-0322	22C0188-04	Water	10-Mar-2022 12:35	10-Mar-2022 17:17
LMW-7-0322	22C0188-05	Water	08-Mar-2022 17:40	10-Mar-2022 17:17
Trip Blanks	22C0188-11	Water	08-Mar-2022 17:40	10-Mar-2022 17:17



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Project: Landsburg
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Reported:
31-Mar-2022 14:24

Work Order Case Narrative

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

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

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

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

1,4-Dioxane- EPA Method SW8270E

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

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

Pesticides - EPA Method SW8081B



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Redmond WA, 98052-3333

Project: Landsburg
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Project Manager: Gary Zimmerman

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

Volatiles - EPA Method SW8260D

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

Initial and continuing calibrations were within method requirements with the exception of all associated "Q" flagged analytes which are out of control low in the CCAL. All associated samples that contain analyte have been flagged with a "Q" qualifier.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) contained hexachloro-1,3-Butadiene. Samples that contain analyte have been flagged with a "B" qualifier.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

The samples were analyzed from vials that did not contain air bubbles.

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

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

Initial and continuing calibrations were within method requirements.

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

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

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



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Project: Landsburg
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Reported:
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control limits.

Semivolatiles - EPA Method SW8270E

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

Initial and continuing calibrations were within method requirements with the exception of all associated "Q" flagged analytes which are out of control high in the CCAL and 2,2'-Oxybis(1-chloropropane) is out of control low. All associated samples that contain analyte have been flagged with a "Q" qualifier.

Internal standard areas were within limits.

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

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

The blank spike (BS/LCS) percent recoveries were within control limits with the exception of analytes flagged on the associated forms.



WORK ORDER

22C0188

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

Preservation Confirmation

Container ID	Container Type	pH
22C0188-01 A	VOA Vial, Clear, 40 mL, HCL	
22C0188-01 B	VOA Vial, Clear, 40 mL, HCL	
22C0188-01 C	VOA Vial, Clear, 40 mL, HCL	
22C0188-01 D	VOA Vial, Clear, 40 mL, HCL	
22C0188-01 E	VOA Vial, Clear, 40 mL, HCL	
22C0188-01 F	HDPE NM, 1000 mL, 1:1 HNO3	Bubble C2 Pass
22C0188-01 G	Glass NM, Amber, 1000 mL	
22C0188-01 H	Glass NM, Amber, 1000 mL	
22C0188-01 I	Glass NM, Amber, 1000 mL	
22C0188-01 J	Glass NM, Amber, 1000 mL	
22C0188-01 K	Glass NM, Amber, 1000 mL	
22C0188-01 L	Glass NM, Amber, 1000 mL	
22C0188-01 M	Glass NM, Amber, 500 mL	
22C0188-01 N	Glass NM, Amber, 500 mL	
22C0188-01 O	Glass NM, Amber, 500 mL	
22C0188-01 P	Glass NM, Amber, 500 mL	
22C0188-01 Q	Glass NM, Amber, 500 mL	
22C0188-01 R	Glass NM, Amber, 500 mL	
22C0188-02 A	VOA Vial, Clear, 40 mL, HCL	
22C0188-02 B	VOA Vial, Clear, 40 mL, HCL	
22C0188-02 C	VOA Vial, Clear, 40 mL, HCL	
22C0188-02 D	VOA Vial, Clear, 40 mL, HCL	
22C0188-02 E	VOA Vial, Clear, 40 mL, HCL	
22C0188-02 F	HDPE NM, 1000 mL, 1:1 HNO3	C2 Pass
22C0188-02 G	Glass NM, Amber, 1000 mL	
22C0188-02 H	Glass NM, Amber, 1000 mL	
22C0188-02 I	Glass NM, Amber, 1000 mL	
22C0188-02 J	Glass NM, Amber, 1000 mL	
22C0188-02 K	Glass NM, Amber, 1000 mL	
22C0188-02 L	Glass NM, Amber, 1000 mL	
22C0188-02 M	Glass NM, Amber, 500 mL	
22C0188-02 N	Glass NM, Amber, 500 mL	
22C0188-02 O	Glass NM, Amber, 500 mL	
22C0188-02 P	Glass NM, Amber, 500 mL	



WORK ORDER

22C0188

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

Client: Golder Associates	Project Manager: Kelly Bottem
Project: Landsburg	Project Number: Landsburg

22C0188-02 Q	Glass NM, Amber, 500 mL	
22C0188-02 R	Glass NM, Amber, 500 mL	
22C0188-03 A	VOA Vial, Clear, 40 mL, HCL	
22C0188-03 B	VOA Vial, Clear, 40 mL, HCL	
22C0188-03 C	VOA Vial, Clear, 40 mL, HCL	
22C0188-03 D	VOA Vial, Amber, 40 mL, HCL	
22C0188-03 E	VOA Vial, Amber, 40 mL, HCL	
22C0188-03 F	HDPE NM, 1000 mL, 1:1 HNO3	22 Pass
22C0188-03 G	Glass NM, Amber, 1000 mL	
22C0188-03 H	Glass NM, Amber, 1000 mL	
22C0188-03 I	Glass NM, Amber, 1000 mL	
22C0188-03 J	Glass NM, Amber, 1000 mL	
22C0188-03 K	Glass NM, Amber, 1000 mL	
22C0188-03 L	Glass NM, Amber, 1000 mL	
22C0188-03 M	Glass NM, Amber, 500 mL	
22C0188-03 N	Glass NM, Amber, 500 mL	
22C0188-03 O	Glass NM, Amber, 500 mL	
22C0188-03 P	Glass NM, Amber, 500 mL	
22C0188-03 Q	Glass NM, Amber, 500 mL	
22C0188-03 R	Glass NM, Amber, 500 mL	
22C0188-04 A	VOA Vial, Clear, 40 mL, HCL	
22C0188-04 B	VOA Vial, Clear, 40 mL, HCL	
22C0188-04 C	VOA Vial, Clear, 40 mL, HCL	
22C0188-04 D	VOA Vial, Clear, 40 mL, HCL	
22C0188-04 E	VOA Vial, Clear, 40 mL, HCL	
22C0188-04 F	HDPE NM, 1000 mL, 1:1 HNO3	22 Pass
22C0188-04 G	Glass NM, Amber, 1000 mL	
22C0188-04 H	Glass NM, Amber, 1000 mL	
22C0188-04 I	Glass NM, Amber, 500 mL	
22C0188-04 J	Glass NM, Amber, 500 mL	
22C0188-04 K	Glass NM, Amber, 500 mL	
22C0188-04 L	Glass NM, Amber, 500 mL	
22C0188-04 M	Glass NM, Amber, 500 mL	
22C0188-04 N	Glass NM, Amber, 500 mL	
22C0188-04 O	Glass NM, Amber, 500 mL	
22C0188-04 P	Glass NM, Amber, 500 mL	



WORK ORDER

22C0188

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

Client: Golder Associates	Project Manager: Kelly Bottem
Project: Landsburg	Project Number: Landsburg

22C0188-04 Q	Glass NM, Amber, 500 mL	
22C0188-04 R	Glass NM, Amber, 500 mL	
22C0188-05 A	VOA Vial, Clear, 40 mL, HCL	
22C0188-05 B	VOA Vial, Clear, 40 mL, HCL	
22C0188-05 C	VOA Vial, Clear, 40 mL, HCL	
22C0188-05 D	VOA Vial, Amber, 40 mL, HCL	
22C0188-05 E	VOA Vial, Amber, 40 mL, HCL	
22C0188-05 F	HDPE NM, 1000 mL, 1:1 HNO3	LL Pass
22C0188-05 G	Glass NM, Amber, 500 mL	
22C0188-05 H	Glass NM, Amber, 500 mL	
22C0188-05 I	Glass NM, Amber, 500 mL	
22C0188-05 J	Glass NM, Amber, 500 mL	
22C0188-05 K	Glass NM, Amber, 500 mL	
22C0188-05 L	Glass NM, Amber, 500 mL	
22C0188-05 M	Glass NM, Amber, 500 mL	
22C0188-05 N	Glass NM, Amber, 500 mL	
22C0188-05 O	Glass NM, Amber, 500 mL	
22C0188-05 P	Glass NM, Amber, 500 mL	
22C0188-05 Q	Glass NM, Amber, 500 mL	
22C0188-05 R	Glass NM, Amber, 500 mL	
22C0188-05 S	Glass NM, Amber, 500 mL	
22C0188-05 T	Glass NM, Amber, 500 mL	
22C0188-05 U	Glass NM, Amber, 500 mL	
22C0188-05 V	Glass NM, Amber, 500 mL	
22C0188-05 W	Glass NM, Amber, 500 mL	
22C0188-05 X	Glass NM, Amber, 500 mL	
22C0188-06 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LL Pass
22C0188-07 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LL Pass
22C0188-08 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LL Pass
22C0188-09 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LL Pass
22C0188-10 A	HDPE NM, 500 mL, 1:1 HNO3 (FF)	LL Pass
22C0188-11 A	VOA Vial, Clear, 40 mL, HCL	
22C0188-11 B	VOA Vial, Clear, 40 mL, HCL	
22C0188-11 C	VOA Vial, Clear, 40 mL, HCL	



WORK ORDER

22C0188

Samples will be discarded 90 days after submission of a final report unless other instructions are received.

Client: Golder Associates

Project Manager: Kelly Bottem

Project: Landsburg

Project Number: Landsburg

DL

Preservation Confirmed By

3/11/22

Date



Cooler Receipt Form

ARI Client: Golden

Project Name: Landsburg

COC No(s): _____ (NA)

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

Assigned ARI Job No: 22C0188

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were in tact, 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 1717 3.3 4.1 5.6 1.3 4.9

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 2965

Cooler Accepted by: DC Date: 3/10/22 Time: 1717

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 3/4/22

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

Samples Logged by: DC Date: 3/4/22 Time: 1757 Labels checked by: _____

**** 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 w/ an air bubble, lab to determine size.
Sample list 19 containers but actually has 24 containers.

By: DC Date: 3/12/22



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

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

Reported:
31-Mar-2022 14:24

LMW-5-0322
22C0188-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/10/2022 15:45

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 22:15

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BKC0362
Prepared: 03/15/2022

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 22C0188-01 D

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



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

Reported:
31-Mar-2022 14:24

LMW-5-0322
22C0188-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/10/2022 15:45

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 22:15

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



Golder Associates
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Redmond WA, 98052-3333

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

Reported:
31-Mar-2022 14:24

LMW-5-0322
22C0188-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/10/2022 15:45

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 22:15

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	110	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	100	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	103	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	102	%	



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Redmond WA, 98052-3333

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

Reported:
31-Mar-2022 14:24

LMW-5-0322
22C0188-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/10/2022 15:45

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2022 00:57

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BKC0325
Prepared: 03/15/2022

Sample Size: 500 mL
Final Volume: 0.5 mL

Extract ID: 22C0188-01 O 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



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

Reported:
31-Mar-2022 14:24

LMW-5-0322
22C0188-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/10/2022 15:45

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2022 00:57

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
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 %	81.1	%	
<i>Surrogate: Phenol-d5</i>			38-120 %	82.5	%	
<i>Surrogate: 2-Chlorophenol-d4</i>			41-120 %	92.7	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			20-120 %	87.4	%	
<i>Surrogate: Nitrobenzene-d5</i>			27-120 %	86.8	%	



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

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

Reported:
31-Mar-2022 14:24

LMW-5-0322
22C0188-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/10/2022 15:45

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2022 00:57

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
<i>Surrogate: 2-Fluorobiphenyl</i>		33-120 %	94.6	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>		52-120 %	130	%	*, Q
<i>Surrogate: p-Terphenyl-d14</i>		28-120 %	106	%	



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 14:24
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LMW-5-0322
22C0188-01 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM Sampled: 03/10/2022 15:45
Instrument: NT6 Analyst: JZ Analyzed: 03/18/2022 18:28

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 22C0188-01 N 01
Preparation Batch: BKC0324 Sample Size: 500 mL
Prepared: 03/15/2022 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
<i>Surrogate: 1,4-Dioxane-d8</i>			<i>33.6-120 %</i>	<i>61.5</i>	<i>%</i>	



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LMW-5-0322
22C0188-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID Sampled: 03/10/2022 15:45
Instrument: FID4 Analyst: JR Analyzed: 03/16/2022 22:52

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 22C0188-01 M 01
Preparation Batch: BKC0323 Sample Size: 500 mL
Prepared: 03/15/2022 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 %	95.3	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	103	%	



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LMW-5-0322
22C0188-01 (Water)

Chlorinated Pesticides

Method: EPA 8081B
Instrument: ECD6 Analyst: YZ

Sampled: 03/10/2022 15:45
Analyzed: 03/30/2022 14:23

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BKC0326
Prepared: 03/15/2022

Sample Size: 500 mL
Final Volume: 5 mL

Extract ID: 22C0188-01 P 01

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CKC0169
Cleaned: 24-Mar-2022

Initial Volume: 5 mL
Final Volume: 5 mL

Extract ID: 22C0188-01 P 01

Sample Cleanup: Cleanup Method: Sulfur
Cleanup Batch: CKC0168
Cleaned: 24-Mar-2022

Initial Volume: 5 uL
Final Volume: 5 uL

Extract ID: 22C0188-01 P 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 %	113	%	
Surrogate: Decachlorobiphenyl [2C]			11-144 %	92.6	%	
Surrogate: Tetrachlorometaxylene			30-120 %	51.9	%	
Surrogate: Tetrachlorometaxylene [2C]			30-120 %	56.9	%	



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LMW-5-0322
22C0188-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 Sampled: 03/10/2022 15:45
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/24/2022 19:06

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0188-01 F 02
Preparation Batch: BKC0564 Sample Size: 25 mL
Prepared: 03/23/2022 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-5-0322
22C0188-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED Sampled: 03/10/2022 15:45
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/23/2022 23:36

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0188-01 F 02
Preparation Batch: BKC0564 Sample Size: 25 mL
Prepared: 03/23/2022 Final Volume: 25 mL

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



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LMW-5-0322
22C0188-01 (Water)

Metals and Metallic Compounds

Method: EPA 6010D

Sampled: 03/10/2022 15:45

Instrument: ICP2 Analyst: MVP

Analyzed: 03/24/2022 17:23

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWC EPA 3010A
Preparation Batch: BKC0545
Prepared: 03/22/2022

Sample Size: 25 mL
Final Volume: 25 mL

Extract ID: 22C0188-01 F 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	81.0	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	40.7	mg/L	
Manganese	7439-96-5	1	0.0100	0.202	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	2.25	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	12.8	mg/L	
Sodium	7440-23-5	1	50.0	ND	mg/L	U
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U



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LMW-5-0322
22C0188-01 (Water)

Metals and Metallic Compounds

Method: EPA 7470A Sampled: 03/10/2022 15:45
Instrument: HYDRA Analyst: SKD Analyzed: 03/16/2022 15:43

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWM EPA 7470A Extract ID: 22C0188-01 F
Preparation Batch: BKC0321 Sample Size: 20 mL
Prepared: 03/14/2022 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-5-0322
22C0188-01RE1 (Water)

Aroclor PCB

Method: EPA 8082A Sampled: 03/10/2022 15:45
Instrument: ECD7 Analyst: JGR Analyzed: 03/19/2022 23:00

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKC0371 Prepared: 03/15/2022	Sample Size: 1000 mL Final Volume: 0.5 mL	Extract ID: 22C0188-01RE1 G 02
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKC0120 Cleared: 17-Mar-2022	Initial Volume: 0.5 mL Final Volume: 0.5 mL	Extract ID: 22C0188-01RE1 G 02
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKC0118 Cleared: 17-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0188-01RE1 G 02
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CKC0119 Cleared: 17-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0188-01RE1 G 02

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 %	71.2	%	
<i>Surrogate: Tetrachlorometaxylene</i>			32-120 %	67.4	%	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			29-120 %	70.0	%	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			32-120 %	68.7	%	



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Project Manager: Gary Zimmerman

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LMW-3-0322
22C0188-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/10/2022 14:25

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 22:35

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BKC0362
Prepared: 03/15/2022

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 22C0188-02 C

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



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LMW-3-0322
22C0188-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/10/2022 14:25

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 22:35

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



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LMW-3-0322
22C0188-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 03/10/2022 14:25
Instrument: NT2 Analyst: PKC Analyzed: 03/15/2022 22:35

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	104	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	96.8	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	104	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	101	%	



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LMW-3-0322
22C0188-02 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/10/2022 14:25

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2022 01:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BKC0325
Prepared: 03/15/2022

Sample Size: 500 mL
Final Volume: 0.5 mL

Extract ID: 22C0188-02 O 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



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LMW-3-0322
22C0188-02 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/10/2022 14:25

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2022 01:30

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
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 %	76.3	%	
<i>Surrogate: Phenol-d5</i>			38-120 %	78.6	%	
<i>Surrogate: 2-Chlorophenol-d4</i>			41-120 %	86.6	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			20-120 %	83.9	%	
<i>Surrogate: Nitrobenzene-d5</i>			27-120 %	82.4	%	



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LMW-3-0322
22C0188-02 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E Sampled: 03/10/2022 14:25
Instrument: NT6 Analyst: JZ Analyzed: 03/19/2022 01:30

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
<i>Surrogate: 2-Fluorobiphenyl</i>		33-120 %	91.7	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>		52-120 %	120	%	Q
<i>Surrogate: p-Terphenyl-d14</i>		28-120 %	96.8	%	



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LMW-3-0322
22C0188-02 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM Sampled: 03/10/2022 14:25
Instrument: NT6 Analyst: JZ Analyzed: 03/18/2022 18:54

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 22C0188-02 N 01
Preparation Batch: BKC0324 Sample Size: 500 mL
Prepared: 03/15/2022 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
<i>Surrogate: 1,4-Dioxane-d8</i>			<i>33.6-120 %</i>	<i>56.4</i>	<i>%</i>	



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LMW-3-0322
22C0188-02 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID Sampled: 03/10/2022 14:25
Instrument: FID4 Analyst: JR Analyzed: 03/16/2022 23:11

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 22C0188-02 M 01
Preparation Batch: BKC0323 Sample Size: 500 mL
Prepared: 03/15/2022 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 %	111	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	120	%	



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LMW-3-0322
22C0188-02 (Water)

Chlorinated Pesticides

Method: EPA 8081B Sampled: 03/10/2022 14:25
Instrument: ECD6 Analyst: YZ Analyzed: 03/30/2022 14:41

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 22C0188-02 P 01
Preparation Batch: BKC0326 Sample Size: 500 mL
Prepared: 03/15/2022 Final Volume: 5 mL

Sample Cleanup: Cleanup Method: Silica Gel Extract ID: 22C0188-02 P 01
Cleanup Batch: CKC0169 Initial Volume: 5 mL
Cleansed: 24-Mar-2022 Final Volume: 5 mL

Sample Cleanup: Cleanup Method: Sulfur Extract ID: 22C0188-02 P 01
Cleanup Batch: CKC0168 Initial Volume: 5 uL
Cleansed: 24-Mar-2022 Final Volume: 5 uL

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
<i>Surrogate: Decachlorobiphenyl</i>			<i>11-144 %</i>	<i>112</i>	<i>%</i>	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			<i>11-144 %</i>	<i>93.2</i>	<i>%</i>	
<i>Surrogate: Tetrachlorometaxylene</i>			<i>30-120 %</i>	<i>56.6</i>	<i>%</i>	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			<i>30-120 %</i>	<i>57.6</i>	<i>%</i>	



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LMW-3-0322
22C0188-02 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 Sampled: 03/10/2022 14:25
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/24/2022 19:25

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0188-02 F 02
Preparation Batch: BKC0564 Sample Size: 25 mL
Prepared: 03/23/2022 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-3-0322
22C0188-02 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED Sampled: 03/10/2022 14:25
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/23/2022 23:55

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0188-02 F 02
Preparation Batch: BKC0564 Sample Size: 25 mL
Prepared: 03/23/2022 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-3-0322
22C0188-02 (Water)

Metals and Metallic Compounds

Method: EPA 6010D

Sampled: 03/10/2022 14:25

Instrument: ICP2 Analyst: MVP

Analyzed: 03/24/2022 17:33

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWC EPA 3010A
Preparation Batch: BKC0545
Prepared: 03/22/2022

Sample Size: 25 mL
Final Volume: 25 mL

Extract ID: 22C0188-02 F 03

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	36.0	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	14.3	mg/L	
Manganese	7439-96-5	1	0.0100	0.0388	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	1.56	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	9.76	mg/L	
Sodium	7440-23-5	1	50.0	ND	mg/L	U
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U



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LMW-3-0322
22C0188-02 (Water)

Metals and Metallic Compounds

Method: EPA 7470A Sampled: 03/10/2022 14:25
Instrument: HYDRA Analyst: SKD Analyzed: 03/16/2022 15:53

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWM EPA 7470A Extract ID: 22C0188-02 F
Preparation Batch: BKC0321 Sample Size: 20 mL
Prepared: 03/14/2022 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-3-0322
22C0188-02RE1 (Water)

Aroclor PCB

Method: EPA 8082A Sampled: 03/10/2022 14:25
Instrument: ECD7 Analyst: JGR Analyzed: 03/19/2022 23:21

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKC0371 Prepared: 03/15/2022	Sample Size: 1000 mL Final Volume: 0.5 mL	Extract ID: 22C0188-02RE1 G 02
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKC0120 Cleared: 17-Mar-2022	Initial Volume: 0.5 mL Final Volume: 0.5 mL	Extract ID: 22C0188-02RE1 G 02
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKC0118 Cleared: 17-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0188-02RE1 G 02
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CKC0119 Cleared: 17-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0188-02RE1 G 02

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 %	69.6	%	
<i>Surrogate: Tetrachlorometaxylene</i>			32-120 %	71.5	%	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			29-120 %	70.3	%	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			32-120 %	69.8	%	



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Project Manager: Gary Zimmerman

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LMW-8-0322
22C0188-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/10/2022 10:20

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 22:56

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BKC0362
Prepared: 03/15/2022

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 22C0188-03 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	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U



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LMW-8-0322
22C0188-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/10/2022 10:20

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 22:56

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



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LMW-8-0322
22C0188-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 03/10/2022 10:20
Instrument: NT2 Analyst: PKC Analyzed: 03/15/2022 22:56

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	98.7	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	96.8	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	101	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	104	%	



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

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

Reported:
31-Mar-2022 14:24

LMW-8-0322
22C0188-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/10/2022 10:20

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2022 02:04

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BKC0325
Prepared: 03/15/2022

Sample Size: 500 mL
Final Volume: 0.5 mL

Extract ID: 22C0188-03 O 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



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LMW-8-0322
22C0188-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/10/2022 10:20

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2022 02:04

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
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

Surrogate: 2-Fluorophenol

33-120 % 69.6 %

Surrogate: Phenol-d5

38-120 % 71.5 %

Surrogate: 2-Chlorophenol-d4

41-120 % 78.5 %

Surrogate: 1,2-Dichlorobenzene-d4

20-120 % 71.7 %

Surrogate: Nitrobenzene-d5

27-120 % 74.7 %

Surrogate: 2-Fluorobiphenyl

33-120 % 81.2 %



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LMW-8-0322
22C0188-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E Sampled: 03/10/2022 10:20
Instrument: NT6 Analyst: JZ Analyzed: 03/19/2022 02:04

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
<i>Surrogate: 2,4,6-Tribromophenol</i>		52-120 %	114	%	Q
<i>Surrogate: p-Terphenyl-d14</i>		28-120 %	89.0	%	



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LMW-8-0322
22C0188-03 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM Sampled: 03/10/2022 10:20
Instrument: NT6 Analyst: JZ Analyzed: 03/18/2022 19:19

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 22C0188-03 N 01
Preparation Batch: BKC0324 Sample Size: 500 mL
Prepared: 03/15/2022 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
<i>Surrogate: 1,4-Dioxane-d8</i>			<i>33.6-120 %</i>	<i>56.3</i>	<i>%</i>	



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LMW-8-0322
22C0188-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID Sampled: 03/10/2022 10:20
Instrument: FID4 Analyst: JR Analyzed: 03/16/2022 23:31

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 22C0188-03 M 01
Preparation Batch: BKC0323 Sample Size: 500 mL
Prepared: 03/15/2022 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 %	113	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	122	%	



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LMW-8-0322
22C0188-03 (Water)

Chlorinated Pesticides

Method: EPA 8081B
Instrument: ECD6 Analyst: YZ

Sampled: 03/10/2022 10:20
Analyzed: 03/30/2022 15:00

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BKC0326
Prepared: 03/15/2022

Sample Size: 500 mL
Final Volume: 5 mL

Extract ID: 22C0188-03 P 01

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CKC0169
Cleaned: 24-Mar-2022

Initial Volume: 5 mL
Final Volume: 5 mL

Extract ID: 22C0188-03 P 01

Sample Cleanup: Cleanup Method: Sulfur
Cleanup Batch: CKC0168
Cleaned: 24-Mar-2022

Initial Volume: 5 uL
Final Volume: 5 uL

Extract ID: 22C0188-03 P 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 %	105	%	
Surrogate: Decachlorobiphenyl [2C]			11-144 %	86.1	%	
Surrogate: Tetrachlorometaxylene			30-120 %	52.9	%	
Surrogate: Tetrachlorometaxylene [2C]			30-120 %	56.1	%	



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LMW-8-0322
22C0188-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 Sampled: 03/10/2022 10:20
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/24/2022 19:11

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0188-03 F 02
Preparation Batch: BKC0564 Sample Size: 25 mL
Prepared: 03/23/2022 Final Volume: 25 mL

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



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LMW-8-0322
22C0188-03 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED Sampled: 03/10/2022 10:20
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/23/2022 23:41

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0188-03 F 02
Preparation Batch: BKC0564 Sample Size: 25 mL
Prepared: 03/23/2022 Final Volume: 25 mL

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



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Project: Landsburg
Project Number: Landsburg
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LMW-8-0322
22C0188-03 (Water)

Metals and Metallic Compounds

Method: EPA 6010D

Sampled: 03/10/2022 10:20

Instrument: ICP2 Analyst: MVP

Analyzed: 03/24/2022 17:36

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWC EPA 3010A
Preparation Batch: BKC0545
Prepared: 03/22/2022

Sample Size: 25 mL
Final Volume: 25 mL

Extract ID: 22C0188-03 F 03

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	48.2	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	11.9	mg/L	
Magnesium	7439-95-4	1	0.500	24.9	mg/L	
Manganese	7439-96-5	1	0.0100	0.376	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	1.57	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	8.70	mg/L	
Sodium	7440-23-5	1	50.0	ND	mg/L	U
Vanadium	7440-62-2	1	0.0030	ND	mg/L	U
Zinc	7440-66-6	1	0.0200	ND	mg/L	U



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LMW-8-0322
22C0188-03 (Water)

Metals and Metallic Compounds

Method: EPA 7470A Sampled: 03/10/2022 10:20
Instrument: HYDRA Analyst: SKD Analyzed: 03/16/2022 15:55

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWM EPA 7470A Extract ID: 22C0188-03 F
Preparation Batch: BKC0321 Sample Size: 20 mL
Prepared: 03/14/2022 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-8-0322
22C0188-03RE1 (Water)

Aroclor PCB

Method: EPA 8082A Sampled: 03/10/2022 10:20
Instrument: ECD7 Analyst: JGR Analyzed: 03/19/2022 23:43

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKC0371 Prepared: 03/15/2022	Sample Size: 1000 mL Final Volume: 0.5 mL	Extract ID: 22C0188-03RE1 G 02
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKC0120 Cleared: 17-Mar-2022	Initial Volume: 0.5 mL Final Volume: 0.5 mL	Extract ID: 22C0188-03RE1 G 02
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKC0118 Cleared: 17-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0188-03RE1 G 02
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CKC0119 Cleared: 17-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0188-03RE1 G 02

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 %	64.7	%	
<i>Surrogate: Tetrachlorometaxylene</i>			32-120 %	71.1	%	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			29-120 %	64.6	%	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			32-120 %	69.5	%	



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

Reported:
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LMW-9-0322
22C0188-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/10/2022 12:35

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 23:17

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BKC0362
Prepared: 03/15/2022

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 22C0188-04 B

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



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

Reported:
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LMW-9-0322
22C0188-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/10/2022 12:35

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 23:17

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



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LMW-9-0322
22C0188-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 03/10/2022 12:35
Instrument: NT2 Analyst: PKC Analyzed: 03/15/2022 23:17

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	106	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	98.7	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	100	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	102	%	



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

Reported:
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LMW-9-0322
22C0188-04 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/10/2022 12:35

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2022 02:37

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BKC0325
Prepared: 03/15/2022

Sample Size: 500 mL
Final Volume: 0.5 mL

Extract ID: 22C0188-04 O 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



Golder Associates
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Project: Landsburg
Project Number: Landsburg
Project Manager: Gary Zimmerman

Reported:
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LMW-9-0322
22C0188-04 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/10/2022 12:35

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2022 02:37

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
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 %	80.2	%	
<i>Surrogate: Phenol-d5</i>			38-120 %	81.6	%	
<i>Surrogate: 2-Chlorophenol-d4</i>			41-120 %	91.1	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			20-120 %	84.8	%	
<i>Surrogate: Nitrobenzene-d5</i>			27-120 %	84.9	%	



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LMW-9-0322
22C0188-04 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E Sampled: 03/10/2022 12:35
Instrument: NT6 Analyst: JZ Analyzed: 03/19/2022 02:37

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
<i>Surrogate: 2-Fluorobiphenyl</i>		33-120 %	89.0	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>		52-120 %	126	%	*, Q
<i>Surrogate: p-Terphenyl-d14</i>		28-120 %	99.0	%	



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LMW-9-0322
22C0188-04 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM Sampled: 03/10/2022 12:35
Instrument: NT6 Analyst: JZ Analyzed: 03/18/2022 19:45

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 22C0188-04 N 01
Preparation Batch: BKC0324 Sample Size: 500 mL
Prepared: 03/15/2022 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
<i>Surrogate: 1,4-Dioxane-d8</i>			<i>33.6-120 %</i>	<i>65.2</i>	<i>%</i>	



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LMW-9-0322
22C0188-04 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID Sampled: 03/10/2022 12:35
Instrument: FID4 Analyst: JR Analyzed: 03/16/2022 23:51

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 22C0188-04 M 01
Preparation Batch: BKC0323 Sample Size: 500 mL
Prepared: 03/15/2022 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 %	116	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	125	%	



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LMW-9-0322
22C0188-04 (Water)

Chlorinated Pesticides

Method: EPA 8081B Sampled: 03/10/2022 12:35
Instrument: ECD6 Analyst: YZ Analyzed: 03/30/2022 15:18

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKC0326 Prepared: 03/15/2022	Sample Size: 500 mL Final Volume: 5 mL	Extract ID: 22C0188-04 P 01
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKC0169 Cleaned: 24-Mar-2022	Initial Volume: 5 mL Final Volume: 5 mL	Extract ID: 22C0188-04 P 01
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CKC0168 Cleaned: 24-Mar-2022	Initial Volume: 5 uL Final Volume: 5 uL	Extract ID: 22C0188-04 P 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
<i>Surrogate: Decachlorobiphenyl</i>			<i>11-144 %</i>	<i>117</i>	<i>%</i>	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			<i>11-144 %</i>	<i>97.2</i>	<i>%</i>	
<i>Surrogate: Tetrachlorometaxylene</i>			<i>30-120 %</i>	<i>62.9</i>	<i>%</i>	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			<i>30-120 %</i>	<i>67.3</i>	<i>%</i>	



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LMW-9-0322
22C0188-04 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 Sampled: 03/10/2022 12:35
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/24/2022 19:15

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0188-04 F 02
Preparation Batch: BKC0564 Sample Size: 25 mL
Prepared: 03/23/2022 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-9-0322
22C0188-04 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED Sampled: 03/10/2022 12:35
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/23/2022 23:46

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0188-04 F 02
Preparation Batch: BKC0564 Sample Size: 25 mL
Prepared: 03/23/2022 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-9-0322
22C0188-04 (Water)

Metals and Metallic Compounds

Method: EPA 6010D Sampled: 03/10/2022 12:35
Instrument: ICP2 Analyst: MVP Analyzed: 03/24/2022 18:40

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWC EPA 3010A Extract ID: 22C0188-04 F 03
Preparation Batch: BKC0545 Sample Size: 25 mL
Prepared: 03/22/2022 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	76.3	mg/L	
Chromium	7440-47-3	1	0.0100	ND	mg/L	U
Cobalt	7440-48-4	1	0.0100	ND	mg/L	U
Copper	7440-50-8	1	0.0030	ND	mg/L	U
Iron	7439-89-6	1	0.200	1.56	mg/L	
Magnesium	7439-95-4	1	0.500	39.7	mg/L	
Manganese	7439-96-5	1	0.0100	0.171	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	2.31	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-9-0322
22C0188-04 (Water)

Metals and Metallic Compounds

Method: EPA 7470A Sampled: 03/10/2022 12:35
Instrument: HYDRA Analyst: SKD Analyzed: 03/16/2022 15:57

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWM EPA 7470A Extract ID: 22C0188-04 F
Preparation Batch: BKC0321 Sample Size: 20 mL
Prepared: 03/14/2022 Final Volume: 20 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00100	ND	mg/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: 31-Mar-2022 14:24
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LMW-9-0322
22C0188-04RE1 (Water)

Aroclor PCB

Method: EPA 8082A Sampled: 03/10/2022 12:35
Instrument: ECD7 Analyst: JGR Analyzed: 03/20/2022 00:04

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKC0371 Prepared: 03/15/2022	Sample Size: 1000 mL Final Volume: 0.5 mL	Extract ID: 22C0188-04RE1 G 02
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKC0120 Cleared: 17-Mar-2022	Initial Volume: 0.5 mL Final Volume: 0.5 mL	Extract ID: 22C0188-04RE1 G 02
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKC0118 Cleared: 17-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0188-04RE1 G 02
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CKC0119 Cleared: 17-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0188-04RE1 G 02

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 %	69.5	%	
<i>Surrogate: Tetrachlorometaxylene</i>			32-120 %	73.0	%	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			29-120 %	70.0	%	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			32-120 %	70.6	%	



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

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

Reported:
31-Mar-2022 14:24

LMW-7-0322
22C0188-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/08/2022 17:40

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 23:38

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BKC0362
Prepared: 03/15/2022

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 22C0188-05 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	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U



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Project: Landsburg
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Project Manager: Gary Zimmerman

Reported:
31-Mar-2022 14:24

LMW-7-0322
22C0188-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/08/2022 17:40

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 23:38

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 14:24
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LMW-7-0322
22C0188-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 03/08/2022 17:40
Instrument: NT2 Analyst: PKC Analyzed: 03/15/2022 23:38

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	112	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	99.2	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	99.4	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	99.8	%	



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

Reported:
31-Mar-2022 14:24

LMW-7-0322
22C0188-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/08/2022 17:40

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2022 03:11

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BKC0325
Prepared: 03/15/2022

Sample Size: 500 mL
Final Volume: 0.5 mL

Extract ID: 22C0188-05 K 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



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

Reported:
31-Mar-2022 14:24

LMW-7-0322
22C0188-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E

Sampled: 03/08/2022 17:40

Instrument: NT6 Analyst: JZ

Analyzed: 03/19/2022 03:11

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2,4-Dinitrophenol	51-28-5	1	20.0	ND	ug/L	U
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 %	67.3	%	
<i>Surrogate: Phenol-d5</i>			38-120 %	71.1	%	
<i>Surrogate: 2-Chlorophenol-d4</i>			41-120 %	76.7	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			20-120 %	63.2	%	
<i>Surrogate: Nitrobenzene-d5</i>			27-120 %	73.7	%	



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LMW-7-0322
22C0188-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E Sampled: 03/08/2022 17:40
Instrument: NT6 Analyst: JZ Analyzed: 03/19/2022 03:11

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Recovery		Units	Notes
		Limits	Recovery		
<i>Surrogate: 2-Fluorobiphenyl</i>		33-120 %	77.1	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>		52-120 %	111	%	Q
<i>Surrogate: p-Terphenyl-d14</i>		28-120 %	91.5	%	



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 14:24
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LMW-7-0322
22C0188-05 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM Sampled: 03/08/2022 17:40
Instrument: NT6 Analyst: JZ Analyzed: 03/18/2022 20:11

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Extract ID: 22C0188-05 J 01
Preparation Batch: BKC0324 Sample Size: 500 mL
Prepared: 03/15/2022 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
<i>Surrogate: 1,4-Dioxane-d8</i>			<i>33.6-120 %</i>	<i>57.1</i>	<i>%</i>	



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 14:24
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LMW-7-0322
22C0188-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-HCID Sampled: 03/08/2022 17:40
Instrument: FID4 Analyst: JR Analyzed: 03/17/2022 00:11

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF Extract ID: 22C0188-05 I 01
Preparation Batch: BKC0323 Sample Size: 500 mL
Prepared: 03/15/2022 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 %	116	%	
<i>Surrogate: n-Triacontane</i>			50-150 %	125	%	



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

Reported:
31-Mar-2022 14:24

LMW-7-0322
22C0188-05 (Water)

Chlorinated Pesticides

Method: EPA 8081B
Instrument: ECD6 Analyst: YZ

Sampled: 03/08/2022 17:40
Analyzed: 03/30/2022 15:36

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BKC0326
Prepared: 03/15/2022

Sample Size: 500 mL
Final Volume: 5 mL

Extract ID: 22C0188-05 L 01

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CKC0169
Cleaned: 24-Mar-2022

Initial Volume: 5 mL
Final Volume: 5 mL

Extract ID: 22C0188-05 L 01

Sample Cleanup: Cleanup Method: Sulfur
Cleanup Batch: CKC0168
Cleaned: 24-Mar-2022

Initial Volume: 5 uL
Final Volume: 5 uL

Extract ID: 22C0188-05 L 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 %	110	%	
Surrogate: Decachlorobiphenyl [2C]			11-144 %	88.4	%	
Surrogate: Tetrachlorometaxylene			30-120 %	55.3	%	
Surrogate: Tetrachlorometaxylene [2C]			30-120 %	60.0	%	



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LMW-7-0322
22C0188-05 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 Sampled: 03/08/2022 17:40
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/24/2022 19:20

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0188-05 F 02
Preparation Batch: BKC0564 Sample Size: 25 mL
Prepared: 03/23/2022 Final Volume: 25 mL

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



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LMW-7-0322
22C0188-05 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED Sampled: 03/08/2022 17:40
Instrument: ICPMS1 Analyst: MCB Analyzed: 03/23/2022 23:50

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix Extract ID: 22C0188-05 F 02
Preparation Batch: BKC0564 Sample Size: 25 mL
Prepared: 03/23/2022 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.00300	0.00398	mg/L	
Selenium	7782-49-2	1	0.0250	ND	mg/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:
31-Mar-2022 14:24

LMW-7-0322
22C0188-05 (Water)

Metals and Metallic Compounds

Method: EPA 6010D

Sampled: 03/08/2022 17:40

Instrument: ICP2 Analyst: MVP

Analyzed: 03/24/2022 17:44

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWC EPA 3010A
Preparation Batch: BKC0545
Prepared: 03/22/2022

Sample Size: 25 mL
Final Volume: 25 mL

Extract ID: 22C0188-05 F 03

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	32.6	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	0.610	mg/L	
Magnesium	7439-95-4	1	0.500	14.7	mg/L	
Manganese	7439-96-5	1	0.0100	0.0277	mg/L	
Nickel	7440-02-0	1	0.0100	ND	mg/L	U
Potassium	7440-09-7	1	0.500	2.47	mg/L	
Silver	7440-22-4	1	0.0050	ND	mg/L	U
Sodium	7440-23-5	1	0.500	59.8	mg/L	E
Sodium	7440-23-5	1	50.0	60.2	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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LMW-7-0322
22C0188-05 (Water)

Metals and Metallic Compounds

Method: EPA 7470A Sampled: 03/08/2022 17:40
Instrument: HYDRA Analyst: SKD Analyzed: 03/16/2022 16:00

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: TWM EPA 7470A Extract ID: 22C0188-05 F
Preparation Batch: BKC0321 Sample Size: 20 mL
Prepared: 03/14/2022 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-7-0322
22C0188-05RE1 (Water)

Aroclor PCB

Method: EPA 8082A Sampled: 03/08/2022 17:40
Instrument: ECD7 Analyst: JGR Analyzed: 03/20/2022 00:26

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKC0371 Prepared: 03/15/2022	Sample Size: 1000 mL Final Volume: 0.5 mL	Extract ID: 22C0188-05RE1 G 02
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKC0120 Cleaned: 17-Mar-2022	Initial Volume: 0.5 mL Final Volume: 0.5 mL	Extract ID: 22C0188-05RE1 G 02
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKC0118 Cleaned: 17-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0188-05RE1 G 02
Sample Cleanup:	Cleanup Method: Sulfur Cleanup Batch: CKC0119 Cleaned: 17-Mar-2022	Initial Volume: 0.5 uL Final Volume: 0.5 uL	Extract ID: 22C0188-05RE1 G 02

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 %	62.7	%	
<i>Surrogate: Tetrachlorometaxylene</i>			32-120 %	63.3	%	
<i>Surrogate: Decachlorobiphenyl [2C]</i>			29-120 %	62.7	%	
<i>Surrogate: Tetrachlorometaxylene [2C]</i>			32-120 %	62.0	%	



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

Reported:
31-Mar-2022 14:24

Trip Blanks
22C0188-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/08/2022 17:40

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 18:05

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BKC0362
Prepared: 03/15/2022

Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 22C0188-11 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	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.20	ND	ug/L	U
Acetone	67-64-1	1	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.10	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	2.50	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.20	ND	ug/L	U



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Trip Blanks
22C0188-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D

Sampled: 03/08/2022 17:40

Instrument: NT2 Analyst: PKC

Analyzed: 03/15/2022 18:05

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
trans-1,3-Dichloropropene	10061-02-6	1	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.10	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.10	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.25	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.10	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	0.50	ND	ug/L	U
Naphthalene	91-20-3	1	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.50	ND	ug/L	U



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Trip Blanks
22C0188-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 03/08/2022 17:40
Instrument: NT2 Analyst: PKC Analyzed: 03/15/2022 18:05

Analysis by: Analytical Resources, LLC

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Dichlorodifluoromethane	75-71-8	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	102	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	100	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	99.7	%	
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>			80-120 %	101	%	



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

Reported:
31-Mar-2022 14:24

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0362-BLK1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 16:41								
Chloromethane	ND	0.50	ug/L							U
Vinyl Chloride	ND	0.10	ug/L							U
Bromomethane	ND	1.00	ug/L							U
Chloroethane	ND	0.20	ug/L							U
Trichlorofluoromethane	ND	0.20	ug/L							U
Acrolein	ND	5.00	ug/L							U
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.20	ug/L							U
Acetone	ND	5.00	ug/L							U
1,1-Dichloroethene	ND	0.20	ug/L							U
Iodomethane	ND	1.00	ug/L							U
Methylene Chloride	ND	1.00	ug/L							U
Acrylonitrile	ND	1.00	ug/L							U
Carbon Disulfide	ND	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.20	ug/L							U
Vinyl Acetate	ND	0.20	ug/L							U
1,1-Dichloroethane	ND	0.20	ug/L							U
2-Butanone	ND	5.00	ug/L							U
2,2-Dichloropropane	ND	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Chloroform	ND	0.20	ug/L							U
Bromochloromethane	ND	0.20	ug/L							U
1,1,1-Trichloroethane	ND	0.20	ug/L							U
1,1-Dichloropropene	ND	0.10	ug/L							U
Carbon tetrachloride	ND	0.20	ug/L							U
1,2-Dichloroethane	ND	0.20	ug/L							U
Benzene	ND	0.20	ug/L							U
Trichloroethene	ND	0.20	ug/L							U
1,2-Dichloropropane	ND	0.20	ug/L							U
Bromodichloromethane	ND	0.20	ug/L							U
Dibromomethane	ND	0.20	ug/L							U
2-Chloroethyl vinyl ether	ND	1.00	ug/L							U
4-Methyl-2-Pentanone	ND	2.50	ug/L							U
cis-1,3-Dichloropropene	ND	0.20	ug/L							U
Toluene	ND	0.20	ug/L							U
trans-1,3-Dichloropropene	ND	0.20	ug/L							U



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Project: Landsburg
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Project Manager: Gary Zimmerman

Reported:
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0362-BLK1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 16:41								
2-Hexanone	ND	5.00	ug/L							U
1,1,2-Trichloroethane	ND	0.20	ug/L							U
1,3-Dichloropropane	ND	0.10	ug/L							U
Tetrachloroethene	ND	0.20	ug/L							U
Dibromochloromethane	ND	0.20	ug/L							U
1,2-Dibromoethane	ND	0.10	ug/L							U
Chlorobenzene	ND	0.20	ug/L							U
Ethylbenzene	ND	0.20	ug/L							U
1,1,1,2-Tetrachloroethane	ND	0.20	ug/L							U
m,p-Xylene	ND	0.40	ug/L							U
o-Xylene	ND	0.20	ug/L							U
Xylenes, total	ND	0.60	ug/L							U
Styrene	ND	0.20	ug/L							U
Bromoform	ND	0.20	ug/L							U
1,1,2,2-Tetrachloroethane	ND	0.20	ug/L							U
1,2,3-Trichloropropane	ND	0.25	ug/L							U
trans-1,4-Dichloro 2-Butene	ND	1.00	ug/L							U
n-Propylbenzene	ND	0.20	ug/L							U
Bromobenzene	ND	0.20	ug/L							U
Isopropyl Benzene	ND	0.20	ug/L							U
2-Chlorotoluene	ND	0.10	ug/L							U
4-Chlorotoluene	ND	0.20	ug/L							U
t-Butylbenzene	ND	0.20	ug/L							U
1,3,5-Trimethylbenzene	ND	0.20	ug/L							U
1,2,4-Trimethylbenzene	ND	0.20	ug/L							U
s-Butylbenzene	ND	0.20	ug/L							U
4-Isopropyl Toluene	ND	0.20	ug/L							U
1,3-Dichlorobenzene	ND	0.20	ug/L							U
1,4-Dichlorobenzene	ND	0.20	ug/L							U
n-Butylbenzene	ND	0.20	ug/L							U
1,2-Dichlorobenzene	ND	0.20	ug/L							U
1,2-Dibromo-3-chloropropane	ND	0.50	ug/L							U
1,2,4-Trichlorobenzene	ND	0.50	ug/L							U
Hexachloro-1,3-Butadiene	0.56	0.50	ug/L							
Naphthalene	ND	0.50	ug/L							U



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

Reported:
31-Mar-2022 14:24

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0362-BLK1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 16:41								
1,2,3-Trichlorobenzene	ND	0.50	ug/L							U
Dichlorodifluoromethane	ND	0.20	ug/L							U
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.86		ug/L	5.00		97.2	80-129			
<i>Surrogate: Toluene-d8</i>	4.94		ug/L	5.00		98.7	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	4.88		ug/L	5.00		97.6	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	5.09		ug/L	5.00		102	80-120			
LCS (BKC0362-BS1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:38								
Chloromethane	9.37	0.50	ug/L	10.0		93.7	60-138			
Vinyl Chloride	10.4	0.10	ug/L	10.0		104	66-133			
Bromomethane	9.40	1.00	ug/L	10.0		94.0	72-131			
Chloroethane	9.21	0.20	ug/L	10.0		92.1	60-155			
Trichlorofluoromethane	9.73	0.20	ug/L	10.0		97.3	62-141			
Acrolein	47.0	5.00	ug/L	50.0		94.0	52-190			
1,1,2-Trichloro-1,2,2-Trifluoroethane	9.64	0.20	ug/L	10.0		96.4	76-129			
Acetone	47.3	5.00	ug/L	50.0		94.6	58-142			
1,1-Dichloroethene	9.50	0.20	ug/L	10.0		95.0	69-135			
Iodomethane	9.51	1.00	ug/L	10.0		95.1	56-147			
Methylene Chloride	9.34	1.00	ug/L	10.0		93.4	65-135			
Acrylonitrile	8.44	1.00	ug/L	10.0		84.4	64-134			
Carbon Disulfide	9.93	0.20	ug/L	10.0		99.3	78-125			
trans-1,2-Dichloroethene	9.28	0.20	ug/L	10.0		92.8	78-128			
Vinyl Acetate	8.15	0.20	ug/L	10.0		81.5	55-138			
1,1-Dichloroethane	9.87	0.20	ug/L	10.0		98.7	76-124			
2-Butanone	46.3	5.00	ug/L	50.0		92.7	61-140			
2,2-Dichloropropane	10.1	0.20	ug/L	10.0		101	66-147			
cis-1,2-Dichloroethene	9.94	0.20	ug/L	10.0		99.4	80-121			
Chloroform	9.78	0.20	ug/L	10.0		97.8	80-122			
Bromochloromethane	9.37	0.20	ug/L	10.0		93.7	80-121			
1,1,1-Trichloroethane	9.97	0.20	ug/L	10.0		99.7	79-123			
1,1-Dichloropropene	9.79	0.10	ug/L	10.0		97.9	80-127			
Carbon tetrachloride	8.15	0.20	ug/L	10.0		81.5	53-137			
1,2-Dichloroethane	9.51	0.20	ug/L	10.0		95.1	75-123			
Benzene	9.71	0.20	ug/L	10.0		97.1	80-120			
Trichloroethene	9.65	0.20	ug/L	10.0		96.5	80-120			



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

Reported:
31-Mar-2022 14:24

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BKC0362-BS1)				Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:38						
1,2-Dichloropropane	9.66	0.20	ug/L	10.0		96.6	80-120			
Bromodichloromethane	10.2	0.20	ug/L	10.0		102	80-121			
Dibromomethane	9.77	0.20	ug/L	10.0		97.7	80-120			
2-Chloroethyl vinyl ether	9.48	1.00	ug/L	10.0		94.8	64-120			
4-Methyl-2-Pentanone	36.3	2.50	ug/L	50.0		72.5	67-133			Q
cis-1,3-Dichloropropene	8.72	0.20	ug/L	10.0		87.2	80-124			
Toluene	9.29	0.20	ug/L	10.0		92.9	80-120			
trans-1,3-Dichloropropene	7.80	0.20	ug/L	10.0		78.0	71-127			Q
2-Hexanone	51.7	5.00	ug/L	50.0		103	69-133			
1,1,2-Trichloroethane	9.67	0.20	ug/L	10.0		96.7	80-121			
1,3-Dichloropropane	10.2	0.10	ug/L	10.0		102	80-120			
Tetrachloroethene	9.19	0.20	ug/L	10.0		91.9	80-120			
Dibromochloromethane	8.47	0.20	ug/L	10.0		84.7	65-135			
1,2-Dibromoethane	8.22	0.10	ug/L	10.0		82.2	80-121			
Chlorobenzene	9.94	0.20	ug/L	10.0		99.4	80-120			
Ethylbenzene	9.71	0.20	ug/L	10.0		97.1	80-120			
1,1,1,2-Tetrachloroethane	8.34	0.20	ug/L	10.0		83.4	80-120			
m,p-Xylene	19.6	0.40	ug/L	20.0		97.8	80-121			
o-Xylene	9.80	0.20	ug/L	10.0		98.0	80-121			
Xylenes, total	29.4	0.60	ug/L	30.0		97.9	76-127			
Styrene	10.4	0.20	ug/L	10.0		104	80-124			
Bromoform	7.97	0.20	ug/L	10.0		79.7	51-134			Q
1,1,2,2-Tetrachloroethane	10.4	0.20	ug/L	10.0		104	77-123			
1,2,3-Trichloropropane	8.28	0.25	ug/L	10.0		82.8	76-125			
trans-1,4-Dichloro 2-Butene	9.60	1.00	ug/L	10.0		96.0	55-129			
n-Propylbenzene	10.9	0.20	ug/L	10.0		109	78-130			
Bromobenzene	10.0	0.20	ug/L	10.0		100	80-120			
Isopropyl Benzene	10.6	0.20	ug/L	10.0		106	80-128			
2-Chlorotoluene	9.88	0.10	ug/L	10.0		98.8	78-122			
4-Chlorotoluene	10.3	0.20	ug/L	10.0		103	80-121			
t-Butylbenzene	10.4	0.20	ug/L	10.0		104	78-125			
1,3,5-Trimethylbenzene	10.5	0.20	ug/L	10.0		105	80-129			
1,2,4-Trimethylbenzene	10.5	0.20	ug/L	10.0		105	80-127			
s-Butylbenzene	10.5	0.20	ug/L	10.0		105	78-129			
4-Isopropyl Toluene	10.9	0.20	ug/L	10.0		109	79-130			



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

Reported:
31-Mar-2022 14:24

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BKC0362-BS1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:38								
1,3-Dichlorobenzene	10.3	0.20	ug/L	10.0		103	80-120			
1,4-Dichlorobenzene	9.55	0.20	ug/L	10.0		95.5	80-120			
n-Butylbenzene	11.0	0.20	ug/L	10.0		110	74-129			
1,2-Dichlorobenzene	9.90	0.20	ug/L	10.0		99.0	80-120			
1,2-Dibromo-3-chloropropane	9.21	0.50	ug/L	10.0		92.1	62-123			
1,2,4-Trichlorobenzene	10.6	0.50	ug/L	10.0		106	64-124			
Hexachloro-1,3-Butadiene	11.2	0.50	ug/L	10.0		112	58-123			B
Naphthalene	10.6	0.50	ug/L	10.0		106	50-134			
1,2,3-Trichlorobenzene	10.5	0.50	ug/L	10.0		105	49-133			
Dichlorodifluoromethane	10.5	0.20	ug/L	10.0		105	48-147			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	4.89		ug/L	5.00		97.8	80-129			
<i>Surrogate: Toluene-d8</i>	4.97		ug/L	5.00		99.5	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	5.08		ug/L	5.00		102	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	4.95		ug/L	5.00		99.0	80-120			
LCS Dup (BKC0362-BS1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:58								
Chloromethane	9.65	0.50	ug/L	10.0		96.5	60-138	2.98	30	
Vinyl Chloride	10.5	0.10	ug/L	10.0		105	66-133	0.76	30	
Bromomethane	9.67	1.00	ug/L	10.0		96.7	72-131	2.83	30	
Chloroethane	9.32	0.20	ug/L	10.0		93.2	60-155	1.14	30	
Trichlorofluoromethane	9.48	0.20	ug/L	10.0		94.8	62-141	2.63	30	
Acrolein	46.5	5.00	ug/L	50.0		93.0	52-190	1.08	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	9.52	0.20	ug/L	10.0		95.2	76-129	1.25	30	
Acetone	47.9	5.00	ug/L	50.0		95.9	58-142	1.38	30	
1,1-Dichloroethene	9.60	0.20	ug/L	10.0		96.0	69-135	1.12	30	
Iodomethane	9.42	1.00	ug/L	10.0		94.2	56-147	0.94	30	
Methylene Chloride	9.24	1.00	ug/L	10.0		92.4	65-135	1.06	30	
Acrylonitrile	8.53	1.00	ug/L	10.0		85.3	64-134	1.02	30	
Carbon Disulfide	9.82	0.20	ug/L	10.0		98.2	78-125	1.08	30	
trans-1,2-Dichloroethene	9.56	0.20	ug/L	10.0		95.6	78-128	3.04	30	
Vinyl Acetate	8.18	0.20	ug/L	10.0		81.8	55-138	0.30	30	
1,1-Dichloroethane	9.97	0.20	ug/L	10.0		99.7	76-124	0.99	30	
2-Butanone	48.5	5.00	ug/L	50.0		97.0	61-140	4.58	30	
2,2-Dichloropropane	10.1	0.20	ug/L	10.0		101	66-147	0.33	30	
cis-1,2-Dichloroethene	9.90	0.20	ug/L	10.0		99.0	80-121	0.37	30	



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Project: Landsburg
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Project Manager: Gary Zimmerman

Reported:
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BKC0362-BSD1)		Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:58								
Chloroform	10.0	0.20	ug/L	10.0	100	80-122	2.21	30		
Bromochloromethane	9.58	0.20	ug/L	10.0	95.8	80-121	2.23	30		
1,1,1-Trichloroethane	9.98	0.20	ug/L	10.0	99.8	79-123	0.12	30		
1,1-Dichloropropene	9.65	0.10	ug/L	10.0	96.5	80-127	1.41	30		
Carbon tetrachloride	8.14	0.20	ug/L	10.0	81.4	53-137	0.02	30		
1,2-Dichloroethane	9.36	0.20	ug/L	10.0	93.6	75-123	1.66	30		
Benzene	9.67	0.20	ug/L	10.0	96.7	80-120	0.42	30		
Trichloroethene	9.47	0.20	ug/L	10.0	94.7	80-120	1.83	30		
1,2-Dichloropropane	9.67	0.20	ug/L	10.0	96.7	80-120	0.12	30		
Bromodichloromethane	9.93	0.20	ug/L	10.0	99.3	80-121	2.25	30		
Dibromomethane	9.71	0.20	ug/L	10.0	97.1	80-120	0.67	30		
2-Chloroethyl vinyl ether	9.73	1.00	ug/L	10.0	97.3	64-120	2.70	30		
4-Methyl-2-Pentanone	36.3	2.50	ug/L	50.0	72.6	67-133	0.17	30		Q
cis-1,3-Dichloropropene	8.62	0.20	ug/L	10.0	86.2	80-124	1.15	30		
Toluene	9.28	0.20	ug/L	10.0	92.8	80-120	0.17	30		
trans-1,3-Dichloropropene	7.73	0.20	ug/L	10.0	77.3	71-127	0.98	30		Q
2-Hexanone	55.1	5.00	ug/L	50.0	110	69-133	6.25	30		
1,1,2-Trichloroethane	9.77	0.20	ug/L	10.0	97.7	80-121	1.10	30		
1,3-Dichloropropane	10.7	0.10	ug/L	10.0	107	80-120	5.18	30		
Tetrachloroethene	9.30	0.20	ug/L	10.0	93.0	80-120	1.17	30		
Dibromochloromethane	8.76	0.20	ug/L	10.0	87.6	65-135	3.33	30		
1,2-Dibromoethane	8.70	0.10	ug/L	10.0	87.0	80-121	5.63	30		
Chlorobenzene	10.1	0.20	ug/L	10.0	101	80-120	1.70	30		
Ethylbenzene	9.83	0.20	ug/L	10.0	98.3	80-120	1.16	30		
1,1,1,2-Tetrachloroethane	8.62	0.20	ug/L	10.0	86.2	80-120	3.35	30		
m,p-Xylene	19.9	0.40	ug/L	20.0	99.5	80-121	1.80	30		
o-Xylene	10.2	0.20	ug/L	10.0	102	80-121	3.52	30		
Xylenes, total	30.1	0.60	ug/L	30.0	100	76-127	2.38	30		
Styrene	10.7	0.20	ug/L	10.0	107	80-124	2.51	30		
Bromoform	7.91	0.20	ug/L	10.0	79.1	51-134	0.83	30		Q
1,1,2,2-Tetrachloroethane	10.5	0.20	ug/L	10.0	105	77-123	1.53	30		
1,2,3-Trichloropropane	8.24	0.25	ug/L	10.0	82.4	76-125	0.56	30		
trans-1,4-Dichloro 2-Butene	9.84	1.00	ug/L	10.0	98.4	55-129	2.43	30		
n-Propylbenzene	11.0	0.20	ug/L	10.0	110	78-130	1.22	30		
Bromobenzene	10.1	0.20	ug/L	10.0	101	80-120	0.56	30		



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Reported:
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BKC0362 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BKC0362-BSD1)				Prepared: 15-Mar-2022 Analyzed: 15-Mar-2022 15:58						
Isopropyl Benzene	10.7	0.20	ug/L	10.0		107	80-128	0.91	30	
2-Chlorotoluene	10.0	0.10	ug/L	10.0		100	78-122	1.22	30	
4-Chlorotoluene	10.4	0.20	ug/L	10.0		104	80-121	0.61	30	
t-Butylbenzene	10.5	0.20	ug/L	10.0		105	78-125	0.86	30	
1,3,5-Trimethylbenzene	10.7	0.20	ug/L	10.0		107	80-129	1.64	30	
1,2,4-Trimethylbenzene	10.9	0.20	ug/L	10.0		109	80-127	3.04	30	
s-Butylbenzene	10.6	0.20	ug/L	10.0		106	78-129	0.78	30	
4-Isopropyl Toluene	10.9	0.20	ug/L	10.0		109	79-130	0.55	30	
1,3-Dichlorobenzene	10.2	0.20	ug/L	10.0		102	80-120	0.23	30	
1,4-Dichlorobenzene	9.94	0.20	ug/L	10.0		99.4	80-120	3.95	30	
n-Butylbenzene	11.2	0.20	ug/L	10.0		112	74-129	1.39	30	
1,2-Dichlorobenzene	10.2	0.20	ug/L	10.0		102	80-120	2.57	30	
1,2-Dibromo-3-chloropropane	9.67	0.50	ug/L	10.0		96.7	62-123	4.83	30	
1,2,4-Trichlorobenzene	10.3	0.50	ug/L	10.0		103	64-124	2.66	30	
Hexachloro-1,3-Butadiene	10.5	0.50	ug/L	10.0		105	58-123	6.53	30	B
Naphthalene	10.9	0.50	ug/L	10.0		109	50-134	2.89	30	
1,2,3-Trichlorobenzene	10.5	0.50	ug/L	10.0		105	49-133	0.32	30	
Dichlorodifluoromethane	11.0	0.20	ug/L	10.0		110	48-147	5.07	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	5.00		ug/L	5.00		99.9	80-129			
<i>Surrogate: Toluene-d8</i>	5.01		ug/L	5.00		100	80-120			
<i>Surrogate: 4-Bromofluorobenzene</i>	5.23		ug/L	5.00		105	80-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	5.05		ug/L	5.00		101	80-120			



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Reported:
31-Mar-2022 14:24

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0325 - 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 (BKC0325-BLK1)		Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 21:01								
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 BKC0325 - 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 (BKC0325-BLK1)										
Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 21:01										
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
<i>Surrogate: 2-Fluorophenol</i>	29.3		ug/L	37.5		78.1	33-120			
<i>Surrogate: Phenol-d5</i>	30.8		ug/L	37.5		82.0	38-120			
<i>Surrogate: 2-Chlorophenol-d4</i>	33.0		ug/L	37.5		88.0	41-120			



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Semivolatile Organic Compounds - Quality Control

Batch BKC0325 - 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 (BKC0325-BLK1)				Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 21:01						
Surrogate: 1,2-Dichlorobenzene-d4	20.3		ug/L	25.0	81.4		20-120			
Surrogate: Nitrobenzene-d5	21.7		ug/L	25.0	86.7		27-120			
Surrogate: 2-Fluorobiphenyl	23.1		ug/L	25.0	92.3		33-120			
Surrogate: 2,4,6-Tribromophenol	48.7		ug/L	37.5	130		52-120			* Q
Surrogate: p-Terphenyl-d14	25.6		ug/L	25.0	102		28-120			
LCS (BKC0325-BS1)				Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 21:35						
Phenol	17.3	1.0	ug/L	25.0	69.3		35-120			
bis(2-chloroethyl) ether	18.5	1.0	ug/L	25.0	74.0		46.5-120			
2-Chlorophenol	18.9	1.0	ug/L	25.0	75.8		48-120			
1,3-Dichlorobenzene	16.8	1.0	ug/L	25.0	67.4		34.2-120			
1,4-Dichlorobenzene	17.8	1.0	ug/L	25.0	71.2		36-120			
Benzyl Alcohol	20.2	2.0	ug/L	25.0	81.0		27.4-120			
1,2-Dichlorobenzene	17.6	1.0	ug/L	25.0	70.5		38.4-120			
2-Methylphenol	18.3	1.0	ug/L	25.0	73.4		47.8-120			
2,2'-Oxybis(1-chloropropane)	15.3	1.0	ug/L	25.0	61.1		40.4-120			Q
4-Methylphenol	19.6	2.0	ug/L	25.0	78.3		52.3-120			
N-Nitroso-di-n-Propylamine	17.8	1.0	ug/L	25.0	71.1		51.4-120			
Hexachloroethane	15.7	2.0	ug/L	25.0	62.7		29.5-120			
Nitrobenzene	19.7	1.0	ug/L	25.0	78.6		51.5-120			
Isophorone	26.0	1.0	ug/L	25.0	104		62.3-128			
2-Nitrophenol	24.3	3.0	ug/L	25.0	97.2		58.6-124			
2,4-Dimethylphenol	43.7	3.0	ug/L	65.0	67.3		38.5-120			
Bis(2-Chloroethoxy)methane	21.4	1.0	ug/L	25.0	85.8		52.9-120			
Benzoic acid	91.5	20.0	ug/L	115	79.6		38.2-120			
2,4-Dichlorophenol	54.0	3.0	ug/L	65.0	83.1		43.6-120			
1,2,4-Trichlorobenzene	18.8	1.0	ug/L	25.0	75.1		38.6-120			
Naphthalene	20.1	1.0	ug/L	25.0	80.2		40.5-120			
4-Chloroaniline	47.1	5.0	ug/L	65.0	72.5		42.7-120			
Hexachlorobutadiene	18.8	3.0	ug/L	25.0	75.1		32.3-120			
4-Chloro-3-Methylphenol	53.5	3.0	ug/L	65.0	82.3		51.9-120			
2-Methylnaphthalene	21.7	1.0	ug/L	25.0	87.0		47.3-120			
Hexachlorocyclopentadiene	38.5	5.0	ug/L	65.0	59.3		23.3-120			
2,4,6-Trichlorophenol	58.2	3.0	ug/L	65.0	89.5		47-120			
2,4,5-Trichlorophenol	57.2	5.0	ug/L	65.0	88.0		48.4-120			



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

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

Reported:
31-Mar-2022 14:24

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0325 - 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 (BKC0325-BS1)				Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 21:35						
2-Chloronaphthalene	21.6	1.0	ug/L	25.0		86.5	47.7-123			
2-Nitroaniline	48.5	3.0	ug/L	65.0		74.6	56.8-120			
Dimethylphthalate	24.6	1.0	ug/L	25.0		98.3	65.2-125			
Acenaphthylene	23.5	1.0	ug/L	25.0		94.0	44.1-120			
2,6-Dinitrotoluene	60.9	3.0	ug/L	65.0		93.8	69.3-140			
3-Nitroaniline	58.5	3.0	ug/L	65.0		90.0	60.9-120			
Acenaphthene	22.9	1.0	ug/L	25.0		91.5	50.4-120			
2,4-Dinitrophenol	154	20.0	ug/L	115		134	33.7-183			Q
Dibenzofuran	23.8	1.0	ug/L	25.0		95.3	49.9-120			
4-Nitrophenol	61.0	10.0	ug/L	65.0		93.8	50.2-136			
2,4-Dinitrotoluene	59.9	3.0	ug/L	65.0		92.1	66.8-132			
Fluorene	23.9	1.0	ug/L	25.0		95.6	57.8-120			
Diethyl phthalate	24.4	1.0	ug/L	25.0		97.5	68.1-120			
4-Chlorophenylphenyl ether	24.5	1.0	ug/L	25.0		97.9	59.1-127			
4-Nitroaniline	57.7	3.0	ug/L	65.0		88.8	56-122			
4,6-Dinitro-2-methylphenol	126	10.0	ug/L	115		109	37.9-162			Q
N-Nitrosodiphenylamine	22.1	1.0	ug/L	25.0		88.6	59.6-120			
4-Bromophenyl phenyl ether	24.2	1.0	ug/L	25.0		96.8	59.6-120			
Hexachlorobenzene	24.7	1.0	ug/L	25.0		99.0	53.7-120			
Pentachlorophenol	64.8	10.0	ug/L	65.0		99.7	40.3-128			
Phenanthrene	24.7	1.0	ug/L	25.0		98.7	58.8-120			
Anthracene	23.1	1.0	ug/L	25.0		92.4	60.5-120			
Carbazole	24.2	1.0	ug/L	25.0		97.0	59.7-120			
Di-n-Butylphthalate	24.5	1.0	ug/L	25.0		97.9	71-120			
Fluoranthene	24.6	1.0	ug/L	25.0		98.6	66.7-120			
Pyrene	21.4	1.0	ug/L	25.0		85.6	62.7-127			
Butylbenzylphthalate	23.3	1.0	ug/L	25.0		93.1	67.4-128			
Benzo(a)anthracene	25.7	1.0	ug/L	25.0		103	58.3-128			
3,3'-Dichlorobenzidine	141	5.0	ug/L	65.0		216	34.1-120			*, Q
Chrysene	23.8	1.0	ug/L	25.0		95.0	58.9-120			
bis(2-Ethylhexyl)phthalate	24.3	3.0	ug/L	25.0		97.2	68.3-123			
Di-n-Octylphthalate	25.6	1.0	ug/L	25.0		102	61.5-120			
Benzo(a)pyrene	22.5	1.0	ug/L	25.0		90.0	70.6-120			
Indeno(1,2,3-cd)pyrene	21.8	1.0	ug/L	25.0		87.1	46.5-120			
Dibenzo(a,h)anthracene	22.2	1.0	ug/L	25.0		88.7	49.6-120			



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

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

Reported:
31-Mar-2022 14:24

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0325 - 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 (BKC0325-BS1)				Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 21:35						
Benzo(g,h,i)perylene	20.7	1.0	ug/L	25.0		83.0	37-120			
Benzo(a)fluoranthene, Total	47.1	2.0	ug/L	50.0		94.2	66.5-120			
1-Methylnaphthalene	23.3	1.0	ug/L	25.0		93.1	46.9-120			
Surrogate: 2-Fluorophenol	27.3		ug/L	37.5		72.9	33-120			
Surrogate: Phenol-d5	28.9		ug/L	37.5		77.2	38-120			
Surrogate: 2-Chlorophenol-d4	30.8		ug/L	37.5		82.1	41-120			
Surrogate: 1,2-Dichlorobenzene-d4	18.9		ug/L	25.0		75.8	20-120			
Surrogate: Nitrobenzene-d5	20.4		ug/L	25.0		81.6	27-120			
Surrogate: 2-Fluorobiphenyl	22.6		ug/L	25.0		90.3	33-120			
Surrogate: 2,4,6-Tribromophenol	47.4		ug/L	37.5		126	52-120			* Q
Surrogate: p-Terphenyl-d14	24.5		ug/L	25.0		98.0	28-120			

LCS Dup (BKC0325-bsd1)				Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 22:08						
Phenol	17.6	1.0	ug/L	25.0		70.5	35-120	1.78	30	
bis(2-chloroethyl) ether	18.9	1.0	ug/L	25.0		75.5	46.5-120	2.06	30	
2-Chlorophenol	19.6	1.0	ug/L	25.0		78.3	48-120	3.28	30	
1,3-Dichlorobenzene	17.9	1.0	ug/L	25.0		71.7	34.2-120	6.26	30	
1,4-Dichlorobenzene	19.0	1.0	ug/L	25.0		76.2	36-120	6.75	30	
Benzyl Alcohol	20.9	2.0	ug/L	25.0		83.5	27.4-120	3.01	30	
1,2-Dichlorobenzene	18.9	1.0	ug/L	25.0		75.8	38.4-120	7.24	30	
2-Methylphenol	18.9	1.0	ug/L	25.0		75.7	47.8-120	3.10	30	
2,2'-Oxybis(1-chloropropane)	15.8	1.0	ug/L	25.0		63.3	40.4-120	3.52	30	Q
4-Methylphenol	20.1	2.0	ug/L	25.0		80.4	52.3-120	2.56	30	
N-Nitroso-di-n-Propylamine	18.5	1.0	ug/L	25.0		74.1	51.4-120	4.21	30	
Hexachloroethane	16.9	2.0	ug/L	25.0		67.4	29.5-120	7.21	30	
Nitrobenzene	20.5	1.0	ug/L	25.0		81.8	51.5-120	3.99	30	
Isophorone	27.0	1.0	ug/L	25.0		108	62.3-128	3.85	30	
2-Nitrophenol	26.2	3.0	ug/L	25.0		105	58.6-124	7.41	30	
2,4-Dimethylphenol	44.2	3.0	ug/L	65.0		68.0	38.5-120	1.01	30	
Bis(2-Chloroethoxy)methane	22.5	1.0	ug/L	25.0		90.2	52.9-120	5.03	30	
Benzoic acid	96.1	20.0	ug/L	115		83.6	38.2-120	4.94	30	
2,4-Dichlorophenol	56.0	3.0	ug/L	65.0		86.2	43.6-120	3.72	30	
1,2,4-Trichlorobenzene	20.3	1.0	ug/L	25.0		81.2	38.6-120	7.80	30	
Naphthalene	21.5	1.0	ug/L	25.0		85.8	40.5-120	6.75	30	
4-Chloroaniline	50.1	5.0	ug/L	65.0		77.1	42.7-120	6.23	30	



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

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

Reported:
31-Mar-2022 14:24

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0325 - 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 (BKC0325-BSD1)		Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 22:08								
Hexachlorobutadiene	20.1	3.0	ug/L	25.0		80.2	32.3-120	6.64	30	
4-Chloro-3-Methylphenol	55.3	3.0	ug/L	65.0		85.1	51.9-120	3.30	30	
2-Methylnaphthalene	22.8	1.0	ug/L	25.0		91.3	47.3-120	4.83	30	
Hexachlorocyclopentadiene	42.0	5.0	ug/L	65.0		64.5	23.3-120	8.54	30	
2,4,6-Trichlorophenol	59.7	3.0	ug/L	65.0		91.9	47-120	2.60	30	
2,4,5-Trichlorophenol	58.5	5.0	ug/L	65.0		90.0	48.4-120	2.29	30	
2-Chloronaphthalene	22.6	1.0	ug/L	25.0		90.4	47.7-123	4.41	30	
2-Nitroaniline	50.7	3.0	ug/L	65.0		78.0	56.8-120	4.38	30	
Dimethylphthalate	25.1	1.0	ug/L	25.0		101	65.2-125	2.27	30	
Acenaphthylene	24.3	1.0	ug/L	25.0		97.2	44.1-120	3.33	30	
2,6-Dinitrotoluene	64.1	3.0	ug/L	65.0		98.5	69.3-140	4.99	30	
3-Nitroaniline	61.0	3.0	ug/L	65.0		93.8	60.9-120	4.13	30	
Acenaphthene	23.9	1.0	ug/L	25.0		95.4	50.4-120	4.16	30	
2,4-Dinitrophenol	157	20.0	ug/L	115		136	33.7-183	1.75	30	Q
Dibenzofuran	24.5	1.0	ug/L	25.0		98.0	49.9-120	2.81	30	
4-Nitrophenol	63.2	10.0	ug/L	65.0		97.2	50.2-136	3.57	30	
2,4-Dinitrotoluene	62.1	3.0	ug/L	65.0		95.5	66.8-132	3.61	30	
Fluorene	24.6	1.0	ug/L	25.0		98.3	57.8-120	2.79	30	
Diethyl phthalate	24.8	1.0	ug/L	25.0		99.4	68.1-120	1.97	30	
4-Chlorophenylphenyl ether	25.4	1.0	ug/L	25.0		102	59.1-127	3.88	30	
4-Nitroaniline	59.2	3.0	ug/L	65.0		91.1	56-122	2.61	30	
4,6-Dinitro-2-methylphenol	130	10.0	ug/L	115		113	37.9-162	3.18	30	Q
N-Nitrosodiphenylamine	22.7	1.0	ug/L	25.0		91.0	59.6-120	2.69	30	
4-Bromophenyl phenyl ether	25.1	1.0	ug/L	25.0		100	59.6-120	3.77	30	
Hexachlorobenzene	26.2	1.0	ug/L	25.0		105	53.7-120	5.90	30	
Pentachlorophenol	70.4	10.0	ug/L	65.0		108	40.3-128	8.33	30	
Phenanthrene	26.2	1.0	ug/L	25.0		105	58.8-120	6.13	30	
Anthracene	23.9	1.0	ug/L	25.0		95.7	60.5-120	3.51	30	
Carbazole	24.7	1.0	ug/L	25.0		98.9	59.7-120	1.93	30	
Di-n-Butylphthalate	24.8	1.0	ug/L	25.0		99.3	71-120	1.50	30	
Fluoranthene	25.1	1.0	ug/L	25.0		100	66.7-120	1.68	30	
Pyrene	23.1	1.0	ug/L	25.0		92.2	62.7-127	7.45	30	
Butylbenzylphthalate	24.1	1.0	ug/L	25.0		96.5	67.4-128	3.66	30	
Benzo(a)anthracene	26.6	1.0	ug/L	25.0		107	58.3-128	3.51	30	
3,3'-Dichlorobenzidine	145	5.0	ug/L	65.0		224	34.1-120	3.46	30	*, Q



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

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

Reported:
31-Mar-2022 14:24

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKC0325 - 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 (BKC0325-BSD1)				Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 22:08						
Chrysene	24.6	1.0	ug/L	25.0		98.4	58.9-120	3.49	30	
bis(2-Ethylhexyl)phthalate	25.4	3.0	ug/L	25.0		102	68.3-123	4.60	30	
Di-n-Octylphthalate	26.1	1.0	ug/L	25.0		104	61.5-120	1.93	30	
Benzo(a)pyrene	23.0	1.0	ug/L	25.0		91.8	70.6-120	1.98	30	
Indeno(1,2,3-cd)pyrene	22.8	1.0	ug/L	25.0		91.1	46.5-120	4.43	30	
Dibenzo(a,h)anthracene	23.2	1.0	ug/L	25.0		92.7	49.6-120	4.42	30	
Benzo(g,h,i)perylene	22.2	1.0	ug/L	25.0		88.7	37-120	6.70	30	
Benzo(a)fluoranthene, Total	48.5	2.0	ug/L	50.0		97.0	66.5-120	2.92	30	
1-Methylnaphthalene	24.3	1.0	ug/L	25.0		97.3	46.9-120	4.44	30	
<i>Surrogate: 2-Fluorophenol</i>	26.7		ug/L	37.5		71.2	33-120			
<i>Surrogate: Phenol-d5</i>	28.9		ug/L	37.5		77.0	38-120			
<i>Surrogate: 2-Chlorophenol-d4</i>	30.5		ug/L	37.5		81.3	41-120			
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	19.4		ug/L	25.0		77.4	20-120			
<i>Surrogate: Nitrobenzene-d5</i>	20.6		ug/L	25.0		82.3	27-120			
<i>Surrogate: 2-Fluorobiphenyl</i>	22.5		ug/L	25.0		90.2	33-120			
<i>Surrogate: 2,4,6-Tribromophenol</i>	46.4		ug/L	37.5		124	52-120			* Q
<i>Surrogate: p-Terphenyl-d14</i>	24.3		ug/L	25.0		97.1	28-120			



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 14:24
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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BKC0324 - 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 (BKC0324-BLK1)				Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 13:12						
1,4-Dioxane	ND	0.4	ug/L							U
<i>Surrogate: 1,4-Dioxane-d8</i>	5.99		ug/L	10.0	59.9		33.6-120			
LCS (BKC0324-BS1)				Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 13:37						
1,4-Dioxane	4.5	0.4	ug/L	10.0	44.5		39.9-120			
<i>Surrogate: 1,4-Dioxane-d8</i>	6.49		ug/L	10.0	64.9		33.6-120			
LCS Dup (BKC0324-BSD1)				Prepared: 15-Mar-2022 Analyzed: 18-Mar-2022 14:03						
1,4-Dioxane	4.6	0.4	ug/L	10.0	45.9		39.9-120	3.13	30	
<i>Surrogate: 1,4-Dioxane-d8</i>	6.42		ug/L	10.0	64.2		33.6-120			



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 14:24
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Analysis by: Analytical Resources, LLC

Petroleum Hydrocarbons - Quality Control

Batch BKC0323 - EPA 3510C SepF

Instrument: FID4 Analyst: JR/VTS/JW

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0323-BLK1)		Prepared: 15-Mar-2022 Analyzed: 16-Mar-2022 20:33								
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: <i>o</i> -Terphenyl	0.240		mg/L	0.225	107		50-150			
Surrogate: <i>n</i> -Triacontane	0.259		mg/L	0.225	115		50-150			



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

Reported:
31-Mar-2022 14:24

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BKC0326 - EPA 3510C SepF

Instrument: ECD6 Analyst: YZ/VTS

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0326-BLK1)										
					Prepared: 15-Mar-2022 Analyzed: 30-Mar-2022 11:57					
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
<i>Surrogate: Decachlorobiphenyl</i>	0.395		ug/L	0.400		98.7	11-144			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	0.325		ug/L	0.400		81.3	11-144			
<i>Surrogate: Tetrachlorometaxylene</i>	0.269		ug/L	0.400		67.2	30-120			
<i>Surrogate: Tetrachlorometaxylene [2C]</i>	0.269		ug/L	0.400		67.3	30-120			

LCS (BKC0326-BS1)										
					Prepared: 15-Mar-2022 Analyzed: 30-Mar-2022 12:15					
alpha-BHC [2C]	0.180	0.025	ug/L	0.200		89.9	54-124			
beta-BHC [2C]	0.181	0.025	ug/L	0.200		90.3	53-123			
gamma-BHC (Lindane) [2C]	0.182	0.025	ug/L	0.200		91.2	53-127			
delta-BHC [2C]	0.161	0.025	ug/L	0.200		80.3	53-122			
Heptachlor [2C]	0.165	0.025	ug/L	0.200		82.5	50-120			
Aldrin [2C]	0.143	0.025	ug/L	0.200		71.6	47-120			
Heptachlor Epoxide [2C]	0.182	0.050	ug/L	0.200		90.8	50-127			
trans-Chlordane (beta-Chlordane) [2C]	0.163	0.025	ug/L	0.200		81.6	47-127			



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

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

Reported:
31-Mar-2022 14:24

Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BKC0326 - EPA 3510C SepF

Instrument: ECD6 Analyst: YZ/VTS

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BKC0326-BS1)		Prepared: 15-Mar-2022 Analyzed: 30-Mar-2022 12:15								
cis-Chlordane (alpha-chlordane) [2C]	0.176	0.025	ug/L	0.200		88.2	51-132			
Endosulfan I [2C]	0.182	0.025	ug/L	0.200		90.8	48-137			
4,4'-DDE [2C]	0.345	0.050	ug/L	0.400		86.4	47-133			
Dieldrin [2C]	0.345	0.050	ug/L	0.400		86.2	55-130			
Endrin [2C]	0.351	0.050	ug/L	0.400		87.8	52-121			
Endosulfan II [2C]	0.337	0.050	ug/L	0.400		84.3	60-120			
4,4'-DDD	0.372	0.050	ug/L	0.400		92.9	60-120			
Endrin Aldehyde	0.305	0.050	ug/L	0.400		76.2	53-120			
4,4'-DDT	0.356	0.050	ug/L	0.400		89.0	57-122			
Endosulfan Sulfate [2C]	0.350	0.050	ug/L	0.400		87.4	56-120			
Endrin Ketone	0.372	0.050	ug/L	0.400		92.9	61-120			
Methoxychlor [2C]	1.71	0.250	ug/L	2.00		85.4	55-120			
<i>Surrogate: Decachlorobiphenyl</i>	0.414		ug/L	0.400	104		11-144			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	0.347		ug/L	0.400	86.6		11-144			
<i>Surrogate: Tetrachlorometaxylene</i>	0.251		ug/L	0.400	62.8		30-120			
<i>Surrogate: Tetrachlorometaxylene [2C]</i>	0.281		ug/L	0.400	70.3		30-120			
LCS (BKC0326-BS2)		Prepared: 15-Mar-2022 Analyzed: 30-Mar-2022 12:33								
Toxaphene	7.91	1.25	ug/L	10.0		79.1	0-200			
<i>Surrogate: Decachlorobiphenyl</i>	0.328		ug/L	0.400	82.0		11-144			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	0.291		ug/L	0.400	72.6		11-144			
<i>Surrogate: Tetrachlorometaxylene</i>	0.215		ug/L	0.400	53.7		30-120			
<i>Surrogate: Tetrachlorometaxylene [2C]</i>	0.238		ug/L	0.400	59.5		30-120			
LCS Dup (BKC0326-BSD1)		Prepared: 15-Mar-2022 Analyzed: 30-Mar-2022 12:52								
alpha-BHC [2C]	0.176	0.025	ug/L	0.200		88.0	54-124	2.10	30	
beta-BHC [2C]	0.171	0.025	ug/L	0.200		85.6	53-123	5.31	30	
gamma-BHC (Lindane) [2C]	0.178	0.025	ug/L	0.200		88.9	53-127	2.61	30	
delta-BHC [2C]	0.157	0.025	ug/L	0.200		78.3	53-122	2.52	30	
Heptachlor [2C]	0.161	0.025	ug/L	0.200		80.3	50-120	2.70	30	
Aldrin [2C]	0.143	0.025	ug/L	0.200		71.7	47-120	0.13	30	
Heptachlor Epoxide [2C]	0.175	0.050	ug/L	0.200		87.7	50-127	3.50	30	
trans-Chlordane (beta-Chlordane) [2C]	0.160	0.025	ug/L	0.200		79.8	47-127	2.29	30	
cis-Chlordane (alpha-chlordane) [2C]	0.174	0.025	ug/L	0.200		86.8	51-132	1.64	30	



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 14:24
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Analysis by: Analytical Resources, LLC

Chlorinated Pesticides - Quality Control

Batch BKC0326 - EPA 3510C SepF

Instrument: ECD6 Analyst: YZ/VTS

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BKC0326-BSD1)		Prepared: 15-Mar-2022 Analyzed: 30-Mar-2022 12:52								
Endosulfan I [2C]	0.176	0.025	ug/L	0.200		88.1	48-137	3.03	30	
4,4'-DDE [2C]	0.329	0.050	ug/L	0.400		82.3	47-133	4.86	30	
Dieldrin	0.335	0.050	ug/L	0.400		83.8	55-130	1.96	30	
Endrin	0.330	0.050	ug/L	0.400		82.5	52-121	3.21	30	
Endosulfan II	0.334	0.050	ug/L	0.400		83.5	60-120	6.92	30	
4,4'-DDD	0.366	0.050	ug/L	0.400		91.6	60-120	1.44	30	
Endrin Aldehyde	0.321	0.050	ug/L	0.400		80.4	53-120	5.28	30	
4,4'-DDT	0.333	0.050	ug/L	0.400		83.2	57-122	6.75	30	
Endosulfan Sulfate [2C]	0.328	0.050	ug/L	0.400		82.0	56-120	6.44	30	
Endrin Ketone	0.370	0.050	ug/L	0.400		92.4	61-120	0.58	30	
Methoxychlor [2C]	1.59	0.250	ug/L	2.00		79.3	55-120	7.41	30	
Surrogate: Decachlorobiphenyl	0.355		ug/L	0.400		88.6	11-144			
Surrogate: Decachlorobiphenyl [2C]	0.296		ug/L	0.400		74.0	11-144			
Surrogate: Tetrachlorometaxylene	0.254		ug/L	0.400		63.5	30-120			
Surrogate: Tetrachlorometaxylene [2C]	0.274		ug/L	0.400		68.6	30-120			



Golder Associates
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Project: Landsburg
Project Number: Landsburg
Project Manager: Gary Zimmerman

Reported:
31-Mar-2022 14:24

Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BKC0371 - 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 (BKC0371-BLK1)										
					Prepared: 15-Mar-2022 Analyzed: 19-Mar-2022 21:55					
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
<i>Surrogate: Decachlorobiphenyl</i>	0.0131		ug/L	0.0200	65.3		29-120			
<i>Surrogate: Tetrachlorometaxylene</i>	0.0130		ug/L	0.0200	64.9		32-120			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	0.0131		ug/L	0.0200	65.4		29-120			
<i>Surrogate: Tetrachlorometaxylene [2C]</i>	0.0128		ug/L	0.0200	63.8		32-120			
LCS (BKC0371-BS1)										
					Prepared: 15-Mar-2022 Analyzed: 19-Mar-2022 22:17					
Aroclor 1016 [2C]	0.045	0.010	ug/L	0.0500		89.2	54-120			
Aroclor 1260	0.050	0.010	ug/L	0.0500		99.7	51-128			
<i>Surrogate: Decachlorobiphenyl</i>	0.0137		ug/L	0.0200	68.6		29-120			
<i>Surrogate: Tetrachlorometaxylene</i>	0.0142		ug/L	0.0200	71.1		32-120			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	0.0137		ug/L	0.0200	68.4		29-120			
<i>Surrogate: Tetrachlorometaxylene [2C]</i>	0.0140		ug/L	0.0200	69.9		32-120			
LCS Dup (BKC0371-BSD1)										
					Prepared: 15-Mar-2022 Analyzed: 19-Mar-2022 22:38					
Aroclor 1016	0.043	0.010	ug/L	0.0500		86.3	54-120	1.81	30	
Aroclor 1260	0.047	0.010	ug/L	0.0500		94.8	51-128	5.10	30	
<i>Surrogate: Decachlorobiphenyl</i>	0.0128		ug/L	0.0200	63.8		29-120			
<i>Surrogate: Tetrachlorometaxylene</i>	0.0135		ug/L	0.0200	67.7		32-120			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	0.0127		ug/L	0.0200	63.4		29-120			
<i>Surrogate: Tetrachlorometaxylene [2C]</i>	0.0131		ug/L	0.0200	65.5		32-120			



Golder Associates 18300 NE Union Hill Road Suite 200 Redmond WA, 98052-3333	Project: Landsburg Project Number: Landsburg Project Manager: Gary Zimmerman	Reported: 31-Mar-2022 14:24
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0321 - TWM EPA 7470A

Instrument: HYDRA Analyst: SKD

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0321-BLK1)					Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 14:22					
Mercury	ND	0.00100	mg/L							U
LCS (BKC0321-BS1)					Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 14:24					
Mercury	0.00170	0.00100	mg/L	0.00200		85.1	80-120			
Duplicate (BKC0321-DUP1)					Source: 22C0188-01 Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 15:46					
Mercury	ND	0.00100	mg/L		ND					U
Matrix Spike (BKC0321-MS1)					Source: 22C0188-01 Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 15:48					
Mercury	ND	0.00100	mg/L	0.00100	ND	81.3	75-125			U

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

Matrix Spike Dup (BKC0321-MSD1)					Source: 22C0188-01 Prepared: 14-Mar-2022 Analyzed: 16-Mar-2022 15:50					
Mercury	ND	0.00100	mg/L	0.00100	ND	83.7	75-125			U

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



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

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

Reported:
31-Mar-2022 14:24

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0545 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BKC0545-BLK1)		Prepared: 22-Mar-2022 Analyzed: 24-Mar-2022 17:17								
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
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
Blank (BKC0545-BLK2)		Prepared: 22-Mar-2022 Analyzed: 25-Mar-2022 16:09								
Cadmium	ND	0.0020	mg/L							U
Blank (BKC0545-BLK3)		Prepared: 22-Mar-2022 Analyzed: 28-Mar-2022 13:53								
Iron	ND	0.200	mg/L							U
LCS (BKC0545-BS1)		Prepared: 22-Mar-2022 Analyzed: 24-Mar-2022 17:06								
Aluminum	2.02	1.00	mg/L	2.00		101	80-120			
Barium	2.02	0.500	mg/L	2.00		101	80-120			
Beryllium	0.525	0.0100	mg/L	0.500		105	80-120			
Cadmium	0.546	0.0020	mg/L	0.500		109	80-120			
Calcium	9.97	0.500	mg/L	10.0		99.7	80-120			
Chromium	0.500	0.0100	mg/L	0.500		100	80-120			
Cobalt	0.546	0.0100	mg/L	0.500		109	80-120			
Copper	0.464	0.0030	mg/L	0.500		92.8	80-120			
Magnesium	10.5	0.500	mg/L	10.0		105	80-120			
Manganese	0.504	0.0100	mg/L	0.500		101	80-120			



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

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

Reported:
31-Mar-2022 14:24

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0545 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BKC0545-BS1)				Prepared: 22-Mar-2022 Analyzed: 24-Mar-2022 17:06						
Nickel	0.501	0.0100	mg/L	0.500		100	80-120			
Potassium	10.2	0.500	mg/L	10.0		102	80-120			
Silver	0.498	0.0050	mg/L	0.500		99.5	80-120			
Sodium	10.3	0.500	mg/L	10.0		103	80-120			
Sodium	ND	50.0	mg/L	10.0		108	80-120			U
Vanadium	0.487	0.0030	mg/L	0.500		97.5	80-120			
Zinc	0.509	0.0200	mg/L	0.500		102	80-120			
LCS (BKC0545-BS2)				Prepared: 22-Mar-2022 Analyzed: 25-Mar-2022 15:58						
Cadmium	0.559	0.0020	mg/L	0.500		112	80-120			
LCS (BKC0545-BS3)				Prepared: 22-Mar-2022 Analyzed: 28-Mar-2022 14:22						
Iron	2.03	0.200	mg/L	2.00		101	80-120			
Duplicate (BKC0545-DUP1)		Source: 22C0188-01		Prepared: 22-Mar-2022 Analyzed: 24-Mar-2022 17:20						
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	82.2	0.500	mg/L		81.0			1.48	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
Magnesium	41.6	0.500	mg/L		40.7			2.23	20	
Manganese	0.206	0.0100	mg/L		0.202			2.09	20	
Nickel	ND	0.0100	mg/L		ND					U
Potassium	2.32	0.500	mg/L		2.25			3.21	20	
Silver	ND	0.0050	mg/L		ND					U
Sodium	13.1	0.500	mg/L		12.8			2.00	20	
Sodium	ND	50.0	mg/L		ND					U
Vanadium	ND	0.0030	mg/L		ND					U
Zinc	ND	0.0200	mg/L		ND					U
Duplicate (BKC0545-DUP2)		Source: 22C0188-01		Prepared: 22-Mar-2022 Analyzed: 25-Mar-2022 16:12						
Cadmium	ND	0.0020	mg/L		ND					U



Golder Associates
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Project: Landsburg
Project Number: Landsburg
Project Manager: Gary Zimmerman

Reported:
31-Mar-2022 14:24

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0545 - TWC EPA 3010A

Instrument: ICP2 Analyst: SKD

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Duplicate (BKC0545-DUP3) Source: 22C0188-01 Prepared: 22-Mar-2022 Analyzed: 28-Mar-2022 14:07										
Iron	ND	0.200	mg/L		ND					U
Matrix Spike (BKC0545-MS1) Source: 22C0188-01 Prepared: 22-Mar-2022 Analyzed: 24-Mar-2022 17:26										
Aluminum	2.12	1.00	mg/L	2.00	ND	106	75-125			
Barium	2.36	0.500	mg/L	2.00	ND	106	75-125			
Beryllium	0.538	0.0100	mg/L	0.500	ND	108	75-125			
Cadmium	0.555	0.0020	mg/L	0.500	ND	111	75-125			
Calcium	92.2	0.500	mg/L	10.0	81.0	112	75-125			
Chromium	0.518	0.0100	mg/L	0.500	ND	104	75-125			
Cobalt	0.532	0.0100	mg/L	0.500	ND	106	75-125			
Copper	0.468	0.0030	mg/L	0.500	ND	93.6	75-125			
Magnesium	52.5	0.500	mg/L	10.0	40.7	118	75-125			
Manganese	0.740	0.0100	mg/L	0.500	0.202	108	75-125			
Nickel	0.506	0.0100	mg/L	0.500	ND	101	75-125			
Potassium	13.1	0.500	mg/L	10.0	2.25	109	75-125			
Silver	0.508	0.0050	mg/L	0.500	ND	102	75-125			
Sodium	24.1	0.500	mg/L	10.0	12.8	113	75-125			
Sodium	ND	50.0	mg/L	10.0	ND	107	75-125			U
Vanadium	0.499	0.0030	mg/L	0.500	ND	99.8	75-125			
Zinc	0.518	0.0200	mg/L	0.500	ND	104	75-125			

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

Matrix Spike (BKC0545-MS2) Source: 22C0188-01 Prepared: 22-Mar-2022 Analyzed: 25-Mar-2022 16:18										
Cadmium	0.572	0.0020	mg/L	0.500	ND	114	75-125			

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

Matrix Spike (BKC0545-MS3) Source: 22C0188-01 Prepared: 22-Mar-2022 Analyzed: 28-Mar-2022 14:13										
Iron	2.31	0.200	mg/L	2.00	ND	107	75-125			

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

Matrix Spike Dup (BKC0545-MSD1) Source: 22C0188-01 Prepared: 22-Mar-2022 Analyzed: 24-Mar-2022 17:29										
Aluminum	2.06	1.00	mg/L	2.00	ND	103	75-125	2.64	20	
Barium	2.29	0.500	mg/L	2.00	ND	102	75-125	3.21	20	
Beryllium	0.525	0.0100	mg/L	0.500	ND	105	75-125	2.54	20	
Cadmium	0.533	0.0020	mg/L	0.500	ND	107	75-125	4.05	20	
Calcium	89.0	0.500	mg/L	10.0	81.0	80.1	75-125	3.55	20	



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

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

Reported:
31-Mar-2022 14:24

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0545 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BKC0545-MSD1)		Source: 22C0188-01		Prepared: 22-Mar-2022		Analyzed: 24-Mar-2022 17:29				
Chromium	0.509	0.0100	mg/L	0.500	ND	102	75-125	1.79	20	
Cobalt	0.511	0.0100	mg/L	0.500	ND	102	75-125	4.17	20	
Copper	0.454	0.0030	mg/L	0.500	ND	90.9	75-125	2.93	20	
Magnesium	50.8	0.500	mg/L	10.0	40.7	101	75-125	3.26	20	
Manganese	0.718	0.0100	mg/L	0.500	0.202	103	75-125	3.04	20	
Nickel	0.496	0.0100	mg/L	0.500	ND	99.2	75-125	1.98	20	
Potassium	12.7	0.500	mg/L	10.0	2.25	105	75-125	3.03	20	
Silver	0.494	0.0050	mg/L	0.500	ND	98.8	75-125	2.83	20	
Sodium	23.4	0.500	mg/L	10.0	12.8	106	75-125	2.82	20	
Sodium	ND	50.0	mg/L	10.0	ND	105	75-125			U
Vanadium	0.484	0.0030	mg/L	0.500	ND	96.8	75-125	3.01	20	
Zinc	0.504	0.0200	mg/L	0.500	ND	101	75-125	2.72	20	

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

Matrix Spike Dup (BKC0545-MSD2)		Source: 22C0188-01		Prepared: 22-Mar-2022		Analyzed: 25-Mar-2022 16:21				
Cadmium	0.558	0.0020	mg/L	0.500	ND	112	75-125	2.45	20	

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

Matrix Spike Dup (BKC0545-MSD3)		Source: 22C0188-01		Prepared: 22-Mar-2022		Analyzed: 28-Mar-2022 14:18				
Iron	2.26	0.200	mg/L	2.00	ND	104	75-125	2.18	20	

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



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

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

Reported:
31-Mar-2022 14:24

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0564 - 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 (BKC0564-BLK1)			Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 19:58								
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
Blank (BKC0564-BLK2)			Prepared: 23-Mar-2022 Analyzed: 24-Mar-2022 17:46								
Antimony	121	ND	0.00300	mg/L							U
Antimony	123	ND	0.00300	mg/L							U
LCS (BKC0564-BS1)			Prepared: 23-Mar-2022 Analyzed: 23-Mar-2022 20:03								
Lead	208	0.0251	0.0100	mg/L	0.0250		100	80-120			
Thallium	205	0.0265	0.00200	mg/L	0.0250		106	80-120			
Arsenic	75a	0.0246	0.00300	mg/L	0.0250		98.4	80-120			
Selenium	78	0.0799	0.0250	mg/L	0.0800		99.8	80-120			
LCS (BKC0564-BS2)			Prepared: 23-Mar-2022 Analyzed: 24-Mar-2022 17:51								
Antimony	121	0.0248	0.00300	mg/L	0.0250		99.3	80-120			
Antimony	123	0.0248	0.00300	mg/L	0.0250		99.2	80-120			
Duplicate (BKC0564-DUP1)			Source: 22C0188-02			Prepared: 23-Mar-2022 Analyzed: 24-Mar-2022 00:00					
Lead	208	ND	0.0100	mg/L		ND					U
Thallium	205	ND	0.00200	mg/L		ND					U
Arsenic	75a	ND	0.00300	mg/L		ND					U
Selenium	78	ND	0.0250	mg/L		ND					U
Duplicate (BKC0564-DUP2)			Source: 22C0188-02			Prepared: 23-Mar-2022 Analyzed: 24-Mar-2022 19:30					
Antimony	121	ND	0.00300	mg/L		ND					U
Matrix Spike (BKC0564-MS1)			Source: 22C0188-02			Prepared: 23-Mar-2022 Analyzed: 24-Mar-2022 00:06					
Lead	208	0.0266	0.0100	mg/L	0.0250	ND	106	75-125			
Thallium	205	0.0279	0.00200	mg/L	0.0250	ND	112	75-125			
Arsenic	75a	0.0255	0.00300	mg/L	0.0250	ND	99.2	75-125			
Selenium	78	0.0767	0.0250	mg/L	0.0800	ND	95.8	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike (BKC0564-MS2)			Source: 22C0188-02			Prepared: 23-Mar-2022 Analyzed: 24-Mar-2022 19:35					



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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BKC0564 - 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 (BKC0564-MS2)			Source: 22C0188-02		Prepared: 23-Mar-2022		Analyzed: 24-Mar-2022 19:35				
Antimony	121	0.0246	0.00300	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 (BKC0564-MSD1)			Source: 22C0188-02		Prepared: 23-Mar-2022		Analyzed: 24-Mar-2022 00:12				
Lead	208	0.0260	0.0100	mg/L	0.0250	ND	104	75-125	2.43	20	
Thallium	205	0.0272	0.00200	mg/L	0.0250	ND	109	75-125	2.68	20	
Arsenic	75a	0.0256	0.00300	mg/L	0.0250	ND	99.8	75-125	0.56	20	
Selenium	78	0.0774	0.0250	mg/L	0.0800	ND	96.8	75-125	1.01	20	

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

Matrix Spike Dup (BKC0564-MSD2)			Source: 22C0188-02		Prepared: 23-Mar-2022		Analyzed: 24-Mar-2022 19:41				
Antimony	121	0.0258	0.00300	mg/L	0.0250	ND	103	75-125	4.64	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 6010D 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
EPA 7470A in Water	
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8081B in Water	
alpha-BHC	DoD-ELAP,NELAP,WADOE
alpha-BHC [2C]	DoD-ELAP,NELAP,WADOE
beta-BHC	DoD-ELAP,NELAP,WADOE
beta-BHC [2C]	DoD-ELAP,NELAP,WADOE
gamma-BHC (Lindane)	DoD-ELAP,NELAP,WADOE
gamma-BHC (Lindane) [2C]	DoD-ELAP,NELAP,WADOE



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



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

EPA 8082A in Water

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



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EPA 8260D in Water

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



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

EPA 8270E in Water

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



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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
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



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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
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
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



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Redmond WA, 98052-3333

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

Reported:
31-Mar-2022 14:24

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

EPA 8270E-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	03/28/2023
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022



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Reported:
31-Mar-2022 14:24

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
- E The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
- J Estimated concentration value detected below the reporting limit.
- P The reported value is greater than 25% difference between the concentrations determined on two GC columns where applicable.
- P1 The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
- 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.

APPENDIX C

Sample Integrity Data Sheets (SIDS)

SAMPLE INTEGRITY DATA SHEET

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

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

Sampling Location Groundwater Monitoring Well - end dedicated sampling tube

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

Type of Sampler New Tubing and Peristaltic Pump

Date March 10, 2022 **Time** 10:20

Media Water **Station** LMW-8

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

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

Static Water Level: 3.40 ft BTOC

Screened Interval: 8' - 13' BGS

Sand Pack Interval: 6' - 13' BGS

Packer Depth: N/A

Sample Description small orange flecks, no odor, no sheen

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

Aliquot Amount	Analysis	Container	Preservation / Amount
3-40 mL	VOA	VOA vial	HCl
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl
2-1000 mL	PCBs	Glass amber	None
2-1000 mL	Pesticides	Glass amber	None
2-1000 mL	SVOCs	Glass amber	None
2-500 mL	1,4-dioxane	500 mL amber bottles	None

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-8

Date 03/10/2022

Time Begin Purge 09:36

Time Collect Sample 10:20

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
3.40	09:40	8.59	65.5	13.3	10.56	136	273
4.61	09:45	6.66	349.5	9.8	2.13	-28.2	77.5
5.03	09:50	6.45	346	9.8	1.73	-46.6	48.6
5.11	09:55	6.39	345	9.8	1.6	-54.1	39.7
5.13	10:00	6.39	347.1	10.1	1.54	-57.9	31.9
5.10	10:05	6.4	346.1	10.2	1.51	-59.6	33.0
5.01	10:10	6.4	348.7	10.3	1.67	-58.8	24.4
5.05	10:15	6.41	346.2	10.2	1.7	-56.7	19.0

Comments:

small orange flecks.

Grundfos: N/A

Packer: N/A


Tank: N/A

Throttle: N/A

CPM: N/A

CID: N/A

Flow Rate: 250 mL/min

Sampler 

Date March 10, 2022

Supervisor 

Date March 14, 2022

SAMPLE INTEGRITY DATA SHEET

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

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

Sampling Location Groundwater Monitoring Well - end dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date March 10, 2022 **Time** 12:35

Media Water **Station** LMW-9

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

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

Static Water Level: 98.41 ft BTOC

Screened Interval: 149' - 159' BGS

Sand Pack Interval: 143.5' - 159' BGS

Packer Depth: N/A

Sample Description Clear, no odor, no sheen

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

Aliquot Amount	Analysis	Container	Preservation / Amount
3-40 mL	VOA	VOA vial	HCl
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl
2-1000 mL	PCBs	Glass amber	None
2-1000 mL	Pesticides	Glass amber	None
2-1000 mL	SVOCs	Glass amber	None
2-500 mL	1,4-dioxane	500 mL amber bottles	None

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-9

Date 03/10/2022

Time Begin Purge 12:00

Time Collect Sample 12:35

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
98.41	12:05	7.08	491.1	10.3	4.73	88.3	5.83
98.45	12:10	6.97	490.3	10.4	3.21	37.3	1.53
98.41	12:15	6.91	488.7	10.5	1.76	-28.9	1.27
98.45	12:20	6.90	488.3	10.6	1.57	-37.7	2.43
98.45	12:25	6.90	488.7	10.6	1.48	-41.6	2.14
98.42	12:30	6.90	487.5	10.6	1.41	-45.0	0.60

Comments:

N/A

Grundfos: N/A

Packer: N/A

Tank: 130

Throttle: 95

CPM: 2

CID: 51

Flow Rate: 250 mL/min

Sampler 

Date March 10, 2022

Supervisor 

Date March 14, 2022

SAMPLE INTEGRITY DATA SHEET

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

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

Sampling Location Groundwater Monitoring Well - end dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date March 10, 2022 **Time** 14:25

Media Water **Station** LMW-3

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

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

Static Water Level: 11.21 ft BTOC

Screened Interval: 49.8' - 64.8' BGS

Sand Pack Interval: 47.1' - 64.8' BGS

Packer Depth: 39.33' BGS

Sample Description Clear, no odor, no sheen

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

Aliquot Amount	Analysis	Container	Preservation / Amount
3-40 mL	VOA	VOA vial	HCl
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl
2-1000 mL	PCBs	Glass amber	None
2-1000 mL	Pesticides	Glass amber	None
2-1000 mL	SVOCs	Glass amber	None
2-500 mL	1,4-dioxane	500 mL amber bottles	None

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-3

Date 03/10/2022

Time Begin Purge 13:25

Time Collect Sample 14:25

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
14.01	13:30	7.53	233	11.2	2.75	74	1.08
16.12	13:35	7.52	237.6	11.3	2.45	71.7	0.68
16.00	13:40	7.55	240.6	11.4	1.46	66.5	0.45
15.85	13:45	7.59	240.7	11.5	1.22	55.6	0.46
16.30	13:50	7.62	239.7	11.4	1.47	37	0.38
16.51	13:55	7.65	240.3	11.3	1.47	25.4	0.39
16.95	14:00	7.67	240.8	11.3	1.4	-0.6	0.55
17.50	14:05	7.67	241.5	11.3	1.21	-13.4	0.81

Comments:

N/A

Grundfos: ~135 Hz

Packer: 130 psi

Tank: N/A

Throttle: N/A

CPM: N/A

CID: N/A

Flow Rate: 2000 mL/min

Sampler 

Date March 10, 2022

Supervisor 

Date March 14, 2022

SAMPLE INTEGRITY DATA SHEET

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

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

Sampling Location Groundwater Monitoring Well - end dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date March 10, 2022 **Time** 15:45

Media Water **Station** LMW-5

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

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

Static Water Level: 12.8 ft BTOC

Screened Interval: 231.8' - 241.8' BGS

Sand Pack Interval: 231.8' - 241.8' BGS

Packer Depth: 222.11' BGS

Sample Description Clear, no odor, no sheen

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

Aliquot Amount	Analysis	Container	Preservation / Amount
3-40 mL	VOA	VOA vial	HCl
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl
2-1000 mL	PCBs	Glass amber	None
2-1000 mL	Pesticides	Glass amber	None
2-1000 mL	SVOCs	Glass amber	None
2-500 mL	1,4-dioxane	500 mL amber bottles	None

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-5

Date 03/10/2022

Time Begin Purge 15:20

Time Collect Sample 15:45

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
12.80	15:25	6.77	509	10.8	1.25	-17.6	6.11
12.80	15:30	6.77	510	10.9	1.22	-19.5	2.49
12.78	15:35	6.77	509	10.9	1.13	-27.3	3.79
12.79	15:40	6.78	508	10.9	1.12	-29.0	3.85

Comments:

N/A

Grundfos: ~135 Hz

Packer: 110 psi

Tank: N/A

Throttle: N/A

CPM: N/A

CID: N/A

Flow Rate: 1950 mL/min

Sampler 

Date March 10, 2022

Supervisor 

Date March 14, 2022

SAMPLE INTEGRITY DATA SHEET

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

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

Sampling Location Groundwater Monitoring Well - end dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date March 9, 2022 **Time** 18:40

Media Water **Station** LMW-6

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

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

Static Water Level: 20.9 ft BTOC

Screened Interval: 90.9' - 105.9' BGS

Sand Pack Interval: 82.5' - 105.9' BGS

Packer Depth: 81.22' BGS

Sample Description Clear, no odor, no sheen

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

Aliquot Amount	Analysis	Container	Preservation / Amount
3-40 mL	VOA	VOA vial	HCl
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl
2-1000 mL	PCBs	Glass amber	None
2-1000 mL	Pesticides	Glass amber	None
2-1000 mL	SVOCs	Glass amber	None
2-500 mL	1,4-dioxane	500 mL amber bottles	None

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-6

Date 03/09/2022

Time Begin Purge 18:00

Time Collect Sample 18:40

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
26.27	18:05	6.97	180.8	9.3	2.76	22.8	6.04
30.60	18:11	6.68	183.5	9.7	1.51	18.4	3.93
30.70	18:15	6.62	184.2	9.7	1.32	9.8	3.22
30.60	18:20	6.59	185.9	9.8	1.20	-3.1	2.01
30.80	18:25	6.58	186.1	9.7	1.13	-11.7	2.77
30.95	18:30	6.57	186.0	9.7	1.08	-17.2	1.85
31.10	18:35	6.56	186.0	9.7	1.05	-19.0	1.10

Comments:

N/A

Grundfos: 180 Hz

Packer: 110 psi

Tank: N/A

Throttle: N/A

CPM: N/A

CID: N/A

Flow Rate: 1500 mL/min

Sampler 

Date March 9, 2022

Supervisor 

Date March 14, 2022

SAMPLE INTEGRITY DATA SHEET

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

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

Sampling Location Groundwater Monitoring Well - end dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date March 9, 2022 **Time** 09:35

Media Water **Station** LMW-14

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

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

Static Water Level: 163.69 ft BTOC

Screened Interval: 156.5' - 172.3' BGS

Sand Pack Interval: 152.5' - 175.8' BGS

Packer Depth: N/A

Sample Description Clear, no odor, no sheen

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

Aliquot Amount	Analysis	Container	Preservation / Amount
3-40 mL	VOA	VOA vial	HCl
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl
2-1000 mL	PCBs	Glass amber	None
2-1000 mL	Pesticides	Glass amber	None
2-1000 mL	SVOCs	Glass amber	None
2-500 mL	1,4-dioxane	500 mL amber bottles	None

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-14

Date 03/09/2022

Time Begin Purge 09:00

Time Collect Sample 09:35

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
163.69	09:00	7.14	1,255	10.4	4.16	22	3.94
163.90	09:05	6.29	1,860	10.3	1.57	-36.6	11.4
163.80	09:10	6.22	1,823	10.2	1.33	-41.9	9.93
164.20	09:15	6.19	1,759	10.2	1.28	-44	7.1
164.19	09:20	6.18	1,687	10.2	1.15	-45	7.14
164.19	09:25	6.18	1,635	10.4	1.18	-45	9.79
164.19	09:30	6.18	1,568	10.2	1.14	-44.9	7.35
164.19	09:35	6.18	1,543	10.2	1.12	-44.9	5.63

Comments:

N/A

Grundfos: N/A

Packer: N/A

Tank: 140

Throttle: 115

CPM: 2

CID: 49

Flow Rate: 400 mL/min

Sampler 

Date March 9, 2022

Supervisor 

Date March 14, 2022

SAMPLE INTEGRITY DATA SHEET

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

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

Sampling Location Groundwater Monitoring Well - end dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date March 9, 2022 **Time** 11:30

Media Water **Station** LMW-11

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

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

Static Water Level: 156.25 ft BTOC

Screened Interval: 696' - 707' BGS

Sand Pack Interval: 688' - 707' BGS

Packer Depth: N/A

Sample Description Clear, no odor, no sheen

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

Aliquot Amount	Analysis	Container	Preservation / Amount
3-40 mL	VOA	VOA vial	HCl
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl
2-1000 mL	PCBs	Glass amber	None
2-1000 mL	Pesticides	Glass amber	None
2-1000 mL	SVOCs	Glass amber	None
2-500 mL	1,4-dioxane	500 mL amber bottles	None

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-11

Date 03/09/2022

Time Begin Purge 10:45

Time Collect Sample 11:30

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
156.25	10:45	7.61	394.5	10.1	9.9	30.7	1.09
165.26	10:50	7.06	406	10.1	2.87	-13.7	1.08
156.23	10:55	7.01	406.2	10.1	2.06	-24.4	0.81
156.23	11:00	9.97	414	10.2	1.69	-35.2	0.87
156.26	11:05	6.98	417.2	10.3	1.52	-44.6	1.36
156.23	11:10	6.98	416	10.2	1.39	-49	1.33
156.23	11:15	6.98	415	10.2	1.32	-51.6	1.23
156.23	11:20	6.98	414	10.3	1.27	-54	1.19
156.23	11:25	6.98	414.2	10.3	1.25	-55.4	1.68

Comments:

N/A

Grundfos: N/A

Packer: N/A

Tank: 130

Throttle: 110

CPM: 1

CID: 15

Flow Rate: 300 mL/min

Sampler 

Date March 9, 2022

Supervisor 

Date March 14, 2022

SAMPLE INTEGRITY DATA SHEET

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

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

Sampling Location Groundwater Monitoring Well - end dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date March 9, 2022 **Time** 13:50

Media Water **Station** LMW-15

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

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

Static Water Level: 150.00 ft BTOC

Screened Interval: 235' - 245' BGS

Sand Pack Interval: 231' - 245' BGS

Packer Depth: N/A

Sample Description Clear, no odor, no sheen

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

Aliquot Amount	Analysis	Container	Preservation / Amount
3-40 mL	VOA	VOA vial	HCl
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl
2-1000 mL	PCBs	Glass amber	None
2-1000 mL	Pesticides	Glass amber	None
2-1000 mL	SVOCs	Glass amber	None
2-500 mL	1,4-dioxane	500 mL amber bottles	None

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-15

Date 03/09/2022

Time Begin Purge 13:10

Time Collect Sample 13:50

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
150.00	13:10	7.15	357.2	9.6	2.75	-88	3.40
150.00	13:20	7.13	360	9.6	2.21	-98	5.76
150.00	13:25	7.12	364	9.5	1.89	-106.3	4.21
150.00	13:30	7.12	365.7	9.5	1.73	-111.3	3.00
150.00	13:30	7.12	367.5	9.5	1.52	-117.9	4.00
150.00	13:35	7.13	368.2	9.5	1.46	-120	2.87
150.00	13:40	7.14	370	9.5	1.33	-124.7	3.54
150.00	13:45	7.15	370.6	9.5	1.26	-127.3	2.88
150.00	13:50	7.16	371	9.5	1.24	-128	3.08

Comments:

N/A

Grundfos: N/A

Packer: N/A


Tank: 130

Throttle: 95

CPM: 2

CID: 53

Flow Rate: 525 mL/min

Sampler 

Date March 9, 2022

Supervisor 

Date March 14, 2022

SAMPLE INTEGRITY DATA SHEET

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

Site Location Ravensdale, WA **Sample ID** LMW-10

Sampling Location Groundwater Monitoring Well - end dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date March 8, 2022 **Time** 09:30

Media Water **Station** LMW-10

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

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

Static Water Level: 0.20 ft BTOC

Screened Interval: 267' - 289' BGS

Sand Pack Interval: 258' - 289' BGS

Packer Depth: N/A

Sample Description Clear, no odor, no sheen

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

Aliquot Amount	Analysis	Container	Preservation / Amount
3-40 mL	VOA	VOA vial	HCl
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl
2-1000 mL	PCBs	Glass amber	None
2-1000 mL	Pesticides	Glass amber	None
2-1000 mL	SVOCs	Glass amber	None
2-500 mL	1,4-dioxane	500 mL amber bottles	None

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-10

Date 03/08/2022

Time Begin Purge 08:30

Time Collect Sample 09:30

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
1.3	08:30	8.32	268.2	9.3	2.07	78.4	0.48
0.3	08:40	8.06	265.9	9.3	1.34	25	0.45
2.2	08:45	8.05	265.8	9.3	1.19	-40.9	0.39
2.83	08:50	8.06	265.8	9.3	1.12	-90.2	0.48
3.57	08:55	8.07	266.2	9.3	1.08	-114.6	0.19
4.12	09:00	8.08	266.3	9.4	1.06	-130	0.28
4.66	09:05	8.09	266.5	9.4	1.03	-142.8	0.14
5.26	09:10	8.1	266.4	9.4	1.05	-149.2	0.39
5.81	09:15	8.12	266.5	9.4	1.02	-159.8	0.53
6.25	09:20	8.13	266.6	9.4	1.01	-163.9	0.32
6.75	09:25	8.14	266.7	9.4	1.00	-167.9	0.25

Comments:

N/A

Grundfos: N/A

Packer: N/A

Tank: 110

Throttle: 40


CPM: 2

CID: 50

Flow Rate: 350 mL/min

Sampler 

Date March 8, 2022

Supervisor 

Date March 14, 2022

SAMPLE INTEGRITY DATA SHEET

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

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

Sampling Location Groundwater Monitoring Well - end dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date March 8, 2022 **Time** 11:30

Media Water **Station** LMW-13R

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

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

Static Water Level: 4.83 ft BTOC

Screened Interval: 115' - 140' BGS

Sand Pack Interval: 110' - 150' BGS

Packer Depth: N/A

Sample Description Clear, no odor, no sheen

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

Aliquot Amount	Analysis	Container	Preservation / Amount
3-40 mL	VOA	VOA vial	HCl
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl
2-1000 mL	PCBs	Glass amber	None
2-1000 mL	Pesticides	Glass amber	None
2-1000 mL	SVOCs	Glass amber	None
2-500 mL	1,4-dioxane	500 mL amber bottles	None

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-13R

Date 03/08/2022

Time Begin Purge 11:05

Time Collect Sample 11:30

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
4.83	11:05	6.94	682	9.8	1.51	-69	0.40
4.90	11:10	6.92	682	9.8	1.38	-75	0.45
4.82	11:15	6.92	681	9.8	1.21	-83.4	0.45
4.82	11:20	6.93	680	9.8	1.13	-89.3	0.53
4.82	11:25	6.94	679	9.8	1.09	-91	0.58

Comments:

N/A

Grundfos: N/A

Packer: N/A

Tank: 110

Throttle: 35

CPM: 2

CID: 48

Flow Rate: 500 mL/min

Sampler 

Date March 8, 2022

Supervisor 

Date March 14, 2022

SAMPLE INTEGRITY DATA SHEET

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

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

Sampling Location Groundwater Monitoring Well - end dedicated sampling tube

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

Type of Sampler Dedicated QED Bladder

Date March 8, 2022 **Time** 14:40

Media Water **Station** LMW-12

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

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

Static Water Level: 4.10 ft BTOC

Screened Interval: 15' - 25' BGS

Sand Pack Interval: 11' - 25' BGS

Packer Depth: N/A

Sample Description Clear, no odor, no sheen

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

Aliquot Amount	Analysis	Container	Preservation / Amount
3-40 mL	VOA	VOA vial	HCl
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl
2-1000 mL	PCBs	Glass amber	None
2-1000 mL	Pesticides	Glass amber	None
2-1000 mL	SVOCs	Glass amber	None
2-500 mL	1,4-dioxane	500 mL amber bottles	None

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-12

Date 03/08/2022

Time Begin Purge 14:00

Time Collect Sample 14:40

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
4.15	14:10	6.47	627	9.9	1.32	-56.2	5.43
4.10	14:20	6.44	624	10	1.15	-59.7	6.16
4.13	14:25	6.44	622	10	1.09	-62.1	4.86
4.11	14:30	6.44	617	10	1.05	-64.5	5.55
4.10	14:35	6.44	616	10	1.02	-66	3.24

Comments:

N/A

Grundfos: N/A

Packer: N/A

Tank: 110

Throttle: 20

CPM: 2

CID: 47

Flow Rate: 400 mL/min

Sampler 

Date March 8, 2022

Supervisor 

Date March 14, 2022

SAMPLE INTEGRITY DATA SHEET

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

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

Sampling Location Groundwater Monitoring Well - end dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date March 8, 2022 **Time** 17:30

Media Water **Station** LMW-7

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

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

Static Water Level: 222.4 ft BTOC

Screened Interval: 239.6' - 253.7' BGS

Sand Pack Interval: N/A

Packer Depth: N/A

Sample Description Clear, no odor, no sheen

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

Aliquot Amount	Analysis	Container	Preservation / Amount
3-40 mL	VOA	VOA vial	HCl
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl
2-1000 mL	PCBs	Glass amber	None
2-1000 mL	Pesticides	Glass amber	None
2-1000 mL	SVOCs	Glass amber	None
2-500 mL	1,4-dioxane	500 mL amber bottles	None

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-7

Date 03/08/2022

Time Begin Purge 16:25

Time Collect Sample 17:30

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
222.4	16:25	7.05	355	9.7	5.14	84	64
222.4	16:30	7.09	355.6	10	2.31	82.1	35.4
222.4	16:40	7.11	358.4	10.3	2.06	79.2	29.8
222.4	16:45	7.12	360	10.4	1.85	75.5	40
222.4	16:50	7.13	362.3	10.6	1.8	72	31.5
222.4	16:55	7.14	371.4	11.4	1.84	64.1	22.7
222.4	17:00	7.13	393	13.4	1.69	42.5	11.6
222.7	17:05	7.14	405.8	14.4	1.49	-1.6	7.39
222.4	17:10	7.15	407.5	14.6	1.45	-15	7.42
222.4	17:15	7.15	409	14.7	1.4	-26.6	6.62
222.4	17:20	7.16	411.1	14.8	1.32	-42.7	5.43
222.4	17:25	7.16	411.9	14.9	1.3	-46.8	5.18
222.8	17:30	7.16	416	15	1.25	-52	4.33

Comments:

N/A

Grundfos: 320 Hz

Packer: N/A

Tank: N/A

Throttle: N/A

CPM: N/A

CID: N/A

Flow Rate: 1200 mL/min

Sampler 

Date March 8, 2022

Supervisor 

Date March 14, 2022

SAMPLE INTEGRITY DATA SHEET

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

Site Location Ravensdale, WA **Sample ID** LMW-2

Sampling Location Groundwater Monitoring Well - end dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date March 7, 2022 **Time** 11:15

Media Water **Station** LMW-2

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

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

Static Water Level: 5.91 ft BTOC

Screened Interval: 27.9' - 38.1' BGS

Sand Pack Interval: 24.8' - 38.1' BGS

Packer Depth: N/A

Sample Description Clear, slight sulfur odor, no sheen

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

Aliquot Amount	Analysis	Container	Preservation / Amount
6-40 mL	VOA	VOA vial	HCl
2-500 mL	Total Metals	HDPE	HNO3
2-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
8-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
4-40 mL	TPH-Gx (HOLD)	VOA vial	HCl
4-1000 mL	PCBs	Glass amber	None
4-1000 mL	Pesticides	Glass amber	None
4-1000 mL	SVOCs	Glass amber	None
4-500 mL	1,4-dioxane	500 mL amber bottles	None

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-2

Date 03/07/2022

Time Begin Purge 09:50

Time Collect Sample 11:15

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
5.92	09:55	6.65	750	10.5	1.8	33.6	1.25
5.95	10:00	6.43	751	10.7	1.3	-21.7	2.27
5.94	10:05	6.41	750	10.7	1.18	-42.9	1.68
5.94	10:10	6.41	750	10.8	1.11	-53.0	3.51
5.91	10:15	6.43	748	10.8	1.04	-62.5	4.10
5.91	10:20	6.44	746	10.8	1.01	-65.6	2.76
5.91	10:30	6.45	746	10.8	0.99	-66.9	2.73

Comments:

Duplicate LMW-2-0322-D collected 1120

Grundfos: ~80 Hz

Packer: N/A

Tank: N/A

Throttle: N/A

CPM: N/A

CID: N/A

Flow Rate: 1700 mL/min

Sampler 

Date March 7, 2022

Supervisor 

Date March 14, 2022

SAMPLE INTEGRITY DATA SHEET

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

Site Location Ravensdale, WA **Sample ID** LMW-4

Sampling Location Groundwater Monitoring Well - end dedicated sampling tube

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

Type of Sampler Dedicated Pump Grundfos

Date March 7, 2022 **Time** 13:20

Media Water **Station** LMW-4

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

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

Static Water Level: 7.87 ft BTOC

Screened Interval: 195' - 209.7' BGS

Sand Pack Interval: 189' - 209.7' BGS

Packer Depth: 187.3' BGS

Sample Description Clear, no odor, no sheen

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

Aliquot Amount	Analysis	Container	Preservation / Amount
3-40 mL	VOA	VOA vial	HCl
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl
2-1000 mL	PCBs	Glass amber	None
2-1000 mL	Pesticides	Glass amber	None
2-1000 mL	SVOCs	Glass amber	None
2-500 mL	1,4-dioxane	500 mL amber bottles	None

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-4

Date 03/07/2022

Time Begin Purge 12:52

Time Collect Sample 13:20

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
7.87	12:52	6.91	722	10.2	2.64	-30.9	1.26
7.78	13:00	6.62	726	10.4	1.42	-49.9	1.55
7.79	13:10	6.59	726	10.4	1.2	-65	1.56
7.79	13:15	6.59	725	10.4	1.13	-68	0.97
7.79	13:20	6.59	722	10.5	0.99	-79.3	2.72

Comments:

N/A

Grundfos: 80 Hz

Packer: 110 psi

Tank: N/A

Throttle: N/A

CPM: N/A

CID: N/A

Flow Rate: 900 mL/min

Sampler 

Date March 7, 2022

Supervisor 

Date March 14, 2022

SAMPLE INTEGRITY DATA SHEET

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

Site Location Ravensdale, WA **Sample ID** LMW-FB-0322

Sampling Location Direct pour/end of dedicated sampling tube

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

Type of Sampler Direct Pour/Peristaltic Pump with New Tubing

Date March 8, 2022 **Time** 13:30

Media Lab provided DI **Station** LMW-12

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

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

Static Water Level: N/A

Screened Interval: N/A

Sand Pack Interval: N/A

Packer Depth: N/A

Sample Description Lab-provided DI water poured directly into sample containers.

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

Aliquot Amount	Analysis	Container	Preservation / Amount
3-40 mL	VOA	VOA vial	HCl
1-500 mL	Total Metals	HDPE	HNO3
1-500 mL	Dissolved Metals	HDPE	HNO3 + field filter
4-500 mL	TPH-HCID, -Dx (HOLD)	Glass amber	None
2-40 mL	TPH-Gx (HOLD)	VOA vial	HCl
2-1000 mL	PCBs	Glass amber	None
2-1000 mL	Pesticides	Glass amber	None
2-1000 mL	SVOCs	Glass amber	None
2-500 mL	1,4-dioxane	500 mL amber bottles	None

SAMPLE INTEGRITY DATA SHEET

Well ID LMW-FB


Date 03/08/2022

Time Begin Purge N/A

Time Collect Sample 13:30

Water Level (ft bmp)	Time	pH	Cond. (uS/cm)	Temp (°C)	DO (mg/L)	ORP (rel mV)	Turbidity (NTU)
Parameters not applicable.							

Comments:
Lab provided DI water.
Grundfos: N/A
Packer: N/A
Tank: N/A
Throttle: N/A
CPM: N/A
CID: N/A
Flow Rate: N/A mL/min

Sampler 

Date March 8, 2022

Supervisor 

Date March 14, 2022

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