

ANNUAL PROGRESS REPORT 2020

TACOMA FACILITY

TACOMA, WASHINGTON

April 15, 2021

CleanEarth●

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1. DESCRIPTION OF WORK COMPLETED

This Annual Progress Report was prepared to document the corrective action activities conducted in 2020 and to present the results of the sampling activities conducted in the second quarter of 2020 for the Burlington Environmental LLC. (Burlington) Tacoma Facility located at 1701 Alexander Avenue in the City of Tacoma, Washington (the “Facility”). This report was prepared in accordance with the requirements of Section E of the Facility’s Dangerous Waste Permit (Permit No. WAD 020 257 945) (the “Permit”), reissued in March 2012 for the period of March 22, 2012 through March 22, 2022.

A revised Long Term Groundwater Monitoring Plan (GWMP) was submitted to Ecology in October 2011 for review and was included as Section I-5 in the RCRA Part B Permit Application in December 2011, which is a part of the revised permit effective through March 22, 2022. The GWMP was revised with minor changes in May 2019 to update names and reflect abandonment of several groundwater monitoring wells and Ecology approved the revised plan via email on June 3, 2019 for inclusion in the permit.

The GWMP requires groundwater sampling during the second quarter of each year and requires that groundwater level measurements are taken in the second and fourth quarters. Well inspections are required every quarter.

This report, therefore, relates information on the second quarter 2020 Groundwater Monitoring event and the second and fourth quarter 2020 groundwater level measurements.

1.1. Personnel Changes

The responsibilities of former Corrective Actions Project Manager Greg Fink transitioned to Laura Dell’Olio midway through 2020.

1.2. Second and Fourth Quarter 2020 Liquid-Level Measurements and LNAPL Recovery

Groundwater monitoring was conducted at the Tacoma facility during the second and fourth quarters on June 8, 2020 and again on December 2, 2020. Some wells located on the “Potter” property could not be accessed during the June 8, 2020 event due to a lapse in access with the property owner.

Field activities included gauging the depth to groundwater, and where present, the depth to LNAPL. Water level measurements were recorded at the following monitoring points:

- Monitoring points that are part of the routine groundwater program:
 - Facility groundwater-monitoring wells: CTMW-1, CTMW-5, CTMW-7 through CTMW- 10, CTMW-12, CTMW-14, CTMW-17, CTMW-17D, CTMW-18, CTMW-24, and CTMW-24D. CTMW-15, CTMW-20 and CTMW-25D were not measured in June 2020 due to a lapsed access agreement.
 - Potter Property well: MW-1 was not measured in June 2020 due to a lapsed access agreement and could not be measured in December due to debris over well.
 - Facility piezometers: PZ-1, PZ-5, PZ-7, PZ-8, and PZ-9.

- Piezometers associated with the Interim Measure:
 - LNAPL-interceptor trench piezometers: TP-6 through TP-10 were not measured in June 2020 due to a lapsed access agreement. TP-7 was not measured in December 2020 due to truck trailers blocking access to the piezometers.
- Monitoring points added to the semiannual groundwater gauging program at the request of Ecology:
 - Three shallow-aquifer monitoring wells (SB-1A, SB-2A and SB-3A) on the Port of Tacoma property that abuts the Facility on the west.
 - Three monitoring well nests (CCW-2, CCW-3 and CCW-5) on the CleanCare property that abuts the Facility on the east.
- In addition, groundwater elevation data from the adjacent property owner was obtained for the following wells:
 - Monitoring wells (EMW-1, EMW-2R, EMW-3R and EMW-4) located on the Emerald Services, Inc. (Emerald) property located southeast of the Facility.

1.3. Second Quarter 2020 Groundwater Sampling

As part of the second quarter 2020 groundwater monitoring event, groundwater samples were collected from 11 groundwater monitoring wells in Burlington's monitoring network on June 9 -10, 2020. Three wells on the Potter Property (CTMW-15, CTMW-20, and CTMW-25D) were unable to be sampled during the second quarter groundwater monitoring event due to a lapse in access with the property owner. Once access was obtained, these wells were sampled on November 9, 2020. Fifteen wells are identified in the 2019 GWMP; a total of 14 wells were sampled in 2020. Well CTMW-11R was abandoned in 2013 and has therefore not been sampled since.

Prior to sampling, personnel purged each well. During purging, the following groundwater stabilization criteria were monitored: flow rate; volume purged; water temperature; dissolved oxygen; turbidity; specific conductivity; redox potential; pH; and pump speed. Attachment A provides a summary of these and other measurements taken in the field during sampling. When the field parameter measurements indicated that the groundwater quality in the well had stabilized, groundwater samples were collected into laboratory-provided sample containers, and placed in a cooler with ice.

The groundwater samples were submitted to an independent laboratory [ALS Environmental (ALS)] for analysis. The sampling program includes analysis of: volatile organic compounds (VOCs); one semi-volatile organic compound (SVOC), 1,4-dioxane; gasoline-range organics (GRO) as total petroleum hydrocarbons (TPH); diesel-range organics (DRO) and lube oil-range organics (LRO); total metals from unfiltered samples and, when necessary, dissolved from filtered samples.

1.4. Other Activities

The Final Data Gaps Work Plan for the Taylor Way and Alexander Avenue Fill Area Site (TWAAFA), which encompasses the Tacoma facility, was submitted to Ecology in July 20, 2020. Ecology accepted the Data Gaps Work Plan and issued the Agreed Order DE 14260 for the TWAAFA site, which includes the Burlington property, on December 4, 2020.

Burlington changed data validators in 2020. The groundwater samples collected on June 9 and 10, 2020 were validated by James Mc Ateer of QA/QC Data Solutions, LLC. The samples collected on November 9, 2020 were validated by Cari Saylor of Saylor Data Solutions, Inc.

2. SUMMARY OF FINDINGS

2.1. Second Quarter 2020

2.1.1. INTERIM MEASURE

The results of the Interim Measure activities are summarized below:

Upon completion of the water level measurement activities, personnel attempted to recover LNAPL from all wells with measurable LNAPL using a peristaltic pump and disposable tubing. The following documents the LNAPL recovery effort conducted during the second quarter field work on June 8, 2020:

- CTMW-1: Purged approximately 80 milliliter (ml) of product
- CTMW-10: No LNAPL present; did not purge
- PZ-1: Purged approximately 80 ml of product
- MW-1: Not accessible due to a lapsed access agreement

The following documents the LNAPL recovery effort conducted during the fourth quarter field work on December 2, 2020:

- CTMW-1: Trace of LNAPL; did not purge
- CTMW-10: No LNAPL present; did not purge
- PZ-1: Trace of LNAPL; did not purge
- MW-1: Unable to access due to scrap metal covering the well.

The gauging data associated with the Interim Measure are presented in Table 1.

2.1.2. HYDROGEOLOGIC RESULTS

On June 8 and December 2, 2020 groundwater monitoring activities were conducted that included gauging the depth to groundwater from selected wells. The depth to groundwater, LNAPL thickness, and the calculated groundwater elevations are summarized in Table 1.

The results of the second quarter 2020 gauging activities are summarized below:

Second Quarter 2020*Shallow Aquifer*

- A groundwater elevation contour map for the shallow-aquifer monitoring points is presented in Figure 2. The groundwater contours indicate the presence of a mound in the groundwater elevation surface near the central portion of the Facility.
- LNAPL was detected in some of the wells and piezometers tested; see Section 2.1.1 for recovery volumes. Only 160 ml of LNAPL was recovered from the wells in the second quarter. Monitoring points and the historic extent of LNAPL are documented in Table 1 and illustrated on Figure 3.

Deep Aquifer

- The deep aquifer beneath the Facility is influenced by tidal fluctuations in Commencement Bay. To obtain representative estimates of deep-aquifer groundwater elevations, hydraulic gradients, and groundwater flow rates; the deep-aquifer water-level measurements are completed within a period of less than four hours. The depth to groundwater and the calculated groundwater elevations at the deep-aquifer monitoring points for these measurements are summarized in Table 1.
- The deep-aquifer groundwater-elevation contours indicate that the direction of groundwater flow during the monitoring period is generally flat with very slight flow to the south. The groundwater elevation contours for the deep-aquifer monitoring points are illustrated on Figure 4.

Fourth Quarter 2020*Shallow Aquifer*

- The calculated groundwater elevation contours for the shallow-aquifer monitoring points are illustrated on Figure 5. The groundwater contours indicate the presence of a mound in the groundwater elevation surface near the central portion of the Facility.
- LNAPL was detected in some of the wells and piezometers tested; however due to only traces of LNAPL, no LNAPL was recovered from the wells. Monitoring points and the historic extent of LNAPL are documented in Table 1 and illustrated on Figure 6.

Deep Aquifer

- The depth to groundwater and the calculated groundwater elevations at the deep-aquifer monitoring points for these measurements are summarized in Table 1.
- The deep-aquifer groundwater elevation contours indicate that groundwater flow during the monitoring period is generally flat and flows slightly to the southwest. The groundwater elevation contours for the deep-aquifer monitoring points are illustrated on Figure 7.

2.1.3. GROUNDWATER SAMPLING RESULTS

Personnel conducted groundwater sampling activities on June 9-10 and on November 9, 2020. The groundwater samples collected from select wells were submitted to the project laboratory (ALS) for laboratory analysis. ALS analyzed the samples and prepared reports documenting the results. Copies of the analytical reports are provided in Attachment B.

The groundwater analytical results were reviewed and validated by QA/QC Solutions, LLC. (QA/QC Solutions) for the June 9-10, 2020 sampling event. QA/QC Solutions' data validation report indicated the following:

- Overall, the data are of good quality; 41 results were qualified as estimated (J), 32 results reported as detected and were restated as undetected (U), 5 results reported as detected were restated as undetected and estimated (UJ); and no results were rejected (R).

The groundwater analytical results were reviewed and validated by Saylor Data Solutions, LLC. (QA/QC Solutions) for the November 9, 2020 sampling event. Saylor Data Solutions' data validation report indicated the following:

- Less than 10% of the results required data qualification including: 1 result was qualified as estimated (J), 5 results reported as detected were restated as undetected (U), 7 results reported as detected were restated as undetected and estimated (UJ); and no results were rejected (R).

Copies of the validation reports are provided in Attachment C.

The laboratory analytical results and the data validation qualifiers are summarized in Tables 2 through 7.

The lowest of the Washington State Model Toxics Control Act (MTCA) Method A and Method B groundwater cleanup levels (CULs) were compared to the groundwater analytical results in the attached tables and are summarized below for both the June and November sampling events.

- Concentrations of 1,4-dioxane were detected in excess of the minimum CUL in both shallow and deep aquifer wells CTMW-7, CTMW-9, CTMW-15, CTMW-18, CTMW-24D, and CTMW-25D. The laboratory analytical results and minimum CUL for 1,4-dioxane are presented in Table 3.
- GRO, DRO, and LRO were not detected in excess of their minimum CULs. However, the laboratory reporting limit (RL) for lube oil range organics was reported as slightly higher than the CUL of 500 ug/L – ranging from 500 to 530 ug/L. The laboratory analytical results for petroleum hydrocarbons are presented in Table 4.
- Concentrations of arsenic were detected in excess of its minimum CUL in all of the groundwater samples with a high of 0.0392 mg/L at CTMW-5. The laboratory analytical results for total metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc) are presented in Table 5.
- Groundwater samples are no longer routinely analyzed for dissolved metals, unless turbidity stabilizes at a reading of 5 NTU or greater during purging. During the second quarter 2020, turbidity measurements stabilized at levels less than 5 NTU in all the wells tested on site except for CTMW-14. Dissolved metal concentrations were below the minimum CUL at this well, except for arsenic, and are presented in Table 6.

2.1.4. SAMPLING PROBLEMS ENCOUNTERED

Six VOCs and one petroleum hydrocarbon had reporting limits above their applicable MTCA cleanup criteria but only three of these had method detection limits that also exceeded the MTCA criteria (see Table 7). The petroleum hydrocarbon was Lube Oil and the VOCs included: 1,2,3-trichloropropane, acrolein, acrylonitrile, cis-1,3-dichloropropene, methacrylonitrile, and trans-1,3-Dichloropropene.

2.1.5. TOTAL WELL DEPTHS

Annually, total well depths are measured to determine if sediment has accumulated and redevelopment is recommended, in accordance with the Groundwater Monitoring Plan. Total depths were measured in December 2020. No wells had notable sedimentation during annual sounding nor have they shown increased turbidity or decreased flow rates during sampling and therefore no wells are recommended for development. Well inspections were performed quarterly (Attachment D).

3. PROJECTED WORK FOR THE NEXT REPORTING PERIOD

The next progress report will be submitted to Ecology for the Tacoma Facility on April 15, 2022, per the GWMP. The report will include a summary of all annual activities, including the quarterly well assessments, the second quarter 2021 groundwater sampling, and the second and fourth quarter 2021 groundwater level measurements.

The projected corrective action activities for the next reporting period are summarized below:

Personnel plan to conduct second quarter 2021 groundwater-monitoring event in May 2021. As part of the second quarter 2021 groundwater-sampling event, personnel will measure water levels (and where appropriate, LNAPL thicknesses) at monitoring wells and piezometers in the network. Groundwater samples collected during the event will be sent to Agriculture & Priority Pollutants Laboratories, Inc. for laboratory analysis. Laboratory data will be reviewed and validated by Saylor Data Solutions, Inc.

Discussions between Burlington and Ecology regarding the TWAAFA Agreed Order and sampling under the Data Gaps Work Plan are expected to occur before the second quarter 2021 groundwater monitoring event which may lead to changes in the sampling and reporting schedule stated above.

TABLES

PERIOD: From 06/08/2020 thru 12/02/2020 - Inclusive

Site ID	Date	Measuring Point Elevation (feet)	Time	Depth To Water (feet)	LNAPL Thickness (feet)	Potentiometric Surface Elevation (feet)	Change in Groundwater Elevation (feet)	Freshwater Head Surface Elevation (feet)
CCW-2A	6/8/2020	12.22	11:04	4.16	0.00	8.06	NA	8.06
CCW-2A	12/2/2020	12.22	10:03	3.46	0.00	8.76	0.70	8.76
CCW-2B	6/8/2020	12.12	11:06	3.92	0.00	8.20	NA	8.20
CCW-2B	12/2/2020	12.12	10:05	3.00	0.00	9.12	0.92	9.12
CCW-2C	6/8/2020	12.06	11:02	9.32	0.00	2.74	NA	2.74
CCW-2C	12/2/2020	12.06	10:01	9.45	0.00	2.61	-0.13	2.61
CCW-3A	6/8/2020	13.75	11:12	5.10	0.00	8.65	NA	8.65
CCW-3A	12/2/2020	13.75	10:10	4.50	0.00	9.25	0.60	9.25
CCW-3B	6/8/2020	14.11	11:10	5.81	0.00	8.30	NA	8.30
CCW-3B	12/2/2020	14.11	10:08	4.98	0.00	9.13	0.83	9.13
CCW-3C	6/8/2020	15.68	11:14	12.84	0.00	2.84	NA	2.84
CCW-3C	12/2/2020	15.68	10:12	13.05	0.00	2.63	-0.21	2.63
CCW-5B	6/8/2020	12.62	00:00	NM	NA	NA	NA	NA
CCW-5B	12/2/2020	12.62	00:00	NM	NA	NA	NA	NA
CCW-5C	6/8/2020	12.40	00:00	NM	NA	NA	NA	NA
CCW-5C	12/2/2020	12.40	00:00	NM	NA	NA	NA	NA
CTMW-1	6/8/2020	13.43	12:30	5.27	0.02	8.16	NA	8.18
CTMW-1	12/2/2020	13.43	11:27	4.89	0.00	8.54	0.38	8.54
CTMW-10	6/8/2020	12.80	12:28	4.25	0.00	8.55	NA	8.55
CTMW-10	12/2/2020	12.80	11:22	3.84	0.00	8.96	0.41	8.96
CTMW-12	6/8/2020	18.29	11:38	15.60	0.00	2.69	NA	2.69
CTMW-12	12/2/2020	18.29	09:50	16.00	0.00	2.29	-0.40	2.29
CTMW-14	6/8/2020	13.13	11:27	7.40	0.00	5.73	NA	5.73
CTMW-14	12/2/2020	13.13	09:43	3.55	0.00	9.58	3.85	9.58
CTMW-15	6/8/2020	13.28	00:00	NM	NA	NA	NA	NA
CTMW-15	12/2/2020	13.28	10:46	5.95	0.00	7.33	-5.95	7.33
CTMW-17	6/8/2020	19.32	11:35	9.85	0.00	9.47	NA	9.47
CTMW-17	12/2/2020	19.32	09:55	8.80	0.00	10.52	1.05	10.52

Elevations based on Datum NAVD88
NM = Not Measured, D = Dry Well

PERIOD: From 06/08/2020 thru 12/02/2020 - Inclusive

Site ID	Date	Measuring Point Elevation (feet)	Time	Depth To Water (feet)	LNAPL Thickness (feet)	Potentiometric Surface Elevation (feet)	Change in Groundwater Elevation (feet)	Freshwater Head Surface Elevation (feet)
CTMW-17D	6/8/2020	16.64	11:32	13.88	0.00	2.76	NA	2.76
CTMW-17D	12/2/2020	16.64	09:53	14.15	0.00	2.49	-0.27	2.49
CTMW-18	6/8/2020	19.36	12:06	9.52	0.00	9.84	NA	9.84
CTMW-18	12/2/2020	19.36	10:58	8.65	0.00	10.71	0.87	10.71
CTMW-20	6/8/2020	11.03	00:00	NM	NA	NA	NA	NA
CTMW-20	12/2/2020	11.03	10:52	2.80	0.00	8.23	-2.80	8.23
CTMW-24	6/8/2020	16.35	11:54	7.83	0.00	8.52	NA	8.52
CTMW-24	12/2/2020	16.35	10:31	6.43	0.00	9.92	1.40	9.92
CTMW-24D	6/8/2020	16.39	11:56	13.72	0.00	2.67	NA	2.67
CTMW-24D	12/2/2020	16.39	10:33	14.00	0.00	2.39	-0.28	2.39
CTMW-25D	6/8/2020	13.06	00:00	NM	NA	NA	NA	NA
CTMW-25D	12/2/2020	13.06	10:48	10.64	0.00	2.42	-10.64	2.42
CTMW-5	6/8/2020	14.10	12:03	5.84	0.00	8.26	NA	8.26
CTMW-5	12/2/2020	14.10	10:55	5.18	0.00	8.92	0.66	8.92
CTMW-7	6/8/2020	14.75	11:20	12.14	0.00	2.61	NA	2.61
CTMW-7	12/2/2020	14.75	09:40	12.40	0.00	2.35	-0.26	2.35
CTMW-8	6/8/2020	14.77	11:25	6.01	0.00	8.76	NA	8.76
CTMW-8	12/2/2020	14.77	09:47	5.62	0.00	9.15	0.39	9.15
CTMW-9	6/8/2020	14.38	11:23	11.72	0.00	2.66	NA	2.66
CTMW-9	12/2/2020	14.38	09:45	12.05	0.00	2.33	-0.33	2.33
EMW-1	6/8/2020	10.84	11:25	2.90	0.00	7.94	NA	7.94
EMW-1	12/2/2020	10.84	12:22	2.92	0.00	7.92	-0.02	7.92
EMW-2	6/8/2020	10.44	11:15	2.87	0.00	7.57	NA	7.57
EMW-2	12/2/2020	10.44	12:50	2.83	0.00	7.61	0.04	7.61
EMW-3R	6/8/2020	11.15	11:50	5.20	0.00	5.95	NA	5.95
EMW-3R	12/2/2020	11.15	13:05	4.97	0.00	6.18	0.23	6.18
EMW-4	6/8/2020	10.60	11:40	3.12	0.00	7.48	NA	7.48

Elevations based on Datum NAVD88
NM = Not Measured, D = Dry Well

PERIOD: From 06/08/2020 thru 12/02/2020 - Inclusive

Site ID	Date	Measuring Point Elevation (feet)	Time	Depth To Water (feet)	LNAPL Thickness (feet)	Potentiometric Surface Elevation (feet)	Change in Groundwater Elevation (feet)	Freshwater Head Surface Elevation (feet)
EMW-4	12/2/2020	10.60	12:51	2.95	0.00	7.65	0.17	7.65
MW-1	6/8/2020	10.84	00:00	NM	NA	NA	NA	NA
MW-1	12/2/2020	10.84	00:00	NM	NA	NA	NA	NA
PZ-1	6/8/2020	13.79	12:48	3.79	0.04	10.00	NA	10.04
PZ-1	12/2/2020	13.79	11:30	1.10	0.00	12.69	2.69	12.69
PZ-5	6/8/2020	12.86	11:59	4.40	0.00	8.46	NA	8.46
PZ-5	12/2/2020	12.86	10:18	4.00	0.00	8.86	0.40	8.86
PZ-7	6/8/2020	20.97	11:50	12.29	0.00	8.68	NA	8.68
PZ-7	12/2/2020	20.97	10:28	11.94	0.00	9.03	0.35	9.03
PZ-8	6/8/2020	14.84	11:47	8.16	0.00	6.68	NA	6.68
PZ-8	12/2/2020	14.84	10:25	8.11	0.00	6.73	0.05	6.73
PZ-9	6/8/2020	15.55	11:44	7.05	0.00	8.50	NA	8.50
PZ-9	12/2/2020	15.55	10:22	6.45	0.00	9.10	0.60	9.10
SB-1A	6/8/2020	12.34	12:14	5.30	0.00	7.04	NA	7.04
SB-1A	12/2/2020	12.34	11:08	4.71	0.00	7.63	0.59	7.63
SB-2A	6/8/2020	11.91	12:17	5.75	0.00	6.16	NA	6.16
SB-2A	12/2/2020	11.91	11:12	5.25	0.00	6.66	0.50	6.66
SB-3A	6/8/2020	13.58	12:11	5.02	0.00	8.56	NA	8.56
SB-3A	12/2/2020	13.58	11:04	4.16	0.00	9.42	0.86	9.42
TP-10	6/8/2020	10.62	00:00	NM	NA	NA	NA	NA
TP-10	12/2/2020	10.62	10:43	2.10	0.00	8.52	-2.10	8.52
TP-6	6/8/2020	10.69	00:00	NM	NA	NA	NA	NA
TP-6	12/2/2020	10.69	10:37	2.10	0.00	8.59	-2.10	8.59
TP-7	6/8/2020	9.89	00:00	NM	NA	NA	NA	NA
TP-7	12/2/2020	9.89	00:00	NM	NA	NA	NA	NA
TP-8	6/8/2020	10.32	00:00	NM	NA	NA	NA	NA
TP-8	12/2/2020	10.32	10:39	1.75	0.00	8.57	-1.75	8.57

Elevations based on Datum NAVD88
NM = Not Measured, D = Dry Well



Table 1
Groundwater Elevation Data and LNAPL Thickness
January through December 2020
CleanEarth Tacoma Facility

PERIOD: From 06/08/2020 thru 12/02/2020 - Inclusive

Site ID	Date	Measuring Point Elevation (feet)	Time	Depth To Water (feet)	LNAPL Thickness (feet)	Potentiometric Surface Elevation (feet)	Change in Groundwater Elevation (feet)	Freshwater Head Surface Elevation (feet)
TP-9	6/8/2020	10.21	00:00	NM	NA	NA	NA	NA
TP-9	12/2/2020	10.21	10:41	1.70	0.00	8.51	-1.70	8.51

Elevations based on Datum NAVD88
NM = Not Measured, D = Dry Well



Table 2
 Volatile Organic Compounds in Groundwater
 2020 Annual Report
 CleanEarth Tacoma Facility

PERIOD: From 06/09/2020 thru 11/09/2020 - Inclusive
 SAMPLE TYPE: Water

Site	Date / Time	Sample Depth	1,1,1,2-Tetra chloroethane (ug/l)	Lab Quals	Expert Qual	1,1,1-Tri- chloroethane (ug/l)	Lab Quals	Expert Qual	1,1,2,2,-Tetra chloroethane (ng/l)	Lab Qual	Expert Qual	1,1,2-Tri- chloroethane (ug/l)	Lab Quals	Expert Qual
MTCA A & B Minimum Level			1.6827			200			220			0.7675		
CTMW-12	06/10/2020 - 09:47	26.000	<0.50	U		<0.50	U		<20	U		<0.50	U	
CTMW-14	06/09/2020 - 10:02	8.000	<0.50	U		<0.50	U		<20	U		<0.50	U	
CTMW-15	11/09/2020 - 09:44	10.000	<0.5	U		<0.5	U		<20	U		<0.5	U	
CTMW-17	06/09/2020 - 12:54	13.700	<0.50	U		<0.50	U		<20	U		<0.50	U	
CTMW-17D	06/09/2020 - 13:34	28.000	<0.50	U		<0.50	U		<20	U		<0.50	U	
CTMW-18	06/10/2020 - 12:55	12.400	<0.50	U		<0.50	U		<20	U		<0.50	U	
CTMW-20	11/09/2020 - 12:04	6.600	<0.5	U		<0.5	U		<20	U		<0.5	U	
CTMW-24	06/10/2020 - 10:34	10.500	<0.50	U		<0.50	U		<20	U		<0.50	U	
CTMW-24D	06/10/2020 - 11:09	24.000	<0.50	U		<0.50	U		<20	U		<0.50	U	
CTMW-25D	11/09/2020 - 11:05	19.700	<0.5	U		<0.5	U		<20	U		<0.5	U	
CTMW-5	06/10/2020 - 09:08	9.950	<0.50	U		<0.50	U		<20	U		<0.50	U	
CTMW-7	06/10/2020 - 11:52	25.000	<0.50	U		<0.50	U		<20	U		<0.50	U	
CTMW-8	06/09/2020 - 11:41	8.700	<0.50	U		<0.50	U		<20	U	UJ	<0.50	U	
CTMW-9	06/09/2020 - 10:57	24.000	<0.50	U		<0.50	U		<20	U		<0.50	U	

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Table 2
 Volatile Organic Compounds in Groundwater
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 CleanEarth Tacoma Facility

PERIOD: From 06/09/2020 thru 11/09/2020 - Inclusive

SAMPLE TYPE: Water

Site	Date / Time	Sample Depth	1,1-Dichloro-ethane (ug/l)	Lab Quals	Expert Qual	1,1-Dichloro-ethene (ng/l)	Lab Quals	Expert Qual	1,2,3-Trichloro propane (ug/l)	Lab Qual	Expert Qual	1,2-Dichloro-ethane (ng/l)	Lab Quals	Expert Qual
MTCA A & B Minimum Level			7.68			400000			0.00146			480		
CTMW-12	06/10/2020 - 09:47	26.000	<0.50	U		<20	U		[<0.50]	U		<20	U	
CTMW-14	06/09/2020 - 10:02	8.000	<0.50	U		<20	U		[<0.50]	U		<20	U	
CTMW-15	11/09/2020 - 09:44	10.000	<0.5	U		<20	U		[<0.5]	U		<20	U	
CTMW-17	06/09/2020 - 12:54	13.700	<0.50	U		6.6	J	U	[<0.50]	U		<20	U	
CTMW-17D	06/09/2020 - 13:34	28.000	<0.50	U		<20	U		[<0.50]	U		7.4	J	U
CTMW-18	06/10/2020 - 12:55	12.400	<0.50	U		7.4	J	U	[<0.50]	U		17	J	U
CTMW-20	11/09/2020 - 12:04	6.600	<0.5	U		<20	U		[<0.5]	U		15	J	
CTMW-24	06/10/2020 - 10:34	10.500	<0.50	U		<20	U		[<0.50]	U		<20	U	
CTMW-24D	06/10/2020 - 11:09	24.000	<0.50	U		<20	U		[<0.50]	U		<20	U	
CTMW-25D	11/09/2020 - 11:05	19.700	<0.5	U		<20	U		[<0.5]	U		<20	U	
CTMW-5	06/10/2020 - 09:08	9.950	<0.50	U		6.6	J	U	[<0.50]	U		7.4	J	U
CTMW-7	06/10/2020 - 11:52	25.000	<0.50	U		<20	U		[<0.50]	U		<20	U	
CTMW-8	06/09/2020 - 11:41	8.700	<0.50	U		8.1	J	UJ	[<0.50]	U		7.4	J	UJ
CTMW-9	06/09/2020 - 10:57	24.000	<0.50	U		<20	U		[<0.50]	U		<20	U	

Methods 8620C, 8260C SIM

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 Volatile Organic Compounds in Groundwater
 2020 Annual Report
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 SAMPLE TYPE: Water

Site	Date / Time	Sample Depth	1,2-Dichloro-			2-Butanone			2-chloroethyl			2-Hexanone		
			propane (ug/l)	Lab Quals	Expert Qual	(ug/l)	Lab Quals	Expert Qual	vinylether (ug/l)	Lab Qual	Expert Qual	(ug/l)	Lab Quals	Expert Qual
MTCA A & B Minimum Level			1.22			4800								
CTMW-12	06/10/2020 - 09:47	26.000	<0.50	U		<20	U		<5.0	U		<20	U	
CTMW-14	06/09/2020 - 10:02	8.000	<0.50	U		<20	U		<5.0	U		<20	U	
CTMW-15	11/09/2020 - 09:44	10.000	<0.5	U		<20	U		<5	U	UJ	<20	U	
CTMW-17	06/09/2020 - 12:54	13.700	<0.50	U		<20	U		<5.0	U		<20	U	
CTMW-17D	06/09/2020 - 13:34	28.000	<0.50	U		<20	U		<5.0	U		<20	U	
CTMW-18	06/10/2020 - 12:55	12.400	<0.50	U		8.7	J	J	<5.0	U		<20	U	
CTMW-20	11/09/2020 - 12:04	6.600	<0.5	U		<20	U		<5	U	UJ	<20	U	
CTMW-24	06/10/2020 - 10:34	10.500	<0.50	U		<20	U		<5.0	U		<20	U	
CTMW-24D	06/10/2020 - 11:09	24.000	<0.50	U		<20	U		<5.0	U		<20	U	
CTMW-25D	11/09/2020 - 11:05	19.700	<0.5	U		<20	U		<5	U	UJ	<20	U	
CTMW-5	06/10/2020 - 09:08	9.950	<0.50	U		<20	U		<5.0	U		<20	U	
CTMW-7	06/10/2020 - 11:52	25.000	<0.50	U		<20	U		<5.0	U		<20	U	
CTMW-8	06/09/2020 - 11:41	8.700	<0.50	U		5.3	J	J	<5.0	U		<20	U	
CTMW-9	06/09/2020 - 10:57	24.000	<0.50	U		<20	U		<5.0	U		<20	U	

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 Volatile Organic Compounds in Groundwater
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 SAMPLE TYPE: Water

Site	Date / Time	Sample Depth	4-Methyl- pentanone (ug/l)	Lab Quals	Expert Qual	Acetone (ug/l)	Lab Quals	Expert Qual	Acetonitrile (ug/l)	Lab Qual	Expert Qual	Acrolein (ug/l)	Lab Quals	Expert Qual
MTCA A & B Minimum Level			640			7200						4		
CTMW-12	06/10/2020 - 09:47	26.000	<20	U		<20	U		<50	U		[<20]	U	
CTMW-14	06/09/2020 - 10:02	8.000	<20	U		<20	U		<50	U		[<20]	U	
CTMW-15	11/09/2020 - 09:44	10.000	<20	U		<20	U		<50	U		[<20]	U	
CTMW-17	06/09/2020 - 12:54	13.700	<20	U		3.4	J	J	<50	U		[<20]	U	
CTMW-17D	06/09/2020 - 13:34	28.000	<20	U		<20	U		<50	U		[<20]	U	
CTMW-18	06/10/2020 - 12:55	12.400	<20	U		<20	U		<50	U		[<20]	U	
CTMW-20	11/09/2020 - 12:04	6.600	<20	U		<20	U		<50	U		[<20]	U	
CTMW-24	06/10/2020 - 10:34	10.500	<20	U		<20	U		<50	U		[<20]	U	
CTMW-24D	06/10/2020 - 11:09	24.000	<20	U		<20	U		<50	U		[<20]	U	
CTMW-25D	11/09/2020 - 11:05	19.700	<20	U		<20	U		<50	U		[<20]	U	
CTMW-5	06/10/2020 - 09:08	9.950	<20	U		<20	U		<50	U		[<20]	U	
CTMW-7	06/10/2020 - 11:52	25.000	<20	U		4.3	J	J	<50	U		[<20]	U	
CTMW-8	06/09/2020 - 11:41	8.700	<20	U		68		J	<50	U		[<20]	U	
CTMW-9	06/09/2020 - 10:57	24.000	<20	U		<20	U		<50	U		[<20]	U	

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 SAMPLE TYPE: Water

Site	Date / Time	Sample Depth	Acrylonitrile (ug/l)	Lab Quals	Expert Qual	Allyl chloride (ug/l)	Lab Quals	Expert Qual	Benzene (ug/l)	Lab Qual	Expert Qual	Bromo-dichloro-methane (ug/l)	Lab Quals	Expert Qual
MTCA A & B Minimum Level			0.081			800			0.7955			0.7056		
CTMW-12	06/10/2020 - 09:47	26.000	[<5.0]	U		<5.0	U		<0.50	U		<0.50	U	
CTMW-14	06/09/2020 - 10:02	8.000	[<5.0]	U		<5.0	U		<0.50	U		<0.50	U	
CTMW-15	11/09/2020 - 09:44	10.000	[<5]	U		<5	U		<0.5	U		<0.5	U	
CTMW-17	06/09/2020 - 12:54	13.700	[<5.0]	U		<5.0	U		<0.50	U		<0.50	U	
CTMW-17D	06/09/2020 - 13:34	28.000	[<5.0]	U		<5.0	U		<0.50	U		<0.50	U	
CTMW-18	06/10/2020 - 12:55	12.400	[<5.0]	U		<5.0	U		0.29	J	J	<0.50	U	
CTMW-20	11/09/2020 - 12:04	6.600	[<5]	U		<5	U		<0.5	U		<0.5	U	
CTMW-24	06/10/2020 - 10:34	10.500	[<5.0]	U		<5.0	U		<0.50	U		<0.50	U	
CTMW-24D	06/10/2020 - 11:09	24.000	[<5.0]	U		<5.0	U		<0.50	U		<0.50	U	
CTMW-25D	11/09/2020 - 11:05	19.700	[<5]	U		<5	U		<0.5	U		<0.5	U	
CTMW-5	06/10/2020 - 09:08	9.950	[<5.0]	U		<5.0	U		0.10	J	J	<0.50	U	
CTMW-7	06/10/2020 - 11:52	25.000	[<5.0]	U		<5.0	U		<0.50	U		<0.50	U	
CTMW-8	06/09/2020 - 11:41	8.700	[<5.0]	U		<5.0	U		0.14	J	J	<0.50	U	
CTMW-9	06/09/2020 - 10:57	24.000	[<5.0]	U		<5.0	U		<0.50	U		<0.50	U	

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 SAMPLE TYPE: Water

Site	Date / Time	Sample Depth	Bromoform (ug/l)	Lab Quals	Expert Qual	Bromomethane (ug/l)	Lab Quals	Expert Qual	Carbon disulfide (ug/l)	Lab Qual	Expert Qual	Carbon tetrachloride (ng/l)	Lab Quals	Expert Qual
MTCA A & B Minimum Level			5.5380			11.2			800			620		
CTMW-12	06/10/2020 - 09:47	26.000	<0.50	U		<0.50	U		0.11	J	U	<20	U	
CTMW-14	06/09/2020 - 10:02	8.000	<0.50	U		<0.50	U		0.11	J	U	<20	U	
CTMW-15	11/09/2020 - 09:44	10.000	<0.5	U		<0.5	U		<0.5	U		<20	U	
CTMW-17	06/09/2020 - 12:54	13.700	<0.50	U		<0.50	U		0.11	J	U	<20	U	
CTMW-17D	06/09/2020 - 13:34	28.000	<0.50	U		<0.50	U		<0.50	U		<20	U	
CTMW-18	06/10/2020 - 12:55	12.400	<0.50	U		<0.50	U		<0.50	U		<20	U	
CTMW-20	11/09/2020 - 12:04	6.600	<0.5	U		<0.5	U		<0.5	U		<20	U	
CTMW-24	06/10/2020 - 10:34	10.500	<0.50	U		<0.50	U		0.11	J	U	<20	U	
CTMW-24D	06/10/2020 - 11:09	24.000	<0.50	U		<0.50	U		<0.50	U		<20	U	
CTMW-25D	11/09/2020 - 11:05	19.700	<0.5	U		<0.5	U		<0.5	U		<20	U	
CTMW-5	06/10/2020 - 09:08	9.950	<0.50	U		<0.50	U		<0.50	U		<20	U	
CTMW-7	06/10/2020 - 11:52	25.000	<0.50	U		<0.50	U		<0.50	U		<20	U	
CTMW-8	06/09/2020 - 11:41	8.700	<0.50	U		<0.50	U		0.11	J	U	<20	U	UJ
CTMW-9	06/09/2020 - 10:57	24.000	<0.50	U		<0.50	U		0.11	J	U	<20	U	

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 Volatile Organic Compounds in Groundwater
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 SAMPLE TYPE: Water

Site	Date / Time	Sample Depth	Chlorobenzene (ug/l)	Lab Quals	Expert Qual	Chloroethane (ug/l)	Lab Quals	Expert Qual	Chloroform (ug/l)	Lab Qual	Expert Qual	Chloromethane (ug/l)	Lab Quals	Expert Qual
MTCA A & B Minimum Level			160						1.41					
CTMW-12	06/10/2020 - 09:47	26.000	<0.50	U		<0.50	U		<0.50	U		<0.50	U	
CTMW-14	06/09/2020 - 10:02	8.000	<0.50	U		<0.50	U		<0.50	U		<0.50	U	
CTMW-15	11/09/2020 - 09:44	10.000	<0.5	U		<0.5	U		<0.5	U		<0.5	U	
CTMW-17	06/09/2020 - 12:54	13.700	<0.50	U		<0.50	U		<0.50	U		<0.50	U	
CTMW-17D	06/09/2020 - 13:34	28.000	<0.50	U		<0.50	U		<0.50	U		<0.50	U	
CTMW-18	06/10/2020 - 12:55	12.400	<0.50	U	J	<0.50	U	0.27	J	J		<0.50	U	
CTMW-20	11/09/2020 - 12:04	6.600	0.22	J		0.21	J		<0.5	U		<0.5	U	
CTMW-24	06/10/2020 - 10:34	10.500	<0.50	U		<0.50	U		<0.50	U		<0.50	U	
CTMW-24D	06/10/2020 - 11:09	24.000	<0.50	U		<0.50	U		<0.50	U		<0.50	U	
CTMW-25D	11/09/2020 - 11:05	19.700	<0.5	U		<0.5	U		<0.5	U		<0.5	U	
CTMW-5	06/10/2020 - 09:08	9.950	0.99			<0.50	U		<0.50	U		<0.50	U	
CTMW-7	06/10/2020 - 11:52	25.000	<0.50	U		<0.50	U		<0.50	U		<0.50	U	
CTMW-8	06/09/2020 - 11:41	8.700	<0.50	U		<0.50	U	0.21	J	J		<0.50	U	
CTMW-9	06/09/2020 - 10:57	24.000	<0.50	U		<0.50	U		<0.50	U		<0.50	U	

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 SAMPLE TYPE: Water

Site	Date / Time	Sample Depth	cis-1,2-Dichloro ethylene (ug/l)		cis-1,3-Dichloropropene (ug/l)		Dibromochloro-methane (ug/l)		Dichloro-difluoro-methane (ug/l)	
			Lab Quals	Expert Qual	Lab Quals	Expert Qual	Lab Qual	Expert Qual	Lab Quals	Expert Qual
MTCA A & B Minimum Level			16		0.438		0.5208		1600	
CTMW-12	06/10/2020 - 09:47	26.000	<0.50	U	[<0.50]	U	<0.50	U	<0.50	U
CTMW-14	06/09/2020 - 10:02	8.000	<0.50	U	[<0.50]	U	<0.50	U	<0.50	U
CTMW-15	11/09/2020 - 09:44	10.000	<0.5	U	[<0.5]	U	<0.5	U	<0.5	U
CTMW-17	06/09/2020 - 12:54	13.700	<0.50	U	[<0.50]	U	<0.50	U	<0.50	U
CTMW-17D	06/09/2020 - 13:34	28.000	<0.50	U	[<0.50]	U	<0.50	U	<0.50	U
CTMW-18	06/10/2020 - 12:55	12.400	<0.50	U	[<0.50]	U	<0.50	U	<0.50	U
CTMW-20	11/09/2020 - 12:04	6.600	<0.5	U	[<0.5]	U	<0.5	U	<0.5	U
CTMW-24	06/10/2020 - 10:34	10.500	<0.50	U	[<0.50]	U	<0.50	U	<0.50	U
CTMW-24D	06/10/2020 - 11:09	24.000	<0.50	U	[<0.50]	U	<0.50	U	<0.50	U
CTMW-25D	11/09/2020 - 11:05	19.700	0.07	J	[<0.5]	U	<0.5	U	<0.5	U
CTMW-5	06/10/2020 - 09:08	9.950	<0.50	U	[<0.50]	U	<0.50	U	<0.50	U
CTMW-7	06/10/2020 - 11:52	25.000	<0.50	U	[<0.50]	U	<0.50	U	<0.50	U
CTMW-8	06/09/2020 - 11:41	8.700	<0.50	U	[<0.50]	U	<0.50	U	<0.50	U
CTMW-9	06/09/2020 - 10:57	24.000	<0.50	U	[<0.50]	U	<0.50	U	<0.50	U

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 SAMPLE TYPE: Water

Site	Date / Time	Sample Depth	Ethyl methacrylate (ug/l)	Lab Quals	Expert Qual	Ethylbenzene (ug/l)	Lab Quals	Expert Qual	Isobutyl alcohol (ug/l)	Lab Qual	Expert Qual	m, p-Xylene (ug/l)	Lab Quals	Expert Qual
MTCA A & B Minimum Level			720			700			2400			1600		
CTMW-12	06/10/2020 - 09:47	26.000	<5.0	U		<0.50	U		<100	U		<0.50	U	
CTMW-14	06/09/2020 - 10:02	8.000	<5.0	U		<0.50	U		<100	U		<0.50	U	
CTMW-15	11/09/2020 - 09:44	10.000	<5	U		<0.5	U		<100	U		<0.5	U	
CTMW-17	06/09/2020 - 12:54	13.700	<5.0	U		<0.50	U		<100	U		<0.50	U	
CTMW-17D	06/09/2020 - 13:34	28.000	<5.0	U		<0.50	U		<100	U		<0.50	U	
CTMW-18	06/10/2020 - 12:55	12.400	<5.0	U		0.17	J	J	<100	U		0.13	J	
CTMW-20	11/09/2020 - 12:04	6.600	<5	U		<0.5	U		<100	U		<0.5	U	
CTMW-24	06/10/2020 - 10:34	10.500	<5.0	U		<0.50	U		<100	U		<0.50	U	
CTMW-24D	06/10/2020 - 11:09	24.000	<5.0	U		<0.50	U		<100	U		<0.50	U	
CTMW-25D	11/09/2020 - 11:05	19.700	<5	U		<0.5	U		<100	U		<0.5	U	
CTMW-5	06/10/2020 - 09:08	9.950	<5.0	U		<0.50	U		<100	U		<0.50	U	
CTMW-7	06/10/2020 - 11:52	25.000	<5.0	U		<0.50	U		<100	U		<0.50	U	
CTMW-8	06/09/2020 - 11:41	8.700	<5.0	U		<0.50	U		<100	U		<0.50	U	
CTMW-9	06/09/2020 - 10:57	24.000	<5.0	U		<0.50	U		<100	U		<0.50	U	

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 SAMPLE TYPE: Water

Site	Date / Time	Sample Depth	Methacrylo			Methyl iodide			Methylene bromide			Methylene chloride		
			nitrile (ug/l)	Lab Quals	Expert Qual	(ug/l)	Lab Quals	Expert Qual	(ug/l)	Lab Qual	Expert Qual	(ug/l)	Lab Quals	Expert Qual
MTCA A & B Minimum Level			1.6					80				5.0		
CTMW-12	06/10/2020 - 09:47	26.000	<5.0]	U		<5.0	U		<0.50	U		<2.0	U	
CTMW-14	06/09/2020 - 10:02	8.000	<5.0]	U		<5.0	U		<0.50	U		<2.0	U	
CTMW-15	11/09/2020 - 09:44	10.000	<5]	U		<5	U	UJ	<0.5	U		<2	U	
CTMW-17	06/09/2020 - 12:54	13.700	<5.0]	U		<5.0	U		<0.50	U		<2.0	U	
CTMW-17D	06/09/2020 - 13:34	28.000	<5.0]	U		<5.0	U		<0.50	U		<2.0	U	
CTMW-18	06/10/2020 - 12:55	12.400	<5.0]	U		<5.0	U		<0.50	U		0.41	J	J
CTMW-20	11/09/2020 - 12:04	6.600	<5]	U		<5	U	UJ	<0.5	U		<2	U	
CTMW-24	06/10/2020 - 10:34	10.500	<5.0]	U		<5.0	U		<0.50	U		<2.0	U	
CTMW-24D	06/10/2020 - 11:09	24.000	<5.0]	U		<5.0	U		<0.50	U		<2.0	U	
CTMW-25D	11/09/2020 - 11:05	19.700	<5]	U		<5	U	UJ	<0.5	U		<2	U	
CTMW-5	06/10/2020 - 09:08	9.950	<5.0]	U		<5.0	U		<0.50	U		<2.0	U	
CTMW-7	06/10/2020 - 11:52	25.000	<5.0]	U		<5.0	U		<0.50	U		<2.0	U	
CTMW-8	06/09/2020 - 11:41	8.700	<5.0]	U		<5.0	U		<0.50	U		<2.0	U	
CTMW-9	06/09/2020 - 10:57	24.000	<5.0]	U		<5.0	U		<0.50	U		<2.0	U	

Methods 8620C, 8260C SIM
 () = Below reporting limit.
 [] = Equal to or exceeds minimum clean up level.



Table 2
 Volatile Organic Compounds in Groundwater
 2020 Annual Report
 CleanEarth Tacoma Facility

PERIOD: From 06/09/2020 thru 11/09/2020 - Inclusive
 SAMPLE TYPE: Water

Site	Date / Time	Sample Depth	o-Xylene (ug/l)	Lab Quals	Expert Qual	Tetrachloro-ethene (ug/l)	Lab Quals	Expert Qual	Toluene (ug/l)	Lab Qual	Expert Qual	trans-1,2-Dichloroethene (ug/l)	Lab Quals	Expert Qual
MTCA A & B Minimum Level			1600			5			640			160		
CTMW-12	06/10/2020 - 09:47	26.000	<0.50	U		<0.50	U		<0.50	U		<0.50	U	
CTMW-14	06/09/2020 - 10:02	8.000	<0.50	U		<0.50	U		<0.50	U		<0.50	U	
CTMW-15	11/09/2020 - 09:44	10.000	<0.5	U		<0.5	U		<0.5	U		<0.5	U	
CTMW-17	06/09/2020 - 12:54	13.700	<0.50	U		<0.50	U		<0.50	U		<0.50	U	
CTMW-17D	06/09/2020 - 13:34	28.000	<0.50	U		<0.50	U		<0.50	U		<0.50	U	
CTMW-18	06/10/2020 - 12:55	12.400	0.16	J	J	<0.50	U		0.24	J	J	<0.50	U	
CTMW-20	11/09/2020 - 12:04	6.600	<0.5	U		<0.5	U		<0.5	U		<0.5	U	
CTMW-24	06/10/2020 - 10:34	10.500	<0.50	U		<0.50	U		<0.50	U		<0.50	U	
CTMW-24D	06/10/2020 - 11:09	24.000	<0.50	U		<0.50	U		<0.50	U		<0.50	U	
CTMW-25D	11/09/2020 - 11:05	19.700	<0.5	U		<0.5	U		<0.5	U		<0.5	U	
CTMW-5	06/10/2020 - 09:08	9.950	<0.50	U		<0.50	U		0.25	J	J	<0.50	U	
CTMW-7	06/10/2020 - 11:52	25.000	<0.50	U		<0.50	U		<0.50	U		<0.50	U	
CTMW-8	06/09/2020 - 11:41	8.700	<0.50	U		<0.50	U		0.98			<0.50	U	
CTMW-9	06/09/2020 - 10:57	24.000	<0.50	U		<0.50	U		<0.50	U		<0.50	U	

Methods 8620C, 8260C SIM

() = Below reporting limit.

[] = Equal to or exceeds minimum clean up level.



Table 2
 Volatile Organic Compounds in Groundwater
 2020 Annual Report
 CleanEarth Tacoma Facility

PERIOD: From 06/09/2020 thru 11/09/2020 - Inclusive

SAMPLE TYPE: Water

Site	Date / Time	Sample Depth	Trans-1,3-Dichloropropene			trans-1,4-Dichloro-2-butene			Trichloro-ethene			Trichloro fluoromethane		
			(ug/l)	Lab Quals	Expert Qual	(ug/l)	Lab Quals	Expert Qual	(ug/l)	Lab Qual	Expert Qual	(ug/l)	Lab Quals	Expert Qual
MTCA A & B Minimum Level			0.4375					0.54			2400			
CTMW-12	06/10/2020 - 09:47	26.000	<0.50]	U		<10	U	<0.50	U		<0.50	U		
CTMW-14	06/09/2020 - 10:02	8.000	<0.50]	U		<10	U	<0.50	U		<0.50	U		
CTMW-15	11/09/2020 - 09:44	10.000	<0.5]	U		<10	U	<0.5	U		<0.5	U		
CTMW-17	06/09/2020 - 12:54	13.700	<0.50]	U		<10	U	0.14	J	J	<0.50	U		
CTMW-17D	06/09/2020 - 13:34	28.000	<0.50]	U		<10	U	<0.50	U		<0.50	U		
CTMW-18	06/10/2020 - 12:55	12.400	<0.50]	U		<10	U	<0.50	U		<0.50	U		
CTMW-20	11/09/2020 - 12:04	6.600	<0.5]	U		<10	U	<0.5	U		<0.5	U		
CTMW-24	06/10/2020 - 10:34	10.500	<0.50]	U		<10	U	<0.50	U		<0.50	U		
CTMW-24D	06/10/2020 - 11:09	24.000	<0.50]	U		<10	U	<0.50	U		<0.50	U		
CTMW-25D	11/09/2020 - 11:05	19.700	<0.5]	U		<10	U	<0.5	U		<0.5	U		
CTMW-5	06/10/2020 - 09:08	9.950	<0.50]	U		<10	U	<0.50	U		<0.50	U		
CTMW-7	06/10/2020 - 11:52	25.000	<0.50]	U		<10	U	<0.50	U		<0.50	U		
CTMW-8	06/09/2020 - 11:41	8.700	<0.50]	U		<10	U	<0.50	U		<0.50	U		
CTMW-9	06/09/2020 - 10:57	24.000	<0.50]	U		<10	U	<0.50	U		<0.50	U		

Methods 8620C, 8260C SIM

() = Below reporting limit.

[] = Equal to or exceeds minimum clean up level.



Table 2
 Volatile Organic Compounds in Groundwater
 2020 Annual Report
 CleanEarth Tacoma Facility

PERIOD: From 06/09/2020 thru 11/09/2020 - Inclusive

SAMPLE TYPE: Water

Site	Date / Time	Sample Depth	Vinyl acetate (ug/l)	Lab Quals	Expert Qual	Vinyl chloride (ng/l)	Lab Quals	Expert Qual
MTCA A & B Minimum Level			8000			29		
CTMW-12	06/10/2020 - 09:47	26.000	<5.0	U		25	J	U
CTMW-14	06/09/2020 - 10:02	8.000	<5.0	U		26	J	U
CTMW-15	11/09/2020 - 09:44	10.000	<5	U	UJ	<20	U	
CTMW-17	06/09/2020 - 12:54	13.700	<5.0	U		[42]	J	U
CTMW-17D	06/09/2020 - 13:34	28.000	<5.0	U		27	J	U
CTMW-18	06/10/2020 - 12:55	12.400	<5.0	U		[34]	J	U
CTMW-20	11/09/2020 - 12:04	6.600	<5	U	UJ	<20	U	
CTMW-24	06/10/2020 - 10:34	10.500	<5.0	U		26	J	U
CTMW-24D	06/10/2020 - 11:09	24.000	<5.0	U		26	J	U
CTMW-25D	11/09/2020 - 11:05	19.700	<5	U	UJ	4.8	J	
CTMW-5	06/10/2020 - 09:08	9.950	<5.0	U		[29]	J	U
CTMW-7	06/10/2020 - 11:52	25.000	<5.0	U		28	J	U
CTMW-8	06/09/2020 - 11:41	8.700	<5.0	U		28	J	UJ
CTMW-9	06/09/2020 - 10:57	24.000	<5.0	U		26	J	U

Methods 8620C, 8260C SIM

() = Below reporting limit.

[] = Equal to or exceeds minimum clean up level.



Table 3
 1,4-Dioxane in Groundwater
 2020 Annual Report
 CleanEarth Tacoma Facility

PERIOD: From 06/09/2020 thru 11/09/2020 - Inclusive

SAMPLE TYPE: Water

Site	Date / Time	Sample Depth	1,4-Dioxane (ug/l)	Lab Quals	Expert Qual
MTCA A & B Minimum Level			0.438		
CTMW-15	11/09/2020 - 09:44	10.000	[0.51]		
CTMW-18	06/10/2020 - 12:55	12.400	[3.0]		
CTMW-24	06/10/2020 - 10:34	10.500	<0.40	U	
CTMW-24D	06/10/2020 - 11:09	24.000	[2.2]		
CTMW-25D	11/09/2020 - 11:05	19.700	[55]		
CTMW-5	06/10/2020 - 09:08	9.950	<0.40	U	
CTMW-7	06/10/2020 - 11:52	25.000	[22]		
CTMW-8	06/09/2020 - 11:41	8.700	<0.40	U	
CTMW-9	06/09/2020 - 10:57	24.000	[32]		

Methods 8670D SIM

() = Below reporting limit.

[] = Equal to or exceeds minimum clean up level.



Table 4
 Total Petroleum Hydrocarbons in Groundwater
 2020 Annual Report
 CleanEarth Tacoma Facility

PERIOD: From 06/09/2020 thru 11/09/2020 - Inclusive

SAMPLE TYPE: Water

Site	Date / Time	Sample Depth	Lube Oil (ug/l)	Lab Quals	Expert Qual	Diesel (ug/l)	Lab Quals	Expert Qual	Gasoline (ug/l)	Lab Qual	Expert Qual
MTCA A & B Minimum Level			500			500			800		
CTMW-12	06/10/2020 - 09:47	26.000	[<520]	U		<260	U		NT		
CTMW-14	06/09/2020 - 10:02	8.000	[<530]	U		<270	U		NT		
CTMW-15	11/09/2020 - 09:44	10.000	[<510]	U		NT			NT		
CTMW-17	06/09/2020 - 12:54	13.700	[<520]	U		<260	U		NT		
CTMW-17D	06/09/2020 - 13:34	28.000	[<520]	U		<260	U		NT		
CTMW-18	06/10/2020 - 12:55	12.400	[<520]	U		<260	U		<50.0	U	
CTMW-20	11/09/2020 - 12:04	6.600	[<500]	U		NT			<250	U	
CTMW-24	06/10/2020 - 10:34	10.500	[<520]	U		<260	U		NT		
CTMW-24D	06/10/2020 - 11:09	24.000	[<520]	U		<260	U		NT		
CTMW-25D	11/09/2020 - 11:05	19.700	[<510]	U		NT			NT		
CTMW-5	06/10/2020 - 09:08	9.950	[<530]	U		<270	U		NT		
CTMW-7	06/10/2020 - 11:52	25.000	[<520]	U		<260	U		NT		
CTMW-8	06/09/2020 - 11:41	8.700	[<520]	U		<260	U		NT		
CTMW-9	06/09/2020 - 10:57	24.000	[<520]	U		<260	U		NT		

Methods NWTPH-Gx, Dx-SG

NT = Not tested For.

[] = Equal to or exceeds minimum clean up level.



Table 5
 Total Inorganic Compounds in Groundwater
 2020 Annual Report
 CleanEarth Tacoma Facility

PERIOD: From 06/09/2020 thru 11/09/2020 - Inclusive
 SAMPLE TYPE: Water

Site	Date / Time	Sample Depth	Arsenic (mg/l)	Lab Quals	Expert Qual	Cadmium (mg/l)	Lab Quals	Expert Qual	Chromium (mg/l)	Lab Qual	Expert Qual	Copper (mg/l)	Lab Quals	Expert Qual
MTCA A & B Minimum Level			0.000058			0.0050			0.050			0.59		
CTMW-12	06/10/2020 - 09:47	26.000	[0.00023]	J	J	<0.000020	U		0.00251			0.00016		
CTMW-14	06/09/2020 - 10:02	8.000	[0.00343]			0.000174			0.00145			0.00780		
CTMW-15	11/09/2020 - 09:44	10.000	[0.0019]			<0.00002	U		0.00032		U	0.00024		U
CTMW-17	06/09/2020 - 12:54	13.700	[0.00377]			0.000387			0.00118			0.0326		
CTMW-17D	06/09/2020 - 13:34	28.000	[0.00040]	J	J	0.000070			0.00406			0.00021		
CTMW-18	06/10/2020 - 12:55	12.400	[0.00627]			0.000192			0.00101			0.00379		
CTMW-20	11/09/2020 - 12:04	6.600	[0.00283]			<0.00002	U		0.00055		U	0.00065		U
CTMW-24	06/10/2020 - 10:34	10.500	[0.00062]			<0.000020	U		0.00033		U	0.00058		
CTMW-24D	06/10/2020 - 11:09	24.000	[0.00110]			<0.000020	U		0.0109			0.00104		
CTMW-25D	11/09/2020 - 11:05	19.700	[0.00215]			<0.00002	U		0.0152			0.0012		U
CTMW-5	06/10/2020 - 09:08	9.950	[0.0392]			0.000039			0.00280			0.00370		
CTMW-7	06/10/2020 - 11:52	25.000	[0.00037]	J	J	0.000012	J	J	0.00408			0.00007	J	J
CTMW-8	06/09/2020 - 11:41	8.700	[0.0109]			0.000015	J	J	0.00015	J	U	0.00070		
CTMW-9	06/09/2020 - 10:57	24.000	[0.00078]			<0.000020	U		0.00624			0.00028		

Methods 6000/7000 Series

() = Below reporting limit.

[] = Equal to or exceeds minimum clean up level.



Table 5
 Total Inorganic Compounds in Groundwater
 2020 Annual Report
 CleanEarth Tacoma Facility

PERIOD: From 06/09/2020 thru 11/09/2020 - Inclusive

SAMPLE TYPE: Water

Site	Date / Time	Sample Depth	Lead (mg/l)	Lab Quals	Expert Qual	Mercury (mg/l)	Lab Quals	Expert Qual	Nickel (mg/l)	Lab Qual	Expert Qual	Zinc (mg/l)	Lab Quals	Expert Qual
MTCA A & B Minimum Level			0.015			0.0020			0.32			4.8		
CTMW-12	06/10/2020 - 09:47	26.000	0.000016	J	U	<0.00020	U		0.00080			0.0008	J	U
CTMW-14	06/09/2020 - 10:02	8.000	0.000793			<0.00020	U		0.00080			0.0057		
CTMW-15	11/09/2020 - 09:44	10.000	0.00002	J	U	<0.0002	U		0.00069			0.0006	J	
CTMW-17	06/09/2020 - 12:54	13.700	0.0149			<0.00020	U		0.00685			0.0191		
CTMW-17D	06/09/2020 - 13:34	28.000	0.000140			<0.00020	U		0.00161			0.0064		
CTMW-18	06/10/2020 - 12:55	12.400	0.000788			<0.00020	U		0.0101			0.0043		
CTMW-20	11/09/2020 - 12:04	6.600	<0.00002	U		<0.0002	U		0.00194			<0.002	U	
CTMW-24	06/10/2020 - 10:34	10.500	0.000051			<0.00020	U		0.00268			0.0013	J	U
CTMW-24D	06/10/2020 - 11:09	24.000	0.000095			<0.00020	U		0.00085			0.0008	J	U
CTMW-25D	11/09/2020 - 11:05	19.700	0.000141		J	0.00009	J		0.00652			0.001	J	
CTMW-5	06/10/2020 - 09:08	9.950	0.000573			<0.00020	U		0.00426			0.0047		
CTMW-7	06/10/2020 - 11:52	25.000	0.000036			<0.00020	U		0.00242			0.0019	J	J
CTMW-8	06/09/2020 - 11:41	8.700	0.000270			<0.00020	U		0.00158			0.0010	J	U
CTMW-9	06/09/2020 - 10:57	24.000	0.000020		U	0.00002	J	J	0.00606			0.0008	J	U

Methods 6000/7000 Series

() = Below reporting limit.

[] = Equal to or exceeds minimum clean up level.



Table 6
 Dissolved Inorganic Compounds in Groundwater
 2020 Annual Report
 CleanEarth Tacoma Facility

PERIOD: From 06/09/2020 thru 11/09/2020 - Inclusive
 SAMPLE TYPE: Water

Site	Date / Time	Sample Depth	Dissolved Arsenic (mg/l)	Lab Quals	Expert Qual	Dissolved Cadmium (mg/l)	Lab Quals	Expert Qual	Dissolved Chromium (mg/l)	Lab Qual	Expert Qual	Dissolved Copper (mg/l)	Lab Quals	Expert Qual
MTCA A & B Minimum Level			0.000058			0.0050			0.050			0.59		
CTMW-14	06/09/2020 - 10:02	8.000	[0.00309]			0.000119			0.00121			0.00585		

Methods 6000/7000 Series

() = Below reporting limit.

[] = Equal to or exceeds minimum clean up level.



Table 6
 Dissolved Inorganic Compounds in Groundwater
 2020 Annual Report
 CleanEarth Tacoma Facility

PERIOD: From 06/09/2020 thru 11/09/2020 - Inclusive
 SAMPLE TYPE: Water

Site	Date / Time	Sample Depth	Dissolved			Dissolved			Dissolved			Dissolved		
			Lead (mg/l)	Lab Quals	Expert Qual	Mercury (mg/l)	Lab Quals	Expert Qual	Nickel (mg/l)	Lab Qual	Expert Qual	Zinc (mg/l)	Lab Quals	Expert Qual
MTCA A & B Minimum Level			0.015			0.0020			0.32			4.8		
CTMW-14	06/09/2020 - 10:02	8.000	0.000068			<0.00020	U		0.00074			0.0048		

Methods 6000/7000 Series
 () = Below reporting limit.
 [] = Equal to or exceeds minimum clean up level.



Table 7
 Selected Constituents Reported to the MDL in Groundwater
 2020 Annual Report
 CleanEarth Tacoma Facility

PERIOD: From 06/09/2020 thru 11/09/2020 - Inclusive
 SAMPLE TYPE: Water

Site	Date / Time	Sample Depth	1,2,3-Trichloro			Acrolein (ug/l)	Acrylonitrile			cis-1,3-Dichloropropene				
			propane (ug/l)	Lab Quals	Expert Qual		(ug/l)	Lab Qual	Expert Qual	(ug/l)	Lab Quals	Expert Qual		
MTCA A & B Minimum Level			0.00146			4			0.081			0.438		
CTMW-12	06/10/2020 - 09:47	26.000	<0.20]	U		<1.2	U		<0.53]	U		<0.18	U	
CTMW-14	06/09/2020 - 10:02	8.000	<0.20]	U		<1.2	U		<0.53]	U		<0.18	U	
CTMW-15	11/09/2020 - 09:44	10.000	<0.2]	U		<1.2	U		<0.53]	U		<0.18	U	
CTMW-17	06/09/2020 - 12:54	13.700	<0.20]	U		<1.2	U		<0.53]	U		<0.18	U	
CTMW-17D	06/09/2020 - 13:34	28.000	<0.20]	U		<1.2	U		<0.53]	U		<0.18	U	
CTMW-18	06/10/2020 - 12:55	12.400	<0.20]	U		<1.2	U		<0.53]	U		<0.18	U	
CTMW-20	11/09/2020 - 12:04	6.600	<0.2]	U		<1.2	U		<0.53]	U		<0.18	U	
CTMW-24	06/10/2020 - 10:34	10.500	<0.20]	U		<1.2	U		<0.53]	U		<0.18	U	
CTMW-24D	06/10/2020 - 11:09	24.000	<0.20]	U		<1.2	U		<0.53]	U		<0.18	U	
CTMW-25D	11/09/2020 - 11:05	19.700	<0.2]	U		<1.2	U		<0.53]	U		<0.18	U	
CTMW-5	06/10/2020 - 09:08	9.950	<0.20]	U		<1.2	U		<0.53]	U		<0.18	U	
CTMW-7	06/10/2020 - 11:52	25.000	<0.20]	U		<1.2	U		<0.53]	U		<0.18	U	
CTMW-8	06/09/2020 - 11:41	8.700	<0.20]	U		<1.2	U		<0.53]	U		<0.18	U	
CTMW-9	06/09/2020 - 10:57	24.000	<0.20]	U		<1.2	U		<0.53]	U		<0.18	U	

Methods 8260C, NWTPH-Dx-SG

() = Below reporting limit.

[] = Equal to or exceeds minimum clean up level.



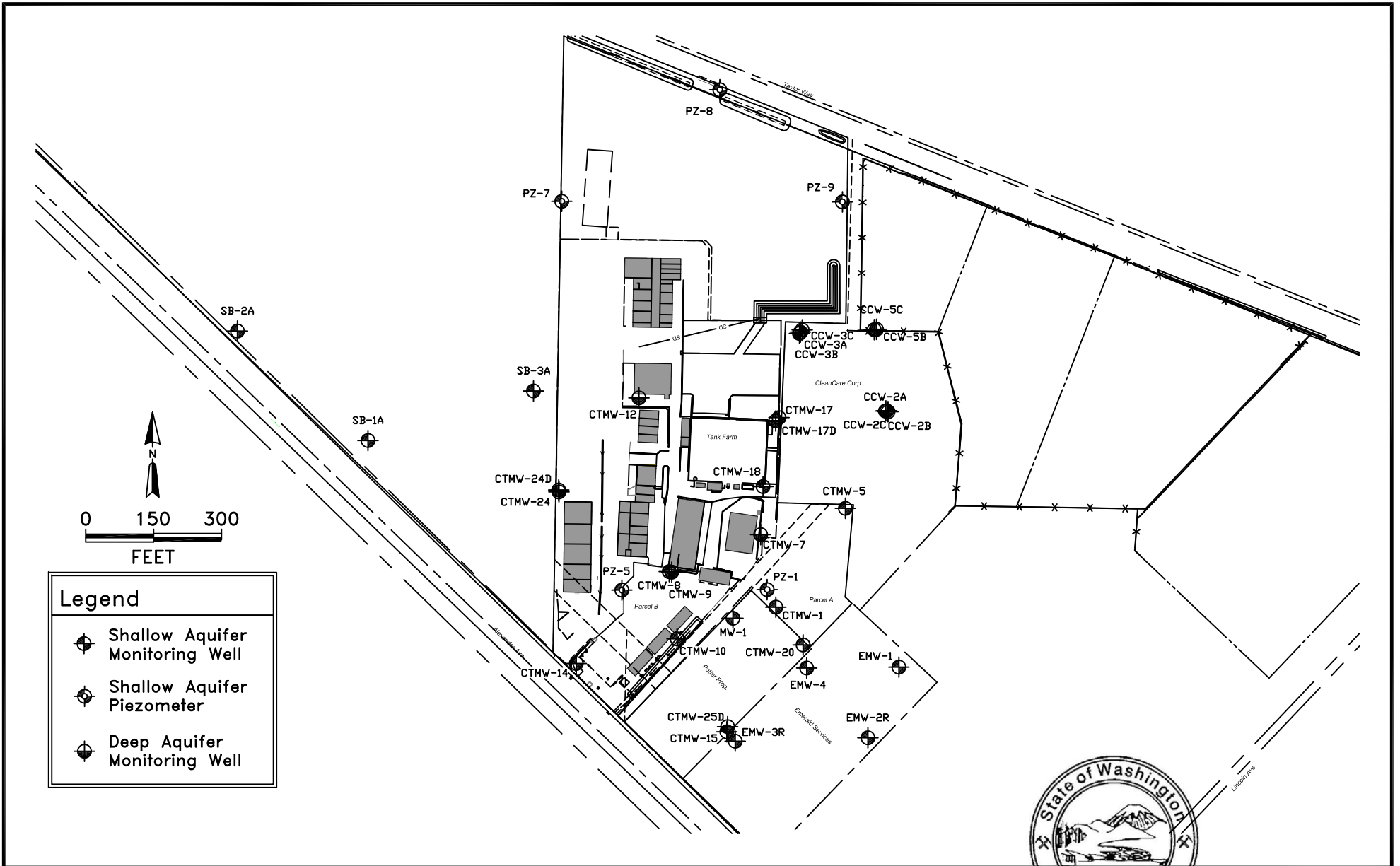
Table 7
 Selected Constituents Reported to the MDL in Groundwater
 2020 Annual Report
 CleanEarth Tacoma Facility

PERIOD: From 06/09/2020 thru 11/09/2020 - Inclusive
 SAMPLE TYPE: Water

Site	Date / Time	Sample Depth	Lube Oil (ug/l)	Lab Quals	Expert Qual	Methacrylo		Trans-1,3-		Lab Qual	Expert Qual
						nitrile (ug/l)	Lab Quals	Expert Qual	Dichloropropene (ug/l)		
MTCA A & B Minimum Level			500			1.6			0.4375		
CTMW-12	06/10/2020 - 09:47	26.000	[<520]	U		<0.35	U		<0.068	U	
CTMW-14	06/09/2020 - 10:02	8.000	[<530]	U		<0.35	U		<0.068	U	
CTMW-15	11/09/2020 - 09:44	10.000	[<510]	U		<0.35	U		<0.068	U	
CTMW-17	06/09/2020 - 12:54	13.700	[<520]	U		<0.35	U		<0.068	U	
CTMW-17D	06/09/2020 - 13:34	28.000	[<520]	U		<0.35	U		<0.068	U	
CTMW-18	06/10/2020 - 12:55	12.400	[<520]	U		<0.35	U		<0.068	U	
CTMW-20	11/09/2020 - 12:04	6.600	[<500]	U		<0.35	U		<0.068	U	
CTMW-24	06/10/2020 - 10:34	10.500	[<520]	U		<0.35	U		<0.068	U	
CTMW-24D	06/10/2020 - 11:09	24.000	[<520]	U		<0.35	U		<0.068	U	
CTMW-25D	11/09/2020 - 11:05	19.700	[<510]	U		<0.35	U		<0.068	U	
CTMW-5	06/10/2020 - 09:08	9.950	[<530]	U		<0.35	U		<0.068	U	
CTMW-7	06/10/2020 - 11:52	25.000	[<520]	U		<0.35	U		<0.068	U	
CTMW-8	06/09/2020 - 11:41	8.700	[<520]	U		<0.35	U		<0.068	U	
CTMW-9	06/09/2020 - 10:57	24.000	[<520]	U		<0.35	U		<0.068	U	

Methods 8260C, NWTPH-Dx-SG
 () = Below reporting limit.
 [] = Equal to or exceeds minimum clean up level.

FIGURES



Legend

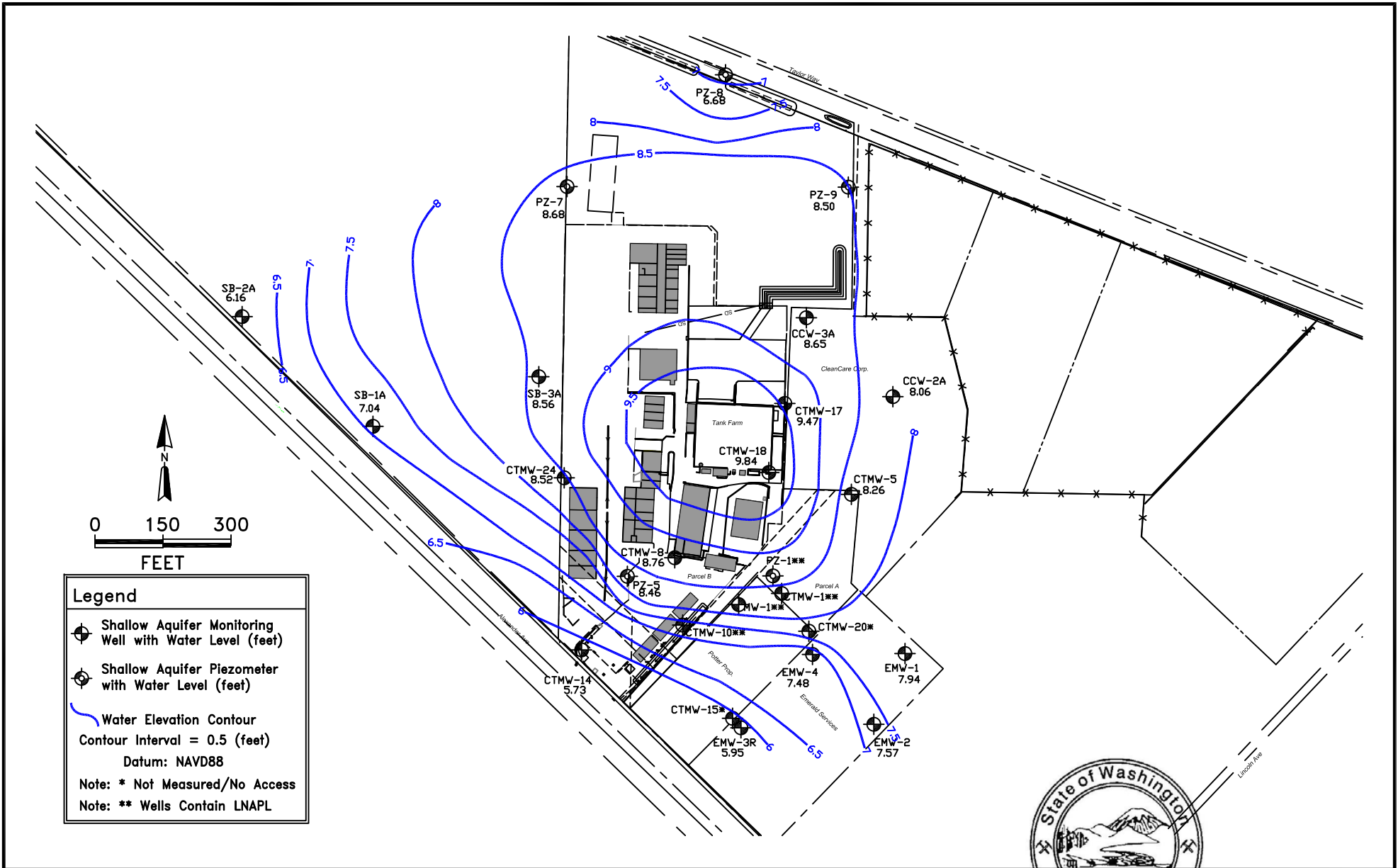
- Shallow Aquifer Monitoring Well
- Shallow Aquifer Piezometer
- Deep Aquifer Monitoring Well



TITLE:
 Site Map and Well Locations
 CleanEarth Tacoma Facility

DWN: Hydrogeologist
 1600
 CHKD: APPD:
 David G. Cooper
 DATE: 3/25/2021
 REV.:

PROJECT NO.:
 Annual 2020
 FIGURE NO.:
 1

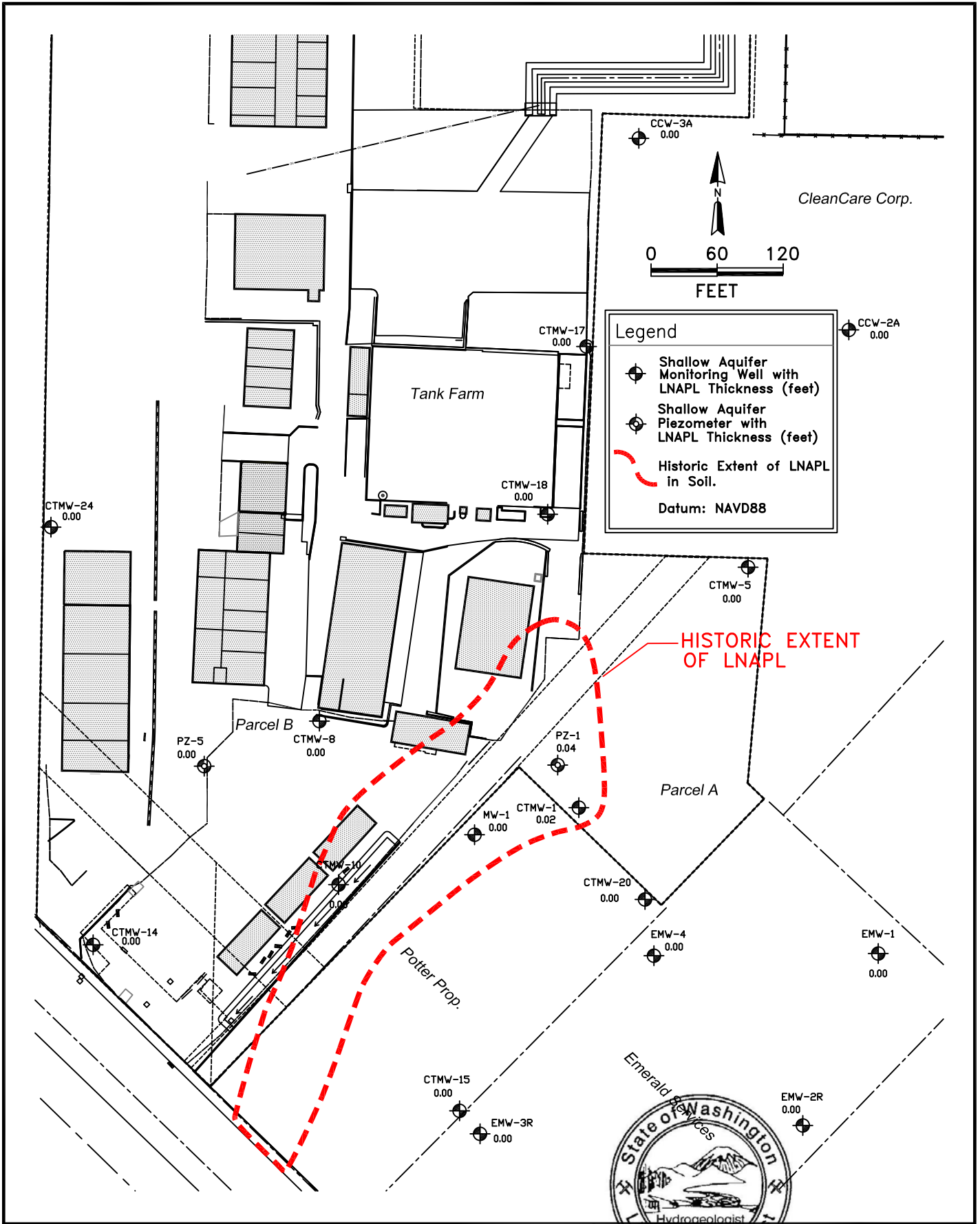


CleanEarth

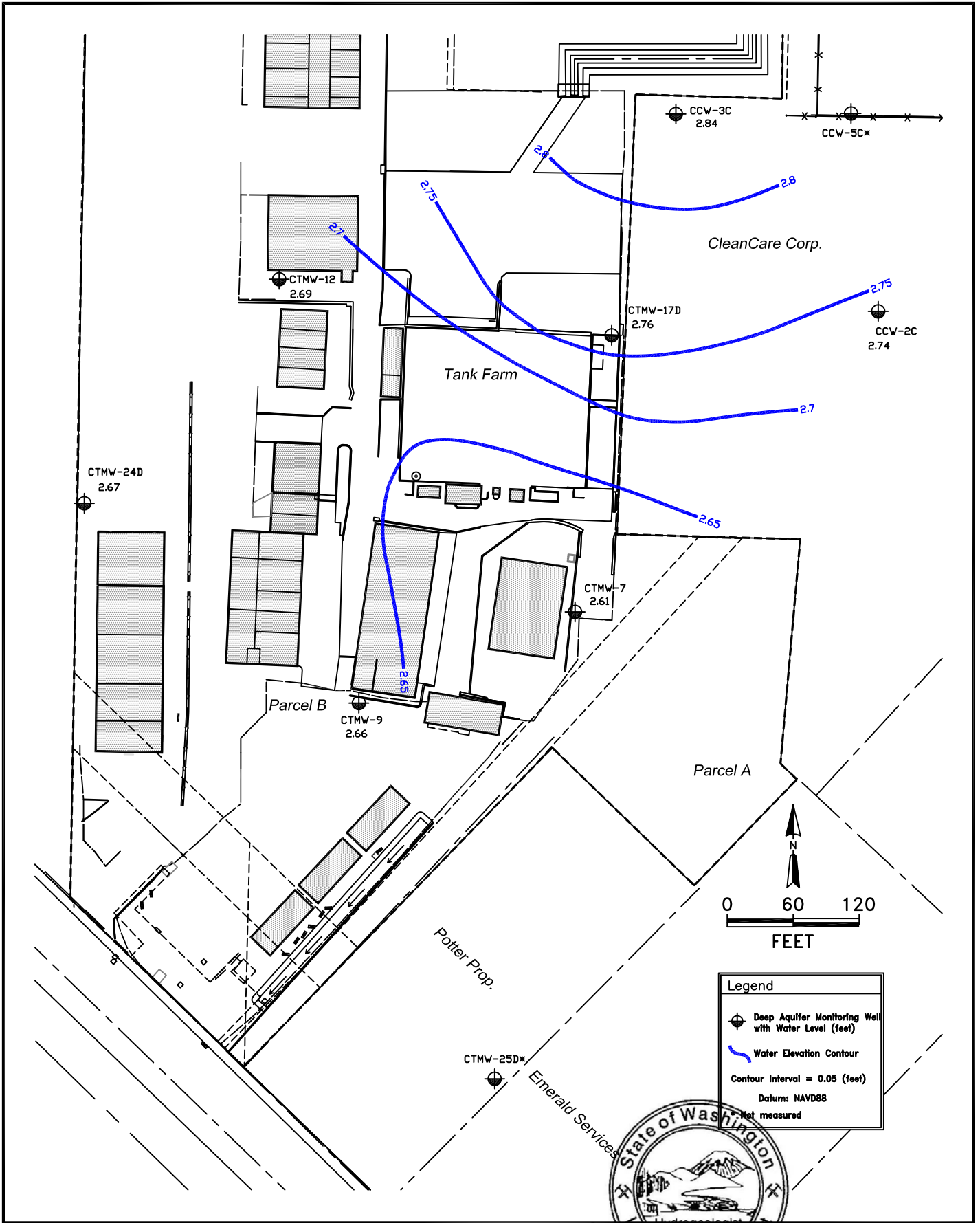
TITLE:
 Groundwater Elevations, June 8, 2020
 Shallow Aquifer
 CleanEarth Tacoma Facility

DWN: Hydrogeologist
 1600
 David G. Cooper
 DATE: 3/25/21
 REV.:

PROJECT NO.:
 Annual 2020
 FIGURE NO.:
 2



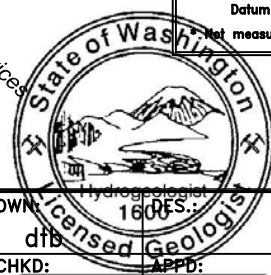
	TITLE: Measured LNAPL Thickness June 8, 2020 CleanEarth Tacoma Facility	DWN: 18005 dtb CHKD: APPD: David G. Cooper DATE: 3/26/21 REV.:	PROJECT NO.: Annual 2020 FIGURE NO.: 3



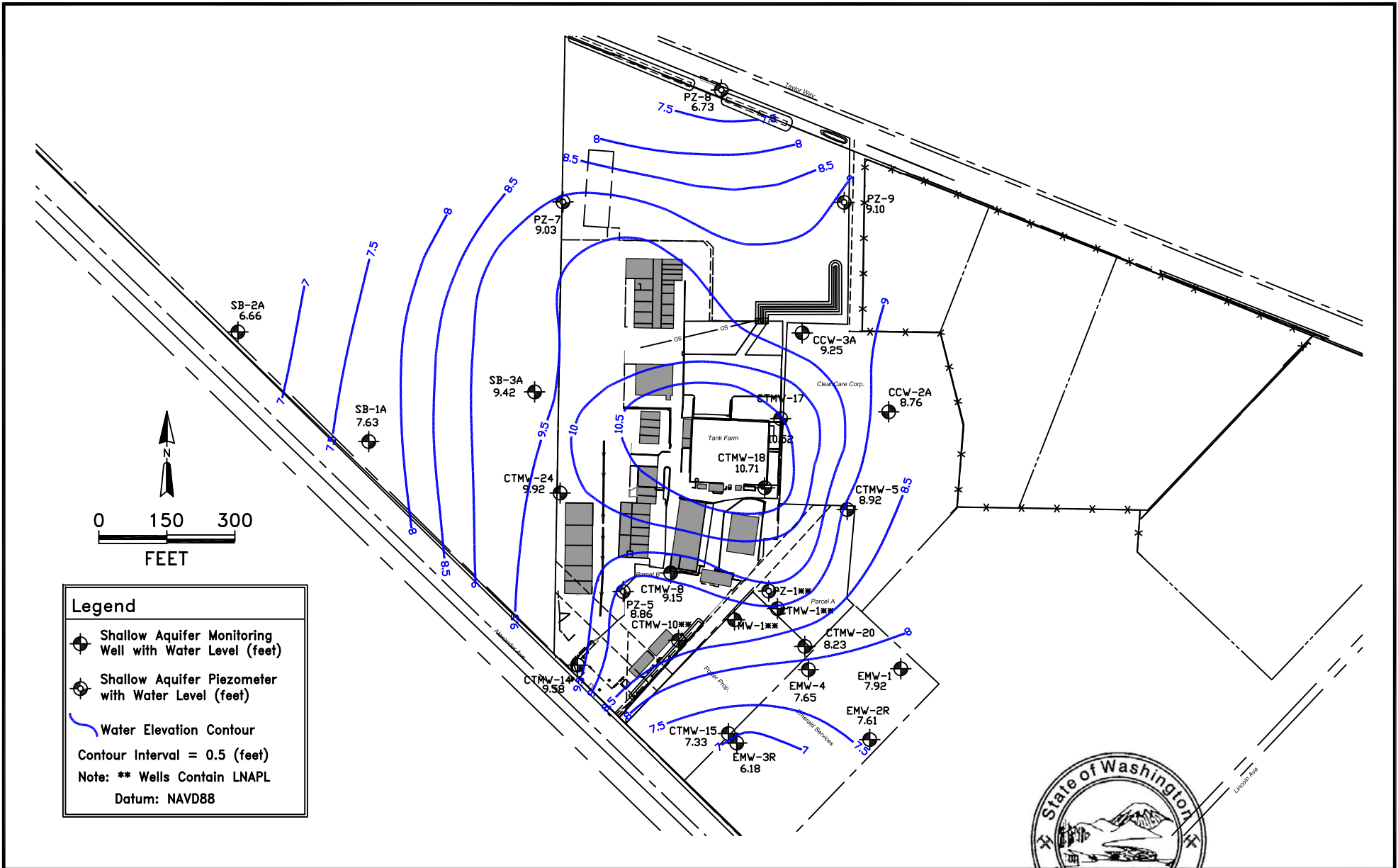
Legend

- Deep Aquifer Monitoring Well with Water Level (feet)
- Water Elevation Contour

Contour Interval = 0.05 (feet)
Datum: NAVD88
* Not measured



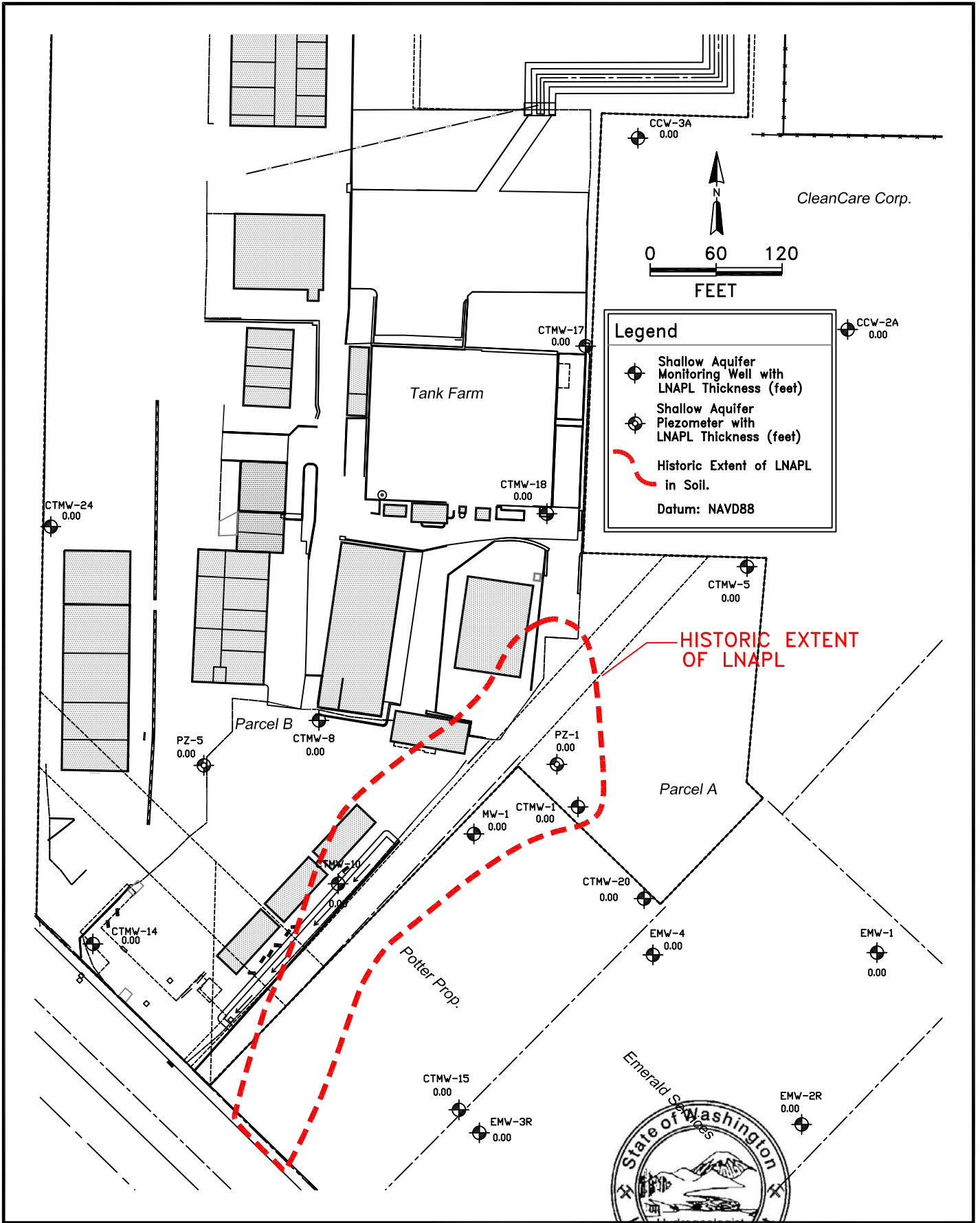
	TITLE: Groundwater Elevations Deep Aquifer, June 8, 2020 CleanEarth Tacoma Facility	DWN: dfg	PROJECT NO.: Annual 2020
		CHKD: David G. Cooper	FIGURE NO.: 4
		DATE: 3/26/21	REV.:



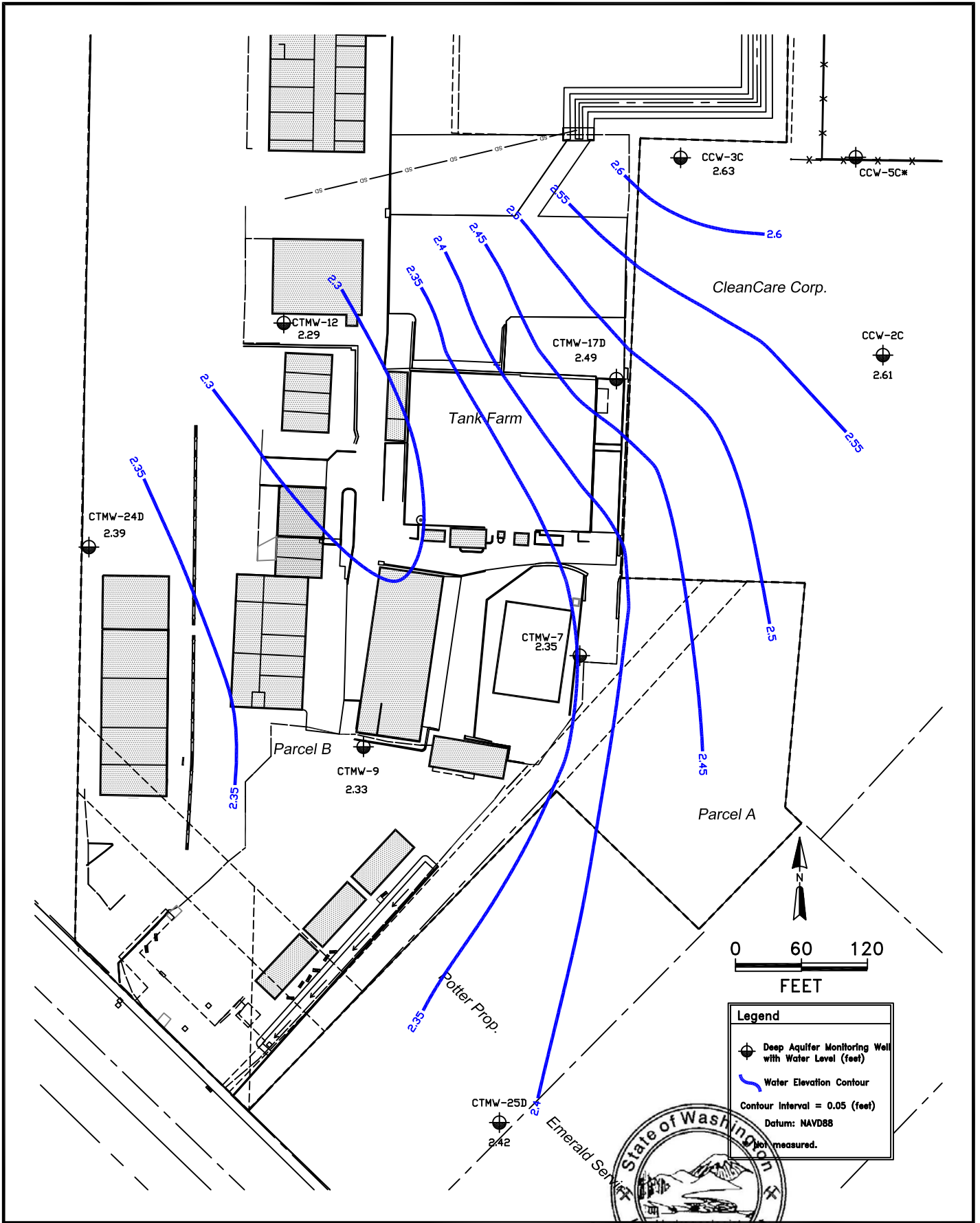
TITLE:
 Groundwater Elevations, December 2, 2020
 Shallow Aquifer
 CleanEarth Tacoma Facility

DWN: Hydrogeologist
 16003
 CHKD: APPB:
 David G. Cooper
 DATE: 3/25/21
 REV.:

PROJECT NO.:
 Annual 2020
 FIGURE NO.:
 5

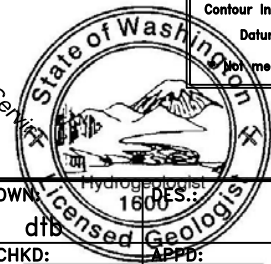


	TITLE:	DWN:	PROJECT NO.:
	Measured LNAPL Thickness	dtb	Annual 2020
	December 2, 2020	CHKD:	FIGURE NO.:
CleanEarth Tacoma Facility	David G. Cooper	3/26/21	6



TITLE:
 Groundwater Elevations
 Deep Aquifer, December 2, 2020
 CleanEarth Tacoma Facility

DWN: dfg
 CHKD: David G. Cooper
 DATE: 3/26/21



PROJECT NO.:
 Annual 2020
 FIGURE NO.:
 7

ATTACHMENT A

Groundwater Quality Worksheet, CleanEarth Tacoma Facility 2020 Annual

Well	Time	Flow rate (ml/min)	Volume Purged (L)	Temp. (C)	Dissolved Oxygen		Turbidity		Specific Conductivity		Redox Potential		pH		Pump Speed (Hz or cpm)	Total Purge Time Before Stabilization (min)	Total Volume Purged at Stabilization (gallons)	Draw-down (0.01 ft)	Comments
					(ppm)	Relative Change (ppm) +/- 0.3ppm	(NTU)	Relative Change (%) +/- 10%	(mS/cm)	Relative Change (%) +/- 3%	(mV)	Relative Change (mV) +/- 10mV		Relative Change +/- 0.1					
6/10/20 CTMW-12 FC5000T		Volume purged before 1st reading	1.2												12	1.6	0.00		
	9:35:06	400		14.64	0.56		1.31		1.564		-45		6.65		3.0 cpm			All parameters stable when sample was collected.	
	9:38:05	400	1.2	14.61	0.39	-0.17	0.89	-47.19	1.565	0.06	-54	-9	6.65	0.00	3.0 cpm			Turbidity < 5 NTU	
	9:41:05	400	1.2	14.60	0.32	-0.07	0.60	-48.33	1.571	0.38	-58	-4	6.58	-0.07	3.0 cpm			Do > 0.20 mg/L	
	9:44:06	400	1.2	14.63	0.29	-0.03	0.56	-7.14	1.571	0	-61	-3	6.63	0.05	3.0 cpm				
	9:47:06	400	1.2	14.65	0.29	0.00	0.51	-9.8	1.570	-0.06	-64	-3	6.62	-0.01	3.0 cpm				
6/09/20 CTMW-14 FC5000T		Volume purged before 1st reading	0.6												12	0.6	0.90		
	9:50:02	200		14.83	5.10	#Error	26.0	#Error	0.348	#Error	198	#Error	6.7		1.0 cpm			All parameters stable when sample was collected.	
	9:53:02	200	0.6	14.87	5.15	0.05	11.9	-118.49	0.348	0	193	-5	6.7	0.00	1.0 cpm			Turbidity > 5 NTU but stable.	
	9:56:01	100	0.3	14.93	5.92	0.77	5.82	-104.47	0.344	-1.28	188	-5	6.64	-0.06	0.2 cpm			Do > 0.20 mg/L	
	9:59:05	100	0.3	14.92	6.33	0.41	5.98	2.68	0.342	-0.56	185	-3	6.69	0.05	0.2 cpm				
	10:02:07	100	0.3	14.90	6.41	0.08	5.91	-1.18	0.343	0.2	182	-3	6.65	-0.04	0.2 cpm				
6/09/20 CTMW-17 FC5000T		Volume purged before 1st reading	0.6												15	1.0	2.47		
	12:39:05	200		13.85	0.80		4.30		0.430		-76		6.7		1.0 cpm			All parameters stable when sample was collected.	
	12:42:05	200	0.6	14.05	0.55	-0.25	4.41	2.49	0.432	0.42	-50	26	6.43	-0.27	1.0 cpm			Turbidity < 5 NTU	
	12:45:07	200	0.6	14.31	0.54	-0.01	3.70	-19.19	0.433	0.42	-35	15	6.38	-0.05	1.0 cpm			Do > 0.20 mg/L	
	12:48:05	200	0.6	14.44	0.49	-0.05	2.85	-29.82	0.434	0.25	-23	12	6.28	-0.10	1.0 cpm				
	12:51:05	200	0.6	14.50	0.50	0.01	2.57	-10.89	0.438	0.71	-17	6	6.21	-0.07	1.0 cpm				
	12:54:05	200	0.6	14.49	0.53	0.03	2.27	-13.22	0.442	0.93	-16	1	6.21	0.00	1.0 cpm				
6/09/20 CTMW-17D FC5000T		Volume purged before 1st reading	1.2												15	1.9	0.03		
	13:19:05	400		13.96	0.79		4.11		1.586		-62		6.66		3.0 cpm			All parameters stable when sample was collected.	
	13:22:06	400	1.2	13.91	0.46	-0.33	1.60	-156.87	1.590	0.25	-75	-13	6.63	-0.03	3.0 cpm			Turbidity < 5 NTU	
	13:25:05	400	1.2	13.87	0.37	-0.09	1.45	-10.34	1.590	0	-74	1	6.66	0.03	3.0 cpm			Do > 0.20 mg/L	
	13:28:05	400	1.2	13.85	0.32	-0.05	3.18	54.4	1.590	0	-70	4	6.58	-0.08	3.0 cpm				
	13:31:05	400	1.2	13.87	0.30	-0.02	0.91	-249.45	1.588	-0.13	-68	2	6.67	0.09	3.0 cpm				
	13:34:06	400	1.2	13.85	0.29	-0.01	1.33	31.58	1.586	-0.13	-68	0	6.66	-0.01	3.0 cpm				
6/10/20 CTMW-18 FC5000T		Volume purged before 1st reading	0.6												18	1.1	0.85		
	12:37:05	200		17.16	1.24		9.91		0.225		59		6.12		1.0 cpm			All parameters stable when sample was collected.	
	12:40:07	200	0.6	17.03	0.73	-0.51	7.52	-31.78	0.228	1.14	61	2	6.13	0.01	1.0 cpm			Turbidity < 5 NTU	
	12:43:05	200	0.6	17.01	0.65	-0.08	5.99	-25.54	0.240	4.92	59	-2	6.07	-0.06	1.0 cpm			Do > 0.20 mg/L	

Groundwater Quality Worksheet, CleanEarth Tacoma Facility 2020 Annual

Time	Flow rate (ml/min)	Volume Purged (L)	Temp. (C)	Dissolved Oxygen		Turbidity		Specific Conductivity		Redox Potential		pH		Pump Speed (Hz or cpm)	Total Purge Time Before Stabilization (min)	Total Volume Purged at Stabilization (gallons)	Draw-down (0.01 ft)	Comments
				(ppm)	Relative Change (ppm) +/- 0.3ppm	(NTU)	Relative Change (%) +/- 10%	(mS/cm)	Relative Change (%) +/- 3%	(mV)	Relative Change (mV) +/- 10mV		Relative Change +/- 0.1					
12:46:05	200	0.6	17.00	0.57	-0.08	4.81	-24.53	0.250	4.16	53	-6	6.13	0.06	1.0 cpm				
12:49:06	200	0.6	16.80	0.49	-0.08	3.55	-35.49	0.258	2.83	47	-6	6.16	0.03	1.0 cpm				
12:52:05	200	0.6	16.60	0.49	0.00	3.26	-8.9	0.262	1.6	43	-4	6.22	0.06	1.0 cpm				
12:55:05	200	0.6	16.56	0.45	-0.04	3.24	-0.62	0.264	0.98	38	-5	6.13	-0.09	1.0 cpm				

Well CTMW-24 6/10/20 FC5000T		Volume purged before 1st reading																
		0.6													24	1.4	0.52	
10:10:05	200		14.54	0.97		1.88		0.197		29		5.92		1.0 cpm	All parameters stable when sample was collected.			
10:13:09	200	0.6	14.65	0.60	-0.37	0.84	-123.81	0.189	-4.45	38	9	5.91	-0.01	1.0 cpm	Turbidity < 5 NTU			
10:16:06	200	0.6	14.76	0.49	-0.11	0.63	-33.33	0.193	2.23	35	-3	5.9	-0.01	1.0 cpm	Do > 0.20 mg/L			
10:19:05	200	0.6	14.72	0.47	-0.02	0.58	-8.62	0.198	2.28	31	-4	5.85	-0.05	1.0 cpm				
10:22:06	200	0.6	14.70	0.42	-0.05	0.35	-65.71	0.202	2.13	26	-5	5.91	0.06	1.0 cpm				
10:25:05	200	0.6	14.71	0.41	-0.01	0.63	44.44	0.208	2.84	22	-4	6.02	0.11	1.0 cpm				
10:28:01	200	0.6	14.71	0.39	-0.02	0.27	-133.33	0.216	3.66	17	-5	6.04	0.02	1.0 cpm				
10:31:05	200	0.6	14.69	0.39	0.00	0.35	22.86	0.219	1.42	14	-3	6.02	-0.02	1.0 cpm				
10:34:06	200	0.6	14.63	0.37	-0.02	0.26	-34.62	0.222	1.31	11	-3	5.98	-0.04	1.0 cpm				

Well CTMW-24D 6/10/20 FC5000T		Volume purged before 1st reading																
		1.2													15	1.9	0.05	
10:54:05	400		13.65	0.54		0.84		2.631		-72		6.78		3.0 cpm	All parameters stable when sample was collected.			
10:57:05	400	1.2	13.53	0.41	-0.13	0.49	-71.43	2.631	0	-79	-7	6.68	-0.10	3.0 cpm	Turbidity < 5 NTU			
11:00:07	400	1.2	13.41	0.35	-0.06	0.50	2	2.628	-0.11	-77	2	6.69	0.01	3.0 cpm	Do > 0.20 mg/L			
11:03:07	400	1.2	13.42	0.28	-0.07	0.39	-28.21	2.627	-0.04	-79	-2	6.75	0.06	3.0 cpm				
11:06:03	400	1.2	13.44	0.26	-0.02	0.41	4.88	2.626	-0.04	-77	2	6.75	0.00	3.0 cpm				
11:09:05	400	1.2	13.45	0.26	0.00	0.42	2.38	2.628	0.08	-80	-3	6.74	-0.01	3.0 cpm				

Well CTMW-5 6/10/20 FC5000T		Volume purged before 1st reading																
		1.2													24	2.9	0.21	
8:44:06	400		13.30	2.25		3.38		0.215		101		5.74		4.0 cpm	All parameters stable when sample was collected.			
8:47:05	400	1.2	13.15	1.04	-1.21	2.12	-59.43	0.217	1.2	54	-47	5.89	0.15	4.0 cpm	Turbidity < 5 NTU			
8:50:05	400	1.2	13.12	0.86	-0.18	1.64	-29.27	0.222	2.12	45	-9	5.87	-0.02	4.0 cpm	Do > 0.20 mg/L			
8:53:05	400	1.2	13.15	0.74	-0.12	1.44	-13.89	0.224	1.11	27	-18	6	0.13	4.0 cpm				
8:56:05	400	1.2	13.16	0.62	-0.12	1.29	-11.63	0.230	2.39	19	-8	6	0.00	4.0 cpm				
8:59:07	400	1.2	13.10	0.55	-0.07	1.39	7.19	0.236	2.46	6	-13	6.12	0.12	4.0 cpm				
9:02:05	400	1.2	13.11	0.48	-0.07	0.99	-40.4	0.240	1.83	1	-5	6.1	-0.02	4.0 cpm				
9:05:05	400	1.2	13.15	0.51	0.03	0.89	-11.24	0.243	1.11	-7	-8	6.17	0.07	4.0 cpm				
9:08:05	400	1.2	13.11	0.50	-0.01	1.21	26.45	0.244	0.33	-8	-1	6.14	-0.03	4.0 cpm				

Well CTMW-7 6/10/20 FC5000T		Volume purged before 1st reading																
		1.2													12	1.6	0.07	

Groundwater Quality Worksheet, CleanEarth Tacoma Facility 2020 Annual

Time	Flow rate (ml/min)	Volume Purged (L)	Temp. (C)	Dissolved Oxygen		Turbidity		Specific Conductivity		Redox Potential		pH		Pump Speed (Hz or cpm)	Total Purge Time Before Stabilization (min)	Total Volume Purged at Stabilization (gallons)	Draw-down (0.01 ft)	Comments
				(ppm)	Relative Change (ppm) +/- 0.3ppm	(NTU)	Relative Change (%) +/- 10%	(mS/cm)	Relative Change (%) +/- 3%	(mV)	Relative Change (mV) +/- 10mV		Relative Change +/- 0.1					
11:40:05	400		15.18	0.41		1.98		2.489		-82		6.69		3.0 cpm				All parameters stable when sample was collected.
11:43:05	400	1.2	15.17	0.26	-0.15	1.03	-92.23	2.487	-0.08	-90	-8	6.58	-0.11	3.0 cpm				Turbidity < 5 NTU
11:46:05	400	1.2	15.24	0.22	-0.04	0.66	-56.06	2.487	0	-93	-3	6.59	0.01	3.0 cpm				Do > 0.20 mg/L
11:49:06	400	1.2	15.22	0.22	0.00	0.74	10.81	2.485	-0.08	-95	-2	6.55	-0.04	3.0 cpm				
11:52:06	400	1.2	15.19	0.21	-0.01	0.39	-89.74	2.483	-0.08	-96	-1	6.51	-0.04	3.0 cpm				

Well CTMW-8 6\09\20 FC5000T		Volume purged before 1st reading																
		0.6													15	1.0	2.58	
11:26:01	200		15.48	2.05		26.3		6.542		-131		11.91		1.0 cpm				All parameters stable when sample was collected.
11:29:05	200	0.6	15.51	2.08	0.03	7.36	-257.34	6.988	6.38	-136	-5	11.89	-0.02	1.0 cpm				Turbidity < 5 NTU
11:32:05	200	0.6	15.53	1.92	-0.16	4.93	-49.29	7.117	1.81	-137	-1	11.94	0.05	1.0 cpm				Do > 0.20 mg/L
11:35:05	200	0.6	15.54	1.74	-0.18	4.94	0.2	7.137	0.28	-138	-1	12.02	0.08	1.0 cpm				
11:38:02	200	0.6	15.56	1.78	0.04	3.74	-32.09	7.128	-0.13	-137	1	12.02	0.00	1.0 cpm				
11:41:06	200	0.6	15.58	1.76	-0.02	2.76	-35.51	7.125	-0.04	-134	3	12.06	0.04	1.0 cpm				

Well CTMW-9 6\09\20 FC5000T		Volume purged before 1st reading																
		0.6													12	0.8	0.04	
10:45:06	200		14.43	1.47		2.39		4.028		-20		6.79		1.0 cpm				All parameters stable when sample was collected.
10:48:05	200	0.6	14.39	0.87	-0.60	0.72	-231.94	4.043	0.37	-60	-40	6.64	-0.15	1.0 cpm				Turbidity < 5 NTU
10:51:05	200	0.6	14.32	0.74	-0.13	1.20	40	4.035	-0.2	-65	-5	6.69	0.05	1.0 cpm				Do > 0.20 mg/L
10:54:08	200	0.6	14.29	0.73	-0.01	0.66	-81.82	4.008	-0.67	-69	-4	6.76	0.07	1.0 cpm				
10:57:05	200	0.6	14.28	0.72	-0.01	0.56	-17.86	3.996	-0.3	-70	-1	6.65	-0.11	1.0 cpm				

Groundwater Quality Worksheet, CleanEarth Tacoma Facility 2020 Annual

Time	Flow rate (ml/min)	Volume Purged (L)	Temp. (C)	Dissolved Oxygen		Turbidity		Specific Conductivity		Redox Potential		pH		Pump Speed (Hz or cpm)	Total Purge Time Before Stabilization (min)	Total Volume Purged at Stabilization (gallons)	Draw-down (0.01 ft)	Comments
				(ppm)	Relative Change (ppm) +/- 0.3ppm	(NTU)	Relative Change (%) +/- 10%	(mS/cm)	Relative Change (%) +/- 3%	(mV)	Relative Change (mV) +/- 10mV	Relative Change +/- 0.1						
Well CTMW-15 11\09\20 FC5000T	Volume purged before 1st reading	0.3													18	0.6	1.67	
9:26:27	100		7.24	3.65	#Error	9.16	#Error	0.379	#Error	271	#Error	6.37		0.2 cpm	All parameters stable when sample was collected.			
9:29:14	100	0.3	7.29	3.53	-0.12	8.11	-12.95	0.377	-0.56	274	3	6.36	-0.01	0.2 cpm	Turbidity < 5 NTU			
9:32:13	100	0.3	7.51	3.92	0.39	6.98	-16.19	0.374	-0.8	275	1	6.59	0.23	0.2 cpm	Do > 0.20 mg/L			
9:35:10	100	0.3	7.29	3.65	-0.27	6.84	-2.05	0.376	0.61	274	-1	6.49	-0.10	0.2 cpm				
9:38:08	100	0.3	7.16	3.78	0.13	4.92	-39.02	0.374	-0.53	274	0	6.43	-0.06	0.2 cpm				
9:41:30	100	0.3	7.1	3.58	-0.20	4.79	-2.71	0.375	0.27	272	-2	6.44	0.01	0.2 cpm				
9:44:25	100	0.3	7.02	3.97	0.39	4.23	-13.24	0.375	-0.05	268	-4	6.46	0.02	0.2 cpm				

Well CTMW-20 11\09\20 FC5000T	Volume purged before 1st reading	1.2													18	2.2	0.11	
11:46:06	400		13.55	0.92		1.36		0.855		-6		6.85		3.0 cpm	All parameters stable when sample was collected.			
11:49:17	400	1.2	13.67	0.35	-0.57	1.18	-15.25	0.810	-5.49	2	8	6.62	-0.23	3.0 cpm	Turbidity < 5 NTU			
11:52:14	400	1.2	13.61	0.3	-0.05	2.43	51.44	0.768	-5.53	-18	-20	6.72	0.10	3.0 cpm	Do > 0.20 mg/L			
11:55:43	400	1.2	13.55	0.3	0.00	1.4	-73.57	0.721	-6.48	-38	-20	6.65	-0.07	3.0 cpm				
11:58:55	400	1.2	13.54	0.3	0.00	1.21	-15.7	0.700	-3.09	-49	-11	6.64	-0.01	3.0 cpm				
12:01:10	400	1.2	13.56	0.31	0.01	0.43	-181.4	0.694	-0.76	-54	-5	6.58	-0.06	3.0 cpm				
12:04:13	400	1.2	13.53	0.32	0.01	0.32	-34.38	0.689	-0.8	-59	-5	6.63	0.05	3.0 cpm				

Well CTMW-25D 11\09\20 FC5000T	Volume purged before 1st reading	1.2													21	2.5	0.02	
10:44:05	400		12.78	1.55		1.1		2.140		196		6.38		3.0 cpm	All parameters stable when sample was collected.			
10:47:05	400	1.2	13.15	0.57	-0.98	0.84	-30.95	2.364	9.48	129	-67	6.72	0.34	3.0 cpm	Turbidity < 5 NTU			
10:50:15	400	1.2	13.14	0.43	-0.14	1.12	25	2.450	3.51	33	-96	6.77	0.05	3.0 cpm	Do > 0.20 mg/L			
10:53:05	400	1.2	13.24	0.38	-0.05	0.87	-28.74	2.475	1.01	-15	-48	6.82	0.05	3.0 cpm				
10:56:31	400	1.2	13.32	0.33	-0.05	0.49	-77.55	2.489	0.56	-42	-27	6.81	-0.01	3.0 cpm				
10:59:27	400	1.2	13.24	0.3	-0.03	1.29	62.02	2.496	0.28	-55	-13	6.73	-0.08	3.0 cpm				
11:02:17	400	1.2	13.26	0.29	-0.01	0.76	-69.74	2.494	-0.08	-60	-5	6.79	0.06	3.0 cpm				
11:05:21	400	1.2	13.29	0.27	-0.02	0.48	-58.33	2.501	0.28	-63	-3	6.82	0.03	3.0 cpm				

GENERAL Field Event: Tacoma 2Q20 Date (mm / dd / yyyy): 06 / 08 / 2020
PERSONNEL Name(s): Jimmy McKechnie/Slavik Karashchuk Organization: Stericycle
LIQUID-LEVEL METER Brand: Geotech Water Level Meter Model: ET Serial No.: 7068

Well or Piezometer	Dedicated Pump (VERIFY) (X = yes)	Well Venting		Liquid-Level Measurement			Total Well Depth (4 th Q only) (feet)	Comments	NOTES
		Time (24-h clock) (hh:mm)	Headspace PID Reading (ppm)	Time (24-h clock) (hh:mm)	Depth to LNAPL (feet)	Depth to Water (feet)			
CTMW-1	--	0954		1230	5.25	5.27		Purged ~ 80ml of product	Inner casing for accurate water levels
CTMW-5	x	1000		1203		5.84			
CTMW-7	x	0957		1120		12.14			
CTMW-8	x	0950		1125		6.01			
CTMW-9	--	0951		1123		11.72			
CTMW-10	--	0952		1228		4.25		No LNPL Present	Inner casing for accurate water levels
CTMW-12		0942		1138		15.60			
CTMW-14	--	0925		1127		7.40			
CTMW-15	--	N/A		N/A		N/A		Waiting for access agreement	
CTMW-17	x	0945		1135		9.85			
CTMW-17D	--	0944		1132		13.88		Water in well monument.	
CTMW-18	x	0958		1206		9.52			
CTMW-20	--	N/A		N/A		N/A		Waiting for access agreement	
CTMW-24		0930		1154		7.83			
CTMW-24D		0931		1156		13.72			
CTMW-25D		N/A		N/A		N/A		Waiting for access agreement	
PZ-1	--	0955		1248	3.75	3.79		Purged ~ 80ml of product	
PZ-5	--	0927		1159		4.40			
PZ-7		0939		1150		12.29			
PZ-8	--	0937		1147		8.16			
PZ-9	--	0935		1144		7.05			
MW-1	--	N/A		N/A		N/A		Waiting for access agreement	Inner casing for accurate water levels
TP-6	--	N/A		N/A		N/A		Waiting for access agreement	
TP-7	--	N/A		N/A		N/A		Waiting for access agreement	
TP-8	--	N/A		N/A		N/A		Waiting for access agreement	
TP-9	--	N/A		N/A		N/A		Waiting for access agreement	
TP-10	--	N/A		N/A		N/A		Waiting for access agreement	

Well or Piezometer	Dedicated Pump (VERIFY) (X = yes)	Well Venting		Liquid-Level Measurement			Total Well Depth (4 th Q only) (feet)	Comments	NOTES
		Time (24-h clock) (hh:mm)	Headspace PID Reading (ppm)	Time (24-h clock) (hh:mm)	Depth to LNAPL (feet)	Depth to Water (feet)			
SB-1A	--	1009		1214		5.30			
SB-2A	--	1006		1217		5.75			
SB-3A	--	1005		1211		5.02			
CCW-2A	--	1015		1104		4.16			
CCW-2B	--	1016		1106		3.92			
CCW-2C	--	1014		1102		9.32		Water in well monument.	
CCW-3A	--	1019		1112		5.10			
CCW-3B	--	1018		1110		5.81			
CCW-3C	--	1020		1114		12.84			
CCW-5B	--	N/A		N/A		N/A		Unable to access due to blackberry bushes	
CCW-5C	--	N/A		N/A		N/A		Unable to access due to blackberry bushes	

Notes:

(1) Shading indicates wells/piezometers with a history of LNAPL accumulation.

(2) **Bold** indicates wells/piezometers whose water levels must be measured within a single one-hour period.

GENERAL Field Event: Tacoma 4Q20 Date (mm / dd / yyyy): 12 / 02 / 2020
PERSONNEL Name(s): Jimmy McKechnie/Slavik Karashchuk Organization: Burlington Environmental
LIQUID-LEVEL METER Brand: Geotech Model: ET Serial No.: 7068

Well or Piezometer	Dedicated Pump (VERIFY) (X = yes)	Well Venting		Liquid-Level Measurement			Total Well Depth (4 th) (Q only) (feet)	Comments	NOTES
		Time (24-h clock) (hh:mm)	Headspace PID Reading (ppm)	Time (24-h clock) (hh:mm)	Depth to LNAPL (feet)	Depth to Water (feet)			
CTMW-1	--	0906		1127	N/A	4.89		Trace of LNAPL/ Did not purge	Inner casing for accurate water levels
CTMW-5	X	0909		1055		5.18			
CTMW-7	X	0912		0940		12.40			
CTMW-8	X	0845		0947		5.62			
CTMW-9	--	0846		0945		12.05			
CTMW-10	--	0848		1122	N/A	3.84		No LNAPL present.	Inner casing for accurate water levels
CTMW-12		0836		0950		16.00			
CTMW-14	--	0843		0943		3.55			
CTMW-15	--	0858		1046		5.95			
CTMW-17	X	0830		0955		8.80			
CTMW-17D	--	0832		0953		14.15		H2O in monument.	
CTMW-18	X	0911		1058		8.65			
CTMW-20	--	0903		1052		2.80			
CTMW-24		0838		1031		6.43			
CTMW-24D		0839		1033		14.00			
CTMW-25D		0859		1048		10.64			
PZ-1	--	0905		1130	N/A	1.10		Trace of LNAPL/ Did not purge	
PZ-5	--	0841		1018		4.00			
PZ-7		0826		1028		11.94			
PZ-8	--	0824		1025		8.11			
PZ-9	--	0822		1022		6.45			
MW-1	--	N/A		N/A		N/A		Unable to access. Scrap metal on top of well.	Inner casing for accurate water levels
TP-6	--	0850		1037		2.10			
TP-7	--	N/A		N/A		N/A		Unable to access. Well underwater and under trailer.	
TP-8	--	0854		1039		1.75			
TP-9	--	0855		1041		1.70			
TP-10	--	0856		1043		2.10			
SB-1A	--	0919		1108		4.71			
SB-2A	--	0921		1112		5.25			
SB-3A	--	0916		1104		4.16			
CCW-2A	--	0927		1003		3.46		H2O in monument.	

CCW-2B	--	0929		1005		3.00			
CCW-2C	--	0926		1001		9.45			
CCW-3A	--	0933		1010		4.50			
CCW-3B	--	0934		1008		4.98			
CCW-3C	--	0932		1012		13.05			
CCW-5B	--	N/A		N/A		N/A		Unable to access due to overgrown blackberry bushes.	
CCW-5C	--	N/A		N/A		N/A		Unable to access due to overgrown blackberry bushes.	

Notes:

- (1) Shading indicates wells/piezometers with a history of LNAPL accumulation.
- (2) **Bold** indicates wells/piezometers whose water levels must be measured within a single one-hour period.

**TABLE 4-2. FLUID LEVEL ELEVATION DATA SUMMARY
EMERALD SERVICES, INC., 1825 ALEXANDER AVENUE, TACOMA, WASHINGTON**

Location	Date/Time Measured	Measuring Point Elevation	Ground Surface Elevation	Depth to Water	Water Elevation	Depth Gauged
		(ft-msl)	(ft-msl)	(ft-bmp)	(ft-msl)	(ft-bmp)
Second Quarter						
MW-1	6/8/20 11:25	14.07	14.46	2.9	11.17	7.08
MW-2R	6/8/20 11:15	13.79	14.23	2.87	10.92	7.85
MW-3R	6/8/20 11:50	14.28	14.61	5.2	9.08	7.58
MW-4	6/8/20 11:40	14.11	14.4	3.12	10.99	9.12
Fourth Quarter						
MW-1	12/2/20 0:22	14.07	14.46	2.92	11.15	7.08
MW-2R	12/2/20 0:50	13.79	14.23	2.83	10.96	7.85
MW-3R	12/2/20 13:05	14.28	14.61	4.97	9.31	7.63
MW-4	12/2/20 0:51	14.11	14.4	2.95	11.16	9

Notes:

ft-msl - feet above mean sea level
ft-bmp - feet below measuring point
ft-bgs - feet below ground surface

ATTACHMENT B



ALS Environmental
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www.alsglobal.com

July 07, 2020

Revised Analytical Report for Service Request No: K2004781.01

Greg Fink
Stericycle Environmental Solutions
2337 North Penn Rd.
Hatfield, PA 19440

RE: Tacoma 2Q20 / 376.01

Dear Greg,

Enclosed is the revised report for the sample(s) submitted to our laboratory June 10, 2020. For your reference, these analyses have been assigned our service request number **K2004781**.

The results for the NWTPH-Dx analysis are now included.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

We apologize for any inconvenience this may have created.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Mark Harris
Project Manager



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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.
- H The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- J The result is an estimated value.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
 - i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.
- Q See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimated value.
- J The result is an estimated value.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
 - i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

**ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses**

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjllabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/analyte is offered by that state.



Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20
Sample Matrix: Water

Service Request: K2004781
Date Received: 06/10/2020 - 06/11/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

Sample Receipt:

Sixteen water samples were received for analysis at ALS Environmental on 06/10/2020 - 06/11/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivolatiles by GC/MS:

No significant anomalies were noted with this analysis.

Semivolatile GC:

Method NWTPH-Dx, 6/16/20: The Relative Percent Difference (RPD) criterion for the replicate analysis of diesel range organics in sample CTMW-7-0620 was not applicable because the analyte concentration was below the Method Reporting Limit (MRL). Analytical values derived from measurements close to the detection limit are not subject to the same accuracy and precision criteria as results derived from measurements higher on the calibration range for the method.

Method NWTPH-Dx, 6/24/20: The lower control criterion was exceeded for n-Triacontane and o-Terphenyl in samples CTMW-8-0620 and CTMW-17D-0620. The samples were re-extracted within holding time. The surrogate recovery met control criteria for the reanalysis.

Metals:

No significant anomalies were noted with this analysis.

Volatiles by GC/MS:

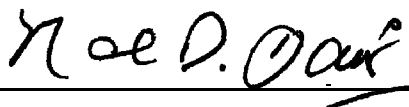
Method 8260C, 6/16/20; The following analytes were flagged as outside the control criterion for Continuing Calibration Verification (CCV) MS13\0616F006.D: Acetone and Acetonitrile. In accordance with the EPA Method, 80% or more of the CCV analytes must pass within 20% of the true value. The ALS SOP allows for 40% difference for the remaining analytes. The CCV met these criteria. The quality of the sample data was not significantly affected. No further corrective action was required.

Method 8260C, 6/16/20; The recovery of Acetone and Acetonitrile in the Duplicate Laboratory Control Sample (DLCS) KQ2008126-08 was outside the recovery control limits listed in the results summary. The DLCS is used to evaluate batch precision. The relative percent difference (RPD) was within control limits indicating the quality of the sample data was not significantly affected. No further corrective action was taken.

Method 8260C, 6/16/20; The control criteria for replicate Matrix Spikes (MS/DMS) KQ2008126-01 and KQ2008126-02 recoveries of Acetone and Acetonitrile for sample CTMW-8-0620 were exceeded. The error associated with an elevated recovery equated to a slight high bias. No further corrective action was appropriate.

Method 8260C SIM, 6/23/20; The upper control criterion was exceeded for Dibromofluoromethane in several field samples and Method Blank (MB) KWG1211849-3. No target analytes were detected above the Method Reporting Limit (MRL) in the samples in question. The error associated with an elevated recovery equated to a high bias. The quality of the sample data was not significantly affected. No further corrective action was appropriate.

Method 8260C SIM, 6/23/20; The lower control criterion was exceeded for surrogate Dibromofluoromethane in sample CTMW-8-0620 due to suspected matrix interference. The error associated with reduced recovery equates to a potential bias. Comparison of between the the 8260 full scan and 8260C SIM analyses show consistency in target analyte results. Target analytes were not detected above the MRL in either of the analyses. The results were flagged to indicate the issue. No further corrective action was taken.

Approved by 

Date 07/07/2020



Chain of Custody

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www.alsglobal.com



CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

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DATE 6-9-20 PAGE 1 OF 2

PROJECT NAME <u>Tacoma 2020 # 376.01</u> PROJECT MANAGER <u>Greg Fink</u> COMPANY NAME <u>Skencycle Environmental Solutions</u> ADDRESS <u>1701 E. Alexander Ave</u> <u>Tacoma WA 98421</u> PHONE <u>(215) 768-6470</u> SAMPLERS SIGNATURE <u>[Signature]</u>	NUMBER OF CONTAINERS	ANALYSIS REQUESTED K2004781 <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> <div>VOC by 8260B</div> <div>VOC by 8260B w/sim</div> <div>2-CL/E</div> <div>TPH-Diesel by NHTPH</div> <div>114-Dioxane by W/Sim</div> <div>Total Metals by 8270C</div> <div>Mercury by 6020</div> <div>Reductive Precipitation</div> <div>Dissolved Metals by 6020</div> <div>Dissolved Mercury by 7470A</div> </div>
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SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	6	2	2	2	2	1	X	1	X	1	1	X	1	X	1	X	REMARKS
Trip Blank # 1-0620	6-9-20	0915		H2O	6	2	2	2													-
CTMW-14-0620		1002			13	3	3	3	2	1	X		1	X							8.00
CTMW-9-0620		1057			14	3	3	3	2	1	X	1									24.0
CTMW-8-0620		1141			14	3	3	3	2	1	X	1									8.70
CTMW-17-0620		1254			12	3	3	3	2		X										13.7
CTMW-17D-0620		1334			12	3	3	3	2		X										28.0
Field Blank # 1-0620	✓	1350		✓	13	3	3	3	2	1	X										-

REPORT REQUIREMENTS <input type="checkbox"/> I. Routine Report: Method Blank, Surrogate, as required <input type="checkbox"/> II. Report Dup., MS, MSD as required <input type="checkbox"/> III. CLP Like Summary (no raw data) <input checked="" type="checkbox"/> IV. Data Validation Report <input type="checkbox"/> V. EDD	INVOICE INFORMATION P.O. # <u>376.01</u> Bill To: <u>Greg Fink</u> <u>Skencycle Environmental</u>	Circle which metals are to be analyzed: Total Metals: Al <input checked="" type="checkbox"/> Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Ti Sn V Zn Hg Dissolved Metals: Al <input checked="" type="checkbox"/> Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Ti Sn V Zn Hg *INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: _____ (CIRCLE ONE) SPECIAL INSTRUCTIONS/COMMENTS: <u>see pg. 2 for lab instructions</u> <u>custody seals on coolers</u> <u>shipped via FedEx.</u> <input type="checkbox"/> Sample Shipment contains USDA regulated soil samples (check box if applicable)
TURNAROUND REQUIREMENTS <input type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 5 day <input checked="" type="checkbox"/> Standard (10-15 working days) <input type="checkbox"/> Provide Verbal Preliminary Results <input type="checkbox"/> Provide FAX preliminary Results Requested Report Date _____		

RELINQUISHED BY: <u>[Signature]</u> Signature <u>Shanki K. Ashchuk</u> Printed Name <u>5.9.20/1530</u> Date/Time <u>Skencycle</u> Firm	RECEIVED BY: <u>[Signature]</u> Signature <u>[Signature]</u> Printed Name <u>6/10/20 0940</u> Date/Time <u>[Signature]</u> Firm	RELINQUISHED BY: Signature _____ Date/Time _____ Printed Name _____ Firm _____	RECEIVED BY: Signature _____ Date/Time _____ Printed Name _____ Firm _____
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K2004781

Lab Instructions for
Stericycle Tacoma Facility
2nd Quarter 2020
Groundwater Monitoring Event

1. Analyze by Methods:


- VOC by 8260B
- VOC by 8260B w/SIM
- 2-Chloroethyl Vinyl Ether
- 1,4-Dioxane by 8270C w/SIM
- TPH-Diesel by NWTPH-Dx with acid silica-gel cleanup
- TPH-Gasoline by NWTPH-Gx
- Total Metals by 6020 (including mercury by 7470A)
- Reductive Precipitation

2. Total metals include:

- Arsenic
- Cadmium
- Chromium
- Copper
- Nickel
- Zinc
- Lead
- Mercury by 7470A

3. Dissolved Metals (including Dissolved Mercury)

Total metals samples with a turbidity > 5 NTU will be accompanied by field filtered samples and will be labeled as (Dissolved Metals/ Dissolved Mercury).

RELINQUISHED BY:  _____

DATE: 6-9-20

TIME: 1530

Page 2 of 2



PC M14

Cooler Receipt and Preservation Form

Client Stericycle Service Request K2004781

Received: 6/10/20 Opened: 6/10/20 By: [Signature] Unloaded: 6/10/20 By: [Signature]

- 1. Samples were received via? USPS Fed Ex UPS DHL PDX Courier Hand Delivered
- 2. Samples were received in: (circle) Cooler Box Envelope Other NA
- 3. Were custody seals on coolers? NA Y N If yes, how many and where? One front
- If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Temp Blank	Sample 1	Sample 2	Sample 3	Sample 4	IR GUN	Cooler / COC ID	Tracking Number	NA	Filed
5.5	-	-	-	-	1120	<u>NA</u>	39369859	5987	
3.7	-	-	-	-	"		"	5986	

- 4. Packing material: Inserts Baggies Bubble Wrap Gel Packs Wet Ice Dry Ice Sleeves
- 5. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
- 6. Were samples received in good condition (temperature, unbroken)? Indicate in the table below. NA Y N
If applicable, tissue samples were received: Frozen Partially Thawed Thawed
- 7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
- 8. Did all sample labels and tags agree with custody papers? Indicate major discrepancies in the table on page 2. NA Y N
- 9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
- 10. Were the pH-preserved bottles (see SMO GEN SOP) received at the appropriate pH? Indicate in the table below. NA Y N
- 11. Were VOA vials received without headspace? Indicate in the table below. NA Y N
- 12. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count	Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time
CTMW-9-0620	16	125ml				X	HNO3	2ml/0.5m	REF-54-C	[Signature]	1140
" -8-0620	"	"				X	"	"	"	"	"

Notes, Discrepancies, & Resolutions: _____



CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

1317 South 13th Ave. • Kelso, WA 98626 • +1 360 577 7222 • +1 800 695 7222 • FAX +1 360 636 1068 DATE 6-10-20 PAGE 1 OF 2

PROJECT NAME <u>Tacoma 2020</u> # <u>376-01</u> PROJECT MANAGER <u>Greg Fink</u> COMPANY NAME <u>Stericycle Environmental Solutions</u> ADDRESS <u>1701 E. Alexander Ave.</u> <u>Tacoma WA 98421</u> PHONE <u>(215) 768 6470</u> SAMPLERS SIGNATURE <u>[Signature]</u>	NUMBER OF CONTAINERS	ANALYSIS REQUESTED VOC by 8260B VOC by 8260B w/ SIM 2-CVE TPH-Grossing by NWTPH-EX 114-Disturb by 8270C w/ SIM TPH-Disturb by NWTPH-EX Total Metals by 6020 Mercury by 7470A Reductive Precipitation Sample Depth K000781
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SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	8	2	2	2	2												REMARKS	
Trip Blank #2-0620	6-10-20	0815	8	H2O	8	2	2	2	2													
CTMW-5-0620		0908	9		13	3	3	3		1	2	1	X								9.95	
CTMW-12-0620		0947	10		12	3	3	3			2	1	X								26.0	
CTMW-24-0620		1034	11		13	3	3	3		1	2	1	X								10.5	
CTMW-24D-0620		1109	12		13	3	3	3		1	2	1	X								24.0	
CTMW-7-0620		1152	13		40	9	9	9		3	6	3	X	1							25.0	Extra Volume for MS, MSD
CTMW-9-7-0620		1152	14		14	3	3	3		1	2	1	X	1							25.0	
CTMW-18-0620		1255	19		22	3	3	3	9	1	2	1	X								12.4	Extra Volume for MS, MSD
CTMW-9-18-0620	✓	1255	16	✓	3				3												12.4	
					6-10-20																	

REPORT REQUIREMENTS <input type="checkbox"/> I. Routine Report: Method Blank, Surrogate, as required <input type="checkbox"/> II. Report Dup., MS, MSD as required <input type="checkbox"/> III. CLP Like Summary (no raw data) <input checked="" type="checkbox"/> IV. Data Validation Report <input type="checkbox"/> V. EDD	INVOICE INFORMATION P.O. # <u>376-01</u> Bill To: <u>Stericycle</u> <u>Greg Fink</u>	Circle which metals are to be analyzed: Total Metals: Al <input checked="" type="checkbox"/> As <input type="checkbox"/> Sb <input type="checkbox"/> Ba <input type="checkbox"/> Be <input type="checkbox"/> B <input type="checkbox"/> Ca <input type="checkbox"/> Cd <input type="checkbox"/> Co <input type="checkbox"/> Cr <input type="checkbox"/> Cu <input type="checkbox"/> Fe <input type="checkbox"/> Pb <input type="checkbox"/> Mg <input type="checkbox"/> Mn <input type="checkbox"/> Mo <input type="checkbox"/> Ni <input type="checkbox"/> K <input type="checkbox"/> Ag <input type="checkbox"/> Na <input type="checkbox"/> Se <input type="checkbox"/> Sr <input type="checkbox"/> Ti <input type="checkbox"/> Sn <input type="checkbox"/> V <input type="checkbox"/> Zn <input type="checkbox"/> Hg Dissolved Metals: Al <input type="checkbox"/> As <input type="checkbox"/> Sb <input type="checkbox"/> Ba <input type="checkbox"/> Be <input type="checkbox"/> B <input type="checkbox"/> Ca <input type="checkbox"/> Cd <input type="checkbox"/> Co <input type="checkbox"/> Cr <input type="checkbox"/> Cu <input type="checkbox"/> Fe <input type="checkbox"/> Pb <input type="checkbox"/> Mg <input type="checkbox"/> Mn <input type="checkbox"/> Mo <input type="checkbox"/> Ni <input type="checkbox"/> K <input type="checkbox"/> Ag <input type="checkbox"/> Na <input type="checkbox"/> Se <input type="checkbox"/> Sr <input type="checkbox"/> Ti <input type="checkbox"/> Sn <input type="checkbox"/> V <input type="checkbox"/> Zn <input type="checkbox"/> Hg *INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: _____ (CIRCLE ONE) SPECIAL INSTRUCTIONS/COMMENTS: <u>see pg. 2 for Lab Instructions</u> <u>custody seals on coolers</u> <u>Shipped via Fed Ex.</u> <u>* Note - This is the end of Tacoma 2020 GW Sampling.</u> <input type="checkbox"/> Sample Shipment contains USDA regulated soil samples (check box if applicable)
TURNAROUND REQUIREMENTS <input type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 5 day <input checked="" type="checkbox"/> Standard (10-15 working days) <input type="checkbox"/> Provide Verbal Preliminary Results <input type="checkbox"/> Provide FAX preliminary Results Requested Report Date _____		

RELINQUISHED BY: <u>[Signature]</u> <u>6-10-20/1500</u> Signature Date/Time <u>SKARLIK KARASHCHUK</u> <u>Stericycle</u> Printed Name Firm	RECEIVED BY: <u>[Signature]</u> <u>6-11-20 0920</u> Signature Date/Time <u>[Signature]</u> <u>AW</u> Printed Name Firm	RELINQUISHED BY: Signature Date/Time Printed Name Firm	RECEIVED BY: Signature Date/Time Printed Name Firm
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Lab Instructions for
Stericycle Tacoma Facility
2nd Quarter 2020
Groundwater Monitoring Event

1. Analyze by Methods:

VOC by 8260B
VOC by 8260B w/SIM
2-Chloroethyl Vinyl Ether
1,4-Dioxane by 8270C w/SIM
TPH-Diesel by NWTPH-Dx with acid silica-gel cleanup
TPH-Gasoline by NWTPH-Gx
Total Metals by 6020 (including mercury by 7470A)
Reductive Precipitation

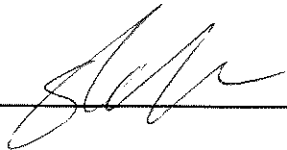
2. Total metals include:

Arsenic
Cadmium
Chromium
Copper
Nickel
Zinc
Lead
Mercury by 7470A

3. Dissolved Metals (including Dissolved Mercury)

Total metals samples with a turbidity > 5 NTU will be accompanied by field filtered samples and will be labeled as (Dissolved Metals/ Dissolved Mercury).

RELINQUISHED BY:



DATE: 6-10-20

TIME: 1500

Page 2 of 2



6/11/20 0920



PC MA

Cooler Receipt and Preservation Form

Client Stencycle Service Request K20 04781
 Received: 6/11/20 Opened: 6/11/20 By: BR Unloaded: 6/11/20 By: BR

1. Samples were received via? USPS Fed Ex UPS DHL PDX Courier Hand Delivered
 2. Samples were received in: (circle) Cooler Box Envelope Other NA
 3. Were custody seals on coolers? NA Y N If yes, how many and where? 1 front
 If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Temp Blank	Sample 1	Sample 2	Sample 3	Sample 4	IR GUN	Cooler / COC ID	NA	Tracking Number	NA	Filed
<u>5.8</u>	-	-	-	-	<u>1201</u>	<u>12</u>		<u>39373536172</u>	<u>0</u>	
<u>5.4</u>	-	-	-	-	↓	<u>212</u>		<u>39373536173</u>		

4. Packing material: Inserts Baggies Bubble Wrap Gel Packs Wet Ice Dry Ice Sleeves
 5. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
 6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA Y N
 If applicable, tissue samples were received: Frozen Partially Thawed Thawed
 7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
 8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
 9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
 10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
 11. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
 12. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head- space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time
<u>CTMW-9-1-06202 of 9 vial</u>				<u>x</u>						
<u>CTMW-7-0620 1 of 2 vial</u>				<u>x</u>						
<u>1hp blank</u>	<u>8 of 8 vial</u>		<u>x</u>							

Notes, Discrepancies, & Resolutions: _____



Metals

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water
Sample Name: CTMW-14-0620
Lab Code: K2004781-002

Service Request: K2004781
Date Collected: 06/09/20 10:02
Date Received: 06/10/20 09:40

Basis: NA

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	0.00309	mg/L	0.00050	0.00009	1	06/22/20 14:00	06/17/20	
Cadmium	6020A	0.000119	mg/L	0.000020	0.000008	1	06/22/20 14:00	06/17/20	
Chromium	6020A	0.00121	mg/L	0.00020	0.00003	1	06/22/20 14:00	06/17/20	
Copper	6020A	0.00585	mg/L	0.00010	0.00005	1	06/22/20 14:00	06/17/20	
Lead	6020A	0.000068	mg/L	0.000020	0.000006	1	06/22/20 14:00	06/17/20	
Mercury	7470A	ND U	mg/L	0.00020	0.00002	1	06/18/20 08:54	06/17/20	
Nickel	6020A	0.00074	mg/L	0.00020	0.00004	1	06/22/20 14:00	06/17/20	
Zinc	6020A	0.0048	mg/L	0.0020	0.0005	1	06/22/20 14:00	06/17/20	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water
Sample Name: CTMW-14-0620
Lab Code: K2004781-002

Service Request: K2004781
Date Collected: 06/09/20 10:02
Date Received: 06/10/20 09:40
Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	0.00343	mg/L	0.00050	0.00009	1	06/22/20 13:41	06/17/20	
Cadmium	6020A	0.000174	mg/L	0.000020	0.000008	1	06/22/20 13:41	06/17/20	
Chromium	6020A	0.00145	mg/L	0.00020	0.00003	1	06/22/20 13:41	06/17/20	
Copper	6020A	0.00780	mg/L	0.00010	0.00005	1	06/22/20 13:41	06/17/20	
Lead	6020A	0.000793	mg/L	0.000020	0.000006	1	06/22/20 13:41	06/17/20	
Mercury	7470A	ND U	mg/L	0.00020	0.00002	1	06/18/20 08:52	06/17/20	
Nickel	6020A	0.00080	mg/L	0.00020	0.00004	1	06/22/20 13:41	06/17/20	
Zinc	6020A	0.0057	mg/L	0.0020	0.0005	1	06/22/20 13:41	06/17/20	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water
Sample Name: CTMW-9-0620
Lab Code: K2004781-003

Service Request: K2004781
Date Collected: 06/09/20 10:57
Date Received: 06/10/20 09:40

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	0.00078	mg/L	0.00050	0.00009	1	06/22/20 13:42	06/17/20	
Cadmium	6020A	ND U	mg/L	0.000020	0.000008	1	06/22/20 13:42	06/17/20	
Chromium	6020A	0.00624	mg/L	0.00020	0.00003	1	06/22/20 13:42	06/17/20	
Copper	6020A	0.00028	mg/L	0.00010	0.00005	1	06/22/20 13:42	06/17/20	
Lead	6020A	0.000020	mg/L	0.000020	0.000006	1	06/22/20 13:42	06/17/20	
Mercury	7470A	0.00002 J	mg/L	0.00020	0.00002	1	06/18/20 08:55	06/17/20	
Nickel	6020A	0.00606	mg/L	0.00020	0.00004	1	06/22/20 13:42	06/17/20	
Zinc	6020A	0.0007 J	mg/L	0.0020	0.0005	1	06/22/20 13:42	06/17/20	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water
Sample Name: CTMW-8-0620
Lab Code: K2004781-004

Service Request: K2004781
Date Collected: 06/09/20 11:41
Date Received: 06/10/20 09:40
Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	0.0109	mg/L	0.00050	0.00009	1	06/22/20 13:44	06/17/20	
Cadmium	6020A	0.000015 J	mg/L	0.000020	0.000008	1	06/22/20 13:44	06/17/20	
Chromium	6020A	0.00015 J	mg/L	0.00020	0.00003	1	06/22/20 13:44	06/17/20	
Copper	6020A	0.00070	mg/L	0.00010	0.00005	1	06/22/20 13:44	06/17/20	
Lead	6020A	0.000270	mg/L	0.000020	0.000006	1	06/22/20 13:44	06/17/20	
Mercury	7470A	ND U	mg/L	0.00020	0.00002	1	06/18/20 08:57	06/17/20	
Nickel	6020A	0.00158	mg/L	0.00020	0.00004	1	06/22/20 13:44	06/17/20	
Zinc	6020A	0.0010 J	mg/L	0.0020	0.0005	1	06/22/20 13:44	06/17/20	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water
Sample Name: CTMW-17-0620
Lab Code: K2004781-005

Service Request: K2004781
Date Collected: 06/09/20 12:54
Date Received: 06/10/20 09:40

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	0.00377	mg/L	0.00050	0.00009	1	06/22/20 13:49	06/17/20	
Cadmium	6020A	0.000387	mg/L	0.000020	0.000008	1	06/22/20 13:49	06/17/20	
Chromium	6020A	0.00118	mg/L	0.00020	0.00003	1	06/22/20 13:49	06/17/20	
Copper	6020A	0.0326	mg/L	0.00010	0.00005	1	06/22/20 13:49	06/17/20	
Lead	6020A	0.0149	mg/L	0.000020	0.000006	1	06/22/20 13:49	06/17/20	
Mercury	7470A	ND U	mg/L	0.00020	0.00002	1	06/18/20 08:59	06/17/20	
Nickel	6020A	0.00685	mg/L	0.00020	0.00004	1	06/22/20 13:49	06/17/20	
Zinc	6020A	0.0191	mg/L	0.0020	0.0005	1	06/22/20 13:49	06/17/20	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water
Sample Name: CTMW-17D-0620
Lab Code: K2004781-006

Service Request: K2004781
Date Collected: 06/09/20 13:34
Date Received: 06/10/20 09:40
Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	0.00040 J	mg/L	0.00050	0.00009	1	06/22/20 13:51	06/17/20	
Cadmium	6020A	0.000070	mg/L	0.000020	0.000008	1	06/22/20 13:51	06/17/20	
Chromium	6020A	0.00406	mg/L	0.00020	0.00003	1	06/22/20 13:51	06/17/20	
Copper	6020A	0.00021	mg/L	0.00010	0.00005	1	06/22/20 13:51	06/17/20	
Lead	6020A	0.000140	mg/L	0.000020	0.000006	1	06/22/20 13:51	06/17/20	
Mercury	7470A	ND U	mg/L	0.00020	0.00002	1	06/18/20 09:00	06/17/20	
Nickel	6020A	0.00161	mg/L	0.00020	0.00004	1	06/22/20 13:51	06/17/20	
Zinc	6020A	0.0064	mg/L	0.0020	0.0005	1	06/22/20 13:51	06/17/20	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water
Sample Name: FieldBlank#1-0620
Lab Code: K2004781-007

Service Request: K2004781
Date Collected: 06/09/20 13:50
Date Received: 06/10/20 09:40
Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	ND U	mg/L	0.00050	0.00009	1	06/22/20 13:52	06/17/20	
Cadmium	6020A	ND U	mg/L	0.000020	0.000008	1	06/22/20 13:52	06/17/20	
Chromium	6020A	0.00009 J	mg/L	0.00020	0.00003	1	06/22/20 13:52	06/17/20	
Copper	6020A	ND U	mg/L	0.00010	0.00005	1	06/22/20 13:52	06/17/20	
Lead	6020A	ND U	mg/L	0.000020	0.000006	1	06/22/20 13:52	06/17/20	
Mercury	7470A	ND U	mg/L	0.00020	0.00002	1	06/18/20 09:02	06/17/20	
Nickel	6020A	0.00006 J	mg/L	0.00020	0.00004	1	06/22/20 13:52	06/17/20	
Zinc	6020A	ND U	mg/L	0.0020	0.0005	1	06/22/20 13:52	06/17/20	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water
Sample Name: CTMW-5-0620
Lab Code: K2004781-009

Service Request: K2004781
Date Collected: 06/10/20 09:08
Date Received: 06/11/20 09:20
Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	0.0392	mg/L	0.00050	0.00009	1	06/22/20 13:54	06/17/20	
Cadmium	6020A	0.000039	mg/L	0.000020	0.000008	1	06/22/20 13:54	06/17/20	
Chromium	6020A	0.00280	mg/L	0.00020	0.00003	1	06/22/20 13:54	06/17/20	
Copper	6020A	0.00370	mg/L	0.00010	0.00005	1	06/22/20 13:54	06/17/20	
Lead	6020A	0.000573	mg/L	0.000020	0.000006	1	06/22/20 13:54	06/17/20	
Mercury	7470A	ND U	mg/L	0.00020	0.00002	1	06/18/20 09:04	06/17/20	
Nickel	6020A	0.00426	mg/L	0.00020	0.00004	1	06/22/20 13:54	06/17/20	
Zinc	6020A	0.0047	mg/L	0.0020	0.0005	1	06/22/20 13:54	06/17/20	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water
Sample Name: CTMW-12-0620
Lab Code: K2004781-010

Service Request: K2004781
Date Collected: 06/10/20 09:47
Date Received: 06/11/20 09:20
Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	0.00023 J	mg/L	0.00050	0.00009	1	06/22/20 13:55	06/17/20	
Cadmium	6020A	ND U	mg/L	0.000020	0.000008	1	06/22/20 13:55	06/17/20	
Chromium	6020A	0.00251	mg/L	0.00020	0.00003	1	06/22/20 13:55	06/17/20	
Copper	6020A	0.00016	mg/L	0.00010	0.00005	1	06/22/20 13:55	06/17/20	
Lead	6020A	0.000016 J	mg/L	0.000020	0.000006	1	06/22/20 13:55	06/17/20	
Mercury	7470A	ND U	mg/L	0.00020	0.00002	1	06/18/20 09:09	06/17/20	
Nickel	6020A	0.00080	mg/L	0.00020	0.00004	1	06/22/20 13:55	06/17/20	
Zinc	6020A	0.0006 J	mg/L	0.0020	0.0005	1	06/22/20 13:55	06/17/20	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water
Sample Name: CTMW-24-0620
Lab Code: K2004781-011

Service Request: K2004781
Date Collected: 06/10/20 10:34
Date Received: 06/11/20 09:20

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	0.00062	mg/L	0.00050	0.00009	1	06/22/20 13:57	06/17/20	
Cadmium	6020A	ND U	mg/L	0.000020	0.000008	1	06/22/20 13:57	06/17/20	
Chromium	6020A	0.00033	mg/L	0.00020	0.00003	1	06/22/20 13:57	06/17/20	
Copper	6020A	0.00058	mg/L	0.00010	0.00005	1	06/22/20 13:57	06/17/20	
Lead	6020A	0.000051	mg/L	0.000020	0.000006	1	06/22/20 13:57	06/17/20	
Mercury	7470A	ND U	mg/L	0.00020	0.00002	1	06/18/20 09:10	06/17/20	
Nickel	6020A	0.00268	mg/L	0.00020	0.00004	1	06/22/20 13:57	06/17/20	
Zinc	6020A	0.0013 J	mg/L	0.0020	0.0005	1	06/22/20 13:57	06/17/20	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water
Sample Name: CTMW-24D-0620
Lab Code: K2004781-012

Service Request: K2004781
Date Collected: 06/10/20 11:09
Date Received: 06/11/20 09:20
Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	0.00110	mg/L	0.00050	0.00009	1	06/22/20 13:59	06/17/20	
Cadmium	6020A	ND U	mg/L	0.000020	0.000008	1	06/22/20 13:59	06/17/20	
Chromium	6020A	0.0109	mg/L	0.00020	0.00003	1	06/22/20 13:59	06/17/20	
Copper	6020A	0.00104	mg/L	0.00010	0.00005	1	06/22/20 13:59	06/17/20	
Lead	6020A	0.000095	mg/L	0.000020	0.000006	1	06/22/20 13:59	06/17/20	
Mercury	7470A	ND U	mg/L	0.00020	0.00002	1	06/18/20 09:12	06/17/20	
Nickel	6020A	0.00085	mg/L	0.00020	0.00004	1	06/22/20 13:59	06/17/20	
Zinc	6020A	0.0006 J	mg/L	0.0020	0.0005	1	06/22/20 13:59	06/17/20	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water
Sample Name: CTMW-7-0620
Lab Code: K2004781-013

Service Request: K2004781
Date Collected: 06/10/20 11:52
Date Received: 06/11/20 09:20
Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Mercury	7470A	ND U	mg/L	0.00020	0.00002	1	06/18/20 09:13	06/17/20	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water
Sample Name: CTMW-9-7-0620
Lab Code: K2004781-014

Service Request: K2004781
Date Collected: 06/10/20 11:52
Date Received: 06/11/20 09:20
Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Mercury	7470A	ND U	mg/L	0.00020	0.00002	1	06/18/20 09:20	06/17/20	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water
Sample Name: CTMW-18-0620
Lab Code: K2004781-015

Service Request: K2004781
Date Collected: 06/10/20 12:55
Date Received: 06/11/20 09:20

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	0.00627	mg/L	0.00050	0.00009	1	06/22/20 13:32	06/17/20	
Cadmium	6020A	0.000192	mg/L	0.000020	0.000008	1	06/22/20 13:32	06/17/20	
Chromium	6020A	0.00101	mg/L	0.00020	0.00003	1	06/22/20 13:32	06/17/20	
Copper	6020A	0.00379	mg/L	0.00010	0.00005	1	06/22/20 13:32	06/17/20	
Lead	6020A	0.000788	mg/L	0.000020	0.000006	1	06/22/20 13:32	06/17/20	
Mercury	7470A	ND U	mg/L	0.00020	0.00002	1	06/18/20 09:21	06/17/20	
Nickel	6020A	0.0101	mg/L	0.00020	0.00004	1	06/22/20 13:32	06/17/20	
Zinc	6020A	0.0043	mg/L	0.0020	0.0005	1	06/22/20 13:32	06/17/20	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: KQ2008095-01

Service Request: K2004781
Date Collected: NA
Date Received: NA
Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	ND U	mg/L	0.00050	0.00009	1	06/22/20 13:29	06/17/20	
Cadmium	6020A	ND U	mg/L	0.000020	0.000008	1	06/22/20 13:29	06/17/20	
Chromium	6020A	ND U	mg/L	0.00020	0.00003	1	06/22/20 13:29	06/17/20	
Copper	6020A	ND U	mg/L	0.00010	0.00005	1	06/22/20 13:29	06/17/20	
Lead	6020A	0.000006 J	mg/L	0.000020	0.000006	1	06/22/20 13:29	06/17/20	
Nickel	6020A	0.00009 J	mg/L	0.00020	0.00004	1	06/22/20 13:29	06/17/20	
Zinc	6020A	0.0008 J	mg/L	0.0020	0.0005	1	06/22/20 13:29	06/17/20	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: KQ2008109-01

Service Request: K2004781
Date Collected: NA
Date Received: NA
Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Mercury	7470A	ND U	mg/L	0.00020	0.00002	1	06/18/20 08:49	06/17/20	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20
Date Received: 06/11/20
Date Analyzed: 06/22/20

Replicate Sample Summary

Total Metals

Sample Name: CTMW-18-0620
Lab Code: K2004781-015

Units: mg/L
Basis: NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample	Average	RPD	RPD Limit
					KQ2008095-03 Result			
Arsenic	6020A	0.00050	0.00009	0.00627	0.00620	0.00624	1	20
Cadmium	6020A	0.000020	0.000008	0.000192	0.000195	0.000194	2	20
Chromium	6020A	0.00020	0.00003	0.00101	0.00100	0.00101	<1	20
Copper	6020A	0.00010	0.00005	0.00379	0.00369	0.00374	3	20
Lead	6020A	0.000020	0.000006	0.000788	0.000803	0.000796	2	20
Nickel	6020A	0.00020	0.00004	0.0101	0.0100	0.0101	<1	20
Zinc	6020A	0.0020	0.0005	0.0043	0.0047	0.0045	9	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20
Date Received: 06/11/20
Date Analyzed: 06/18/20

Replicate Sample Summary

Total Metals

Sample Name: CTMW-7-0620
Lab Code: K2004781-013

Units: mg/L
Basis: NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample	Average	RPD	RPD Limit
					KQ2008109-03			
Mercury	7470A	0.00020	0.00002	ND U	0.00002 J	NC	NC	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20
Date Received: 06/11/20
Date Analyzed: 06/18/20

Replicate Sample Summary
Total Metals

Sample Name: CTMW-18-0620
Lab Code: K2004781-015

Units: mg/L
Basis: NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample	Average	RPD	RPD Limit
					KQ2008109-09 Result			
Mercury	7470A	0.00020	0.00002	ND U	ND U	ND	-	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20
Date Received: 06/11/20
Date Analyzed: 06/22/20
Date Extracted: 06/17/20

Matrix Spike Summary
Total Metals

Sample Name: CTMW-18-0620
Lab Code: K2004781-015
Analysis Method: 6020A
Prep Method: EPA CLP ILM04.0

Units: mg/L
Basis: NA

Matrix Spike
KQ2008095-04

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Arsenic	0.00627	0.0537	0.0500	95	75-125
Cadmium	0.000192	0.0242	0.0250	96	75-125
Chromium	0.00101	0.0102	0.0100	92	75-125
Copper	0.00379	0.0151	0.0125	91	75-125
Lead	0.000788	0.0479	0.0500	94	75-125
Nickel	0.0101	0.0328	0.0250	91	75-125
Zinc	0.0043	0.0277	0.0250	93	75-125

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20
Date Received: 06/11/20
Date Analyzed: 06/18/20
Date Extracted: 06/17/20

Matrix Spike Summary
Total Metals

Sample Name: CTMW-7-0620
Lab Code: K2004781-013
Analysis Method: 7470A
Prep Method: Method

Units: mg/L
Basis: NA

Matrix Spike
KQ2008109-04

<u>Analyte Name</u>	<u>Sample Result</u>	<u>Result</u>	<u>Spike Amount</u>	<u>% Rec</u>	<u>% Rec Limits</u>
Mercury	ND U	0.00479	0.00500	96	75-125

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20
Date Received: 06/11/20
Date Analyzed: 06/18/20
Date Extracted: 06/17/20

Matrix Spike Summary
Total Metals

Sample Name: CTMW-18-0620
Lab Code: K2004781-015
Analysis Method: 7470A
Prep Method: Method

Units: mg/L
Basis: NA

Matrix Spike
KQ2008109-10

<u>Analyte Name</u>	<u>Sample Result</u>	<u>Result</u>	<u>Spike Amount</u>	<u>% Rec</u>	<u>% Rec Limits</u>
Mercury	ND U	0.00528	0.00500	106	75-125

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Analyzed: 06/22/20

Lab Control Sample Summary
Total Metals

Units:mg/L
Basis:NA

Lab Control Sample
KQ2008095-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Arsenic	6020A	0.0504	0.0500	101	80-120
Cadmium	6020A	0.0255	0.0250	102	80-120
Chromium	6020A	0.0101	0.0100	101	80-120
Copper	6020A	0.0125	0.0125	100	80-120
Lead	6020A	0.0506	0.0500	101	80-120
Nickel	6020A	0.0250	0.0250	100	80-120
Zinc	6020A	0.0260	0.0250	104	80-120

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Analyzed: 06/18/20

Lab Control Sample Summary
Total Metals

Units:mg/L
Basis:NA

Lab Control Sample
KQ2008109-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Mercury	7470A	0.00534	0.00500	107	80-120

ALS Group USA, Corp.
dba ALS Environmental

Prep Summary Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781

Metals

Prep Method: EPA CLP ILM04.0
Analytical Method: 6020A

Extraction Lot: 360136
Extraction Date: 06/17/20 10:45

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
CTMW-14-0620	K2004781-002	6/9/20	6/10/20	10 mL	10 mL	
CTMW-14-0620	K2004781-002	6/9/20	6/10/20	10 mL	10 mL	
CTMW-9-0620	K2004781-003	6/9/20	6/10/20	10 mL	10 mL	
CTMW-8-0620	K2004781-004	6/9/20	6/10/20	10 mL	10 mL	
CTMW-17-0620	K2004781-005	6/9/20	6/10/20	10 mL	10 mL	
CTMW-17D-0620	K2004781-006	6/9/20	6/10/20	10 mL	10 mL	
FieldBlank#1-0620	K2004781-007	6/9/20	6/10/20	10 mL	10 mL	
CTMW-5-0620	K2004781-009	6/10/20	6/11/20	10 mL	10 mL	
CTMW-12-0620	K2004781-010	6/10/20	6/11/20	10 mL	10 mL	
CTMW-24-0620	K2004781-011	6/10/20	6/11/20	10 mL	10 mL	
CTMW-24D-0620	K2004781-012	6/10/20	6/11/20	10 mL	10 mL	
CTMW-18-0620	K2004781-015	6/10/20	6/11/20	10 mL	10 mL	
Method Blank	KQ2008095-01MB	NA	NA	10 mL	10 mL	
Lab Control Sample	KQ2008095-02LCS	NA	NA	10 mL	10.3 mL	
Duplicate	KQ2008095-03DUP	6/10/20	6/11/20	10 mL	10 mL	
Matrix Spike	KQ2008095-04MS	6/10/20	6/11/20	10 mL	10.3 mL	

ALS Group USA, Corp.
dba ALS Environmental

Prep Summary Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781

Metals

Prep Method: Method
Analytical Method: 7470A

Extraction Lot: 360146
Extraction Date: 06/17/20 12:50

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
CTMW-14-0620	K2004781-002	6/9/20	6/10/20	10 mL	10 mL	
CTMW-14-0620	K2004781-002	6/9/20	6/10/20	10 mL	10 mL	
CTMW-9-0620	K2004781-003	6/9/20	6/10/20	10 mL	10 mL	
CTMW-8-0620	K2004781-004	6/9/20	6/10/20	10 mL	10 mL	
CTMW-17-0620	K2004781-005	6/9/20	6/10/20	10 mL	10 mL	
CTMW-17D-0620	K2004781-006	6/9/20	6/10/20	10 mL	10 mL	
FieldBlank#1-0620	K2004781-007	6/9/20	6/10/20	10 mL	10 mL	
CTMW-5-0620	K2004781-009	6/10/20	6/11/20	10 mL	10 mL	
CTMW-12-0620	K2004781-010	6/10/20	6/11/20	10 mL	10 mL	
CTMW-24-0620	K2004781-011	6/10/20	6/11/20	10 mL	10 mL	
CTMW-24D-0620	K2004781-012	6/10/20	6/11/20	10 mL	10 mL	
CTMW-7-0620	K2004781-013	6/10/20	6/11/20	10 mL	10 mL	
CTMW-9-7-0620	K2004781-014	6/10/20	6/11/20	10 mL	10 mL	
CTMW-18-0620	K2004781-015	6/10/20	6/11/20	10 mL	10 mL	
Method Blank	KQ2008109-01MB	NA	NA	10 mL	10 mL	
Lab Control Sample	KQ2008109-02LCS	NA	NA	10 mL	10 mL	
Duplicate	KQ2008109-03DUP	6/10/20	6/11/20	10 mL	10 mL	
Matrix Spike	KQ2008109-04MS	6/10/20	6/11/20	10 mL	10 mL	
Duplicate	KQ2008109-09DUP	6/10/20	6/11/20	10 mL	10 mL	
Matrix Spike	KQ2008109-10MS	6/10/20	6/11/20	10 mL	10 mL	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID	Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits
ICV 06/18/20 08:41	Mercury	7470A	684189	5.02	5.00	100	90-110
CCV 06/18/20 08:46	Mercury	7470A	684189	5.11	5.00	102	90-110
CCV 06/18/20 09:05	Mercury	7470A	684189	5.07	5.00	101	90-110
CCV 06/18/20 09:25	Mercury	7470A	684189	5.14	5.00	103	90-110
CCV 06/18/20 09:47	Mercury	7470A	684189	5.13	5.00	103	90-110
ICV 06/22/20 13:04	Arsenic	6020A	684535	24.4	25.0	98	90-110
	Cadmium	6020A	684535	12.4	12.5	99	90-110
	Chromium	6020A	684535	10.0	10.0	100	90-110
	Copper	6020A	684535	12.0	12.5	96	90-110
	Lead	6020A	684535	24.7	25.0	99	90-110
	Nickel	6020A	684535	24.6	25.0	99	90-110
	Zinc	6020A	684535	25.8	25.0	103	90-110
CCV 06/22/20 13:06	Arsenic	6020A	684535	24.6	25.0	99	90-110
	Cadmium	6020A	684535	25.3	25.0	101	90-110
	Chromium	6020A	684535	25.0	25.0	100	90-110
	Copper	6020A	684535	24.4	25.0	97	90-110
	Lead	6020A	684535	25.0	25.0	100	90-110
	Nickel	6020A	684535	24.4	25.0	98	90-110
	Zinc	6020A	684535	24.6	25.0	98	90-110
CCV 06/22/20 13:46	Arsenic	6020A	684535	25.4	25.0	102	90-110
	Cadmium	6020A	684535	24.8	25.0	99	90-110
	Chromium	6020A	684535	25.1	25.0	100	90-110
	Copper	6020A	684535	24.9	25.0	100	90-110
	Lead	6020A	684535	24.8	25.0	99	90-110
	Nickel	6020A	684535	25.0	25.0	100	90-110
	Zinc	6020A	684535	26.4	25.0	106	90-110
CCV 06/22/20 14:02	Arsenic	6020A	684535	25.8	25.0	103	90-110
	Cadmium	6020A	684535	25.0	25.0	100	90-110

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID	Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits
CCV 06/22/20 14:02	Chromium	6020A	684535	25.1	25.0	100	90-110
	Copper	6020A	684535	24.8	25.0	99	90-110
	Lead	6020A	684535	25.2	25.0	101	90-110
	Nickel	6020A	684535	24.8	25.0	99	90-110
	Zinc	6020A	684535	25.5	25.0	102	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

INITIAL AND CONTINUING CALIBRATION BLANKS

Concentration Units: ug/L

Sample ID	Analyte	Method	Analysis Batch:	Result	C
ICB 06/18/20 08:42	Mercury	7470A	684189	0.02	U
CCB 06/18/20 08:47	Mercury	7470A	684189	0.02	U
CCB 06/18/20 09:07	Mercury	7470A	684189	0.02	U
CCB 06/18/20 09:26	Mercury	7470A	684189	0.02	U
CCB 06/18/20 09:49	Mercury	7470A	684189	0.02	U
ICB 06/22/20 13:07	Arsenic	6020A	684535	0.09	U
	Cadmium	6020A	684535	0.008	U
	Chromium	6020A	684535	0.03	U
	Copper	6020A	684535	0.05	U
	Lead	6020A	684535	0.008	J
	Nickel	6020A	684535	0.04	U
	Zinc	6020A	684535	0.5	U
CCB 06/22/20 13:09	Arsenic	6020A	684535	0.09	U
	Cadmium	6020A	684535	0.008	U
	Chromium	6020A	684535	0.03	U
	Copper	6020A	684535	0.05	U
	Lead	6020A	684535	0.006	U
	Nickel	6020A	684535	0.04	U
	Zinc	6020A	684535	0.5	U
CCB 06/22/20 13:47	Arsenic	6020A	684535	0.09	U
	Cadmium	6020A	684535	0.008	U
	Chromium	6020A	684535	0.03	U
	Copper	6020A	684535	0.05	U
	Lead	6020A	684535	0.006	U
	Nickel	6020A	684535	0.04	U
	Zinc	6020A	684535	0.5	U
CCB 06/22/20 14:04	Arsenic	6020A	684535	0.09	U
	Cadmium	6020A	684535	0.008	U

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

INITIAL AND CONTINUING CALIBRATION BLANKS

Concentration Units: ug/L

Sample ID

Analyte	Method	Analysis Batch:	Result	C
CCB 06/22/20 14:04				
Chromium	6020A	684535	0.03	U
Copper	6020A	684535	0.05	U
Lead	6020A	684535	0.006	U
Nickel	6020A	684535	0.04	U
Zinc	6020A	684535	0.5	U

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

LOW LEVEL INITIAL AND LOW LEVEL CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID	Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
LLICV	Mercury	7470A	684189	0.21	0.2	106	50-150	06/18/20 08:44
LLICV	Arsenic	6020A	684535	0.46	0.5	93	70-130	06/22/20 13:11
	Cadmium	6020A	684535	0.019	0.02	94	70-130	06/22/20 13:11
	Chromium	6020A	684535	0.20	0.2	98	70-130	06/22/20 13:11
	Copper	6020A	684535	0.085	0.1	85	70-130	06/22/20 13:11
	Lead	6020A	684535	0.021	0.02	107	70-130	06/22/20 13:11
	Nickel	6020A	684535	0.21	0.2	104	70-130	06/22/20 13:11
	Zinc	6020A	684535	1.8	2.0	88	70-130	06/22/20 13:11
LLCCV	Arsenic	6020A	684535	0.50	0.5	100	70-130	06/22/20 14:05
	Cadmium	6020A	684535	0.022	0.02	109	70-130	06/22/20 14:05
	Chromium	6020A	684535	0.19	0.2	93	70-130	06/22/20 14:05
	Copper	6020A	684535	0.094	0.1	94	70-130	06/22/20 14:05
	Lead	6020A	684535	0.019	0.02	94	70-130	06/22/20 14:05
	Nickel	6020A	684535	0.21	0.2	104	70-130	06/22/20 14:05
	Zinc	6020A	684535	2.0	2.0	98	70-130	06/22/20 14:05

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

ICP INTERFERENCE CHECK SAMPLE

Sample ID ICSA

Concentration Units: ug/L

Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
Arsenic	6020A	684535	0.16	-	-	-	06/22/20 13:17
Cadmium	6020A	684535	0.010	-	-	-	06/22/20 13:17
Chromium	6020A	684535	1.48	-	-	-	06/22/20 13:17
Copper	6020A	684535	0.99	-	-	-	06/22/20 13:17
Lead	6020A	684535	0.081	-	-	-	06/22/20 13:17
Nickel	6020A	684535	1.83	-	-	-	06/22/20 13:17
Zinc	6020A	684535	0.7	-	-	-	06/22/20 13:17

ALS Group USA, Corp.
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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

ICP INTERFERENCE CHECK SAMPLE

Sample ID ICSAB

Concentration Units: ug/L

Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
Arsenic	6020A	684535	23.8	25.0	95	80-120	06/22/20 13:19
Cadmium	6020A	684535	23.7	25.0	95	80-120	06/22/20 13:19
Chromium	6020A	684535	49.6	50.0	99	80-120	06/22/20 13:19
Copper	6020A	684535	46.3	50.0	93	80-120	06/22/20 13:19
Lead	6020A	684535	0.088	-	-	-	06/22/20 13:19
Nickel	6020A	684535	47.9	50.0	96	80-120	06/22/20 13:19
Zinc	6020A	684535	24.0	25.0	96	80-120	06/22/20 13:19

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

POST SPIKE SAMPLE RECOVERY

Concentration Units: ppb

Sample ID	Analyte	Method	Analysis Batch:	Initial Sample Result	Post Spike Result	True Value	% Rec	% Rec. Limits	Analysis Date
K2004781-013A	Mercury	7470A	684189	0.02 U	5.01	5.00	100	80-120	06/18/20 09:18
K2004781-015A	Arsenic	6020A	684535	6.27	25.9	20.0	98	80-120	06/22/20 13:37
	Cadmium	6020A	684535	0.192	19.3	20.0	96	80-120	06/22/20 13:37
	Chromium	6020A	684535	1.01	20.3	20.0	96	80-120	06/22/20 13:37
	Copper	6020A	684535	3.79	22.2	20.0	92	80-120	06/22/20 13:37
	Lead	6020A	684535	0.788	19.8	20.0	95	80-120	06/22/20 13:37
	Nickel	6020A	684535	10.1	28.6	20.0	92	80-120	06/22/20 13:37
	Zinc	6020A	684535	4.3	23.6	20.0	96	80-120	06/22/20 13:37

Results flagged with a pound (#) indicate the control criteria is not applicable.

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

ICP SERIAL DILUTIONS

Concentration Units: ug/L

Sample ID	Analyte	Method	Analysis Batch:	Initial Sample Result	Serial Dillution Result	% Diff	% Diff. Limit	Analysis Date
K2004781-015SDL								
	Arsenic	6020A	684535	6.3	6.6	5	10	06/22/20 13:36
	Cadmium	6020A	684535	0.19	0.20	3	10	06/22/20 13:36
	Chromium	6020A	684535	1.0	1.0 J	5	10	06/22/20 13:36
	Copper	6020A	684535	3.79	3.85	2	10	06/22/20 13:36
	Lead	6020A	684535	0.79	0.78	1	10	06/22/20 13:36
	Nickel	6020A	684535	10.1	10.4	3	10	06/22/20 13:36
	Zinc	6020A	684535	4	4 J	2	10	06/22/20 13:36

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

Detection Limits

Instrument: K-CVAA-02

Matrix: Water

Analyte	Wavelength (nm)	Units	MRL	MDL	Method
Mercury	253	ug/L	0.2	0.02	7470A

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

Detection Limits

Instrument: K-ICP-MS-06

Matrix: Water

Analyte	Mass	Units	MRL	MDL	Method
Arsenic	75	ug/L	0.5	0.09	6020A
Cadmium	111	ug/L	0.02	0.008	6020A
Chromium	52	ug/L	0.2	0.03	6020A
Copper	65	ug/L	0.1	0.05	6020A
Lead	208	ug/L	0.02	0.006	6020A
Nickel	60	ug/L	0.2	0.04	6020A
Zinc	66	ug/L	2	0.5	6020A

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

ICP Linear Range (Quarterly)

Instrument: K-CVAA-02

Analyte	Concentration (ug/L)	Method
Mercury	10	7470A

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

ICP Linear Range (Quarterly)

Instrument: K-ICP-MS-06

Analyte	Concentration (ug/L)	Method
Arsenic 75	4500	6020A
Cadmium 111	9000	6020A
Chromium 52	9000	6020A
Copper 65	4500	6020A
Lead 208	4500	6020A
Nickel 60	4500	6020A
Zinc 66	9000	6020A

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

Analysis Run Log

Instrument ID: K-CVAA-02

Analytical BatchID: 684189

Sample	Dilution Factor	Date/Time	H g
ZZZZZZ	1	06/18/20 08:31	
ZZZZZZ	1	06/18/20 08:33	
ZZZZZZ	1	06/18/20 08:34	
ZZZZZZ	1	06/18/20 08:36	
ZZZZZZ	1	06/18/20 08:37	
ZZZZZZ	1	06/18/20 08:39	
ICV1	1	06/18/20 08:41	X
ICB1	1	06/18/20 08:42	X
LLICV1	1	06/18/20 08:44	X
CCV1	1	06/18/20 08:46	X
CCB1	1	06/18/20 08:47	X
KQ2008109-01MB	1	06/18/20 08:49	X
KQ2008109-02LCS	1	06/18/20 08:51	X
K2004781-002	1	06/18/20 08:52	X
K2004781-002	1	06/18/20 08:54	X
K2004781-003	1	06/18/20 08:55	X
K2004781-004	1	06/18/20 08:57	X
K2004781-005	1	06/18/20 08:59	X
K2004781-006	1	06/18/20 09:00	X
K2004781-007	1	06/18/20 09:02	X
K2004781-009	1	06/18/20 09:04	X
CCV2	1	06/18/20 09:05	X
CCB2	1	06/18/20 09:07	X
K2004781-010	1	06/18/20 09:09	X
K2004781-011	1	06/18/20 09:10	X
K2004781-012	1	06/18/20 09:12	X
K2004781-013	1	06/18/20 09:13	X
K2004781-013DUP	1	06/18/20 09:15	X
K2004781-013MS	1	06/18/20 09:17	X
K2004781-013PS	1	06/18/20 09:18	X
K2004781-014	1	06/18/20 09:20	X
K2004781-015	1	06/18/20 09:21	X
K2004781-015DUP	1	06/18/20 09:23	X
CCV3	1	06/18/20 09:25	X
CCB3	1	06/18/20 09:26	X
K2004781-015MS	1	06/18/20 09:28	X
ZZZZZZ	1	06/18/20 09:30	

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

Analysis Run Log

Instrument ID: K-CVAA-02

Analytical BatchID: 684189

Sample	Dilution Factor	Date/Time	H g
ZZZZZZ	1	06/18/20 09:31	
ZZZZZZ	1	06/18/20 09:33	
ZZZZZZ	1	06/18/20 09:35	
ZZZZZZ	5	06/18/20 09:36	
ZZZZZZ	5	06/18/20 09:38	
ZZZZZZ	1	06/18/20 09:39	
ZZZZZZ	5	06/18/20 09:41	
ZZZZZZ	5	06/18/20 09:43	
CCV4	1	06/18/20 09:47	X
CCB4	1	06/18/20 09:49	X

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

Analysis Run Log

Instrument ID: K-ICP-MS-06

Analytical BatchID: 684535

Sample	Dilution Factor	Date/Time	A	C	C	C	P	N	Z
			s	d	r	u	b	i	n
ZZZZZZ	1	06/22/20 13:01							
ZZZZZZ	1	06/22/20 13:02							
ICV	1	06/22/20 13:04	X	X	X	X	X	X	X
CCV	1	06/22/20 13:06	X	X	X	X	X	X	X
ICB	1	06/22/20 13:07	X	X	X	X	X	X	X
CCB	1	06/22/20 13:09	X	X	X	X	X	X	X
LLICVW	1	06/22/20 13:11	X	X	X	X	X	X	X
ZZZZZZ	1	06/22/20 13:13							
ICSA	1	06/22/20 13:17	X	X	X	X	X	X	X
ICSAB	1	06/22/20 13:19	X	X	X	X	X	X	X
ZZZZZZ	1	06/22/20 13:20							
ZZZZZZ	1	06/22/20 13:24							
ZZZZZZ	1	06/22/20 13:28							
KQ2008095-01MB	1	06/22/20 13:29	X	X	X	X	X	X	X
KQ2008095-02LCS	1	06/22/20 13:31	X	X	X	X	X	X	X
K2004781-015	1	06/22/20 13:32	X	X	X	X	X	X	X
K2004781-015DUP	1	06/22/20 13:34	X	X	X	X	X	X	X
K2004781-015SDL	5	06/22/20 13:36	X	X	X	X	X	X	X
K2004781-015PS	1	06/22/20 13:37	X	X	X	X	X	X	X
K2004781-015MS	1	06/22/20 13:39	X	X	X	X	X	X	X
K2004781-002	1	06/22/20 13:41	X	X	X	X	X	X	X
K2004781-003	1	06/22/20 13:42	X	X	X	X	X	X	X
K2004781-004	1	06/22/20 13:44	X	X	X	X	X	X	X
CCV	1	06/22/20 13:46	X	X	X	X	X	X	X
CCB	1	06/22/20 13:47	X	X	X	X	X	X	X
K2004781-005	1	06/22/20 13:49	X	X	X	X	X	X	X
K2004781-006	1	06/22/20 13:51	X	X	X	X	X	X	X
K2004781-007	1	06/22/20 13:52	X	X	X	X	X	X	X
K2004781-009	1	06/22/20 13:54	X	X	X	X	X	X	X
K2004781-010	1	06/22/20 13:55	X	X	X	X	X	X	X
K2004781-011	1	06/22/20 13:57	X	X	X	X	X	X	X
K2004781-012	1	06/22/20 13:59	X	X	X	X	X	X	X
K2004781-002	1	06/22/20 14:00	X	X	X	X	X	X	X
CCV	1	06/22/20 14:02	X	X	X	X	X	X	X
CCB	1	06/22/20 14:04	X	X	X	X	X	X	X
LLCCVW	1	06/22/20 14:05	X	X	X	X	X	X	X
ZZZZZZ	1	06/22/20 14:07							

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

Analysis Run Log

Instrument ID: K-ICP-MS-06

Analytical BatchID: 684535

Sample	Dilution Factor	Date/Time	A s	C d	C r	C u	P b	N i	Z n
ZZZZZZ	1	06/22/20 14:09							
ZZZZZZ	1	06/22/20 14:10							
ZZZZZZ	1	06/22/20 14:12							
ZZZZZZ	5	06/22/20 14:13							
ZZZZZZ	1	06/22/20 14:15							
ZZZZZZ	1	06/22/20 14:17							
ZZZZZZ	1	06/22/20 14:18							
ZZZZZZ	1	06/22/20 14:20							
ZZZZZZ	1	06/22/20 14:22							
ZZZZZZ	1	06/22/20 14:23							
ZZZZZZ	1	06/22/20 14:25							
ZZZZZZ	1	06/22/20 14:27							
ZZZZZZ	1	06/22/20 14:28							
ZZZZZZ	1	06/22/20 14:30							
ZZZZZZ	1	06/22/20 14:32							
ZZZZZZ	1	06/22/20 14:33							

ALS Group USA, Corp.
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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: K-ICP-MS-06

Analytical BatchID: 684535

Sample	Date/Time	Ge72He	In115He	Lu175He	Th232He
ZZZZZZ	06/22/20 13:01				
ZZZZZZ	06/22/20 13:02				
ICV	06/22/20 13:04	100	102	103	104
CCV	06/22/20 13:06	103	102	103	104
ICB	06/22/20 13:07	100	101	103	104
CCB	06/22/20 13:09	100	101	103	104
LLICVW	06/22/20 13:11	102	102	103	104
ZZZZZZ	06/22/20 13:13				
ICSA	06/22/20 13:17	98	98	104	105
ICSAB	06/22/20 13:19	99	99	106	107
ZZZZZZ	06/22/20 13:20				
ZZZZZZ	06/22/20 13:24				
ZZZZZZ	06/22/20 13:28				
KQ2008095-01MB	06/22/20 13:29	101	103	106	109
KQ2008095-02LCS	06/22/20 13:31	100	104	108	109
K2004781-015	06/22/20 13:32	98	102	106	110
K2004781-015DUP	06/22/20 13:34	100	101	106	109
K2004781-015SDL	06/22/20 13:36	103	104	107	111
K2004781-015PS	06/22/20 13:37	101	102	108	111
K2004781-015MS	06/22/20 13:39	102	102	109	110
K2004781-002	06/22/20 13:41	102	104	108	111
K2004781-003	06/22/20 13:42	90	91	102	100
K2004781-004	06/22/20 13:44	104	101	106	102
CCV	06/22/20 13:46	112	112	113	113
CCB	06/22/20 13:47	107	110	111	110
K2004781-005	06/22/20 13:49	101	104	110	110
K2004781-006	06/22/20 13:51	100	99	107	108
K2004781-007	06/22/20 13:52	107	108	109	112
K2004781-009	06/22/20 13:54	103	106	109	112
K2004781-010	06/22/20 13:55	99	100	108	108
K2004781-011	06/22/20 13:57	105	108	113	114
K2004781-012	06/22/20 13:59	96	98	106	107
K2004781-002	06/22/20 14:00	108	109	114	115
CCV	06/22/20 14:02	109	111	113	115
CCB	06/22/20 14:04	110	112	113	115
LLCCVW	06/22/20 14:05	110	112	114	114
ZZZZZZ	06/22/20 14:07				

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: K-ICP-MS-06

Analytical BatchID: 684535

Sample	Date/Time	Ge72He	In115He	Lu175He	Th232He
ZZZZZZ	06/22/20 14:09				
ZZZZZZ	06/22/20 14:10				
ZZZZZZ	06/22/20 14:12				
ZZZZZZ	06/22/20 14:13				
ZZZZZZ	06/22/20 14:15				
ZZZZZZ	06/22/20 14:17				
ZZZZZZ	06/22/20 14:18				
ZZZZZZ	06/22/20 14:20				
ZZZZZZ	06/22/20 14:22				
ZZZZZZ	06/22/20 14:23				
ZZZZZZ	06/22/20 14:25				
ZZZZZZ	06/22/20 14:27				
ZZZZZZ	06/22/20 14:28				
ZZZZZZ	06/22/20 14:30				
ZZZZZZ	06/22/20 14:32				
ZZZZZZ	06/22/20 14:33				



Diesel and Residual Range Organics— Silica Gel Treated

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

**Cover Page - Organic Analysis Data Package
 Diesel and Residual Range Organics - Silica Gel Treated**

Sample Name	Lab Code	Date Collected	Date Received
CTMW-14-0620	K2004781-002	06/09/2020	06/10/2020
CTMW-9-0620	K2004781-003	06/09/2020	06/10/2020
CTMW-8-0620	K2004781-004	06/09/2020	06/10/2020
CTMW-17-0620	K2004781-005	06/09/2020	06/10/2020
CTMW-17D-0620	K2004781-006	06/09/2020	06/10/2020
FieldBlank#1-0620	K2004781-007	06/09/2020	06/10/2020
CTMW-5-0620	K2004781-009	06/10/2020	06/11/2020
CTMW-12-0620	K2004781-010	06/10/2020	06/11/2020
CTMW-24-0620	K2004781-011	06/10/2020	06/11/2020
CTMW-24D-0620	K2004781-012	06/10/2020	06/11/2020
CTMW-7-0620	K2004781-013	06/10/2020	06/11/2020
CTMW-9-7-0620	K2004781-014	06/10/2020	06/11/2020
CTMW-18-0620	K2004781-015	06/10/2020	06/11/2020
CTMW-7-0620	KWG2001687-1	06/10/2020	06/11/2020
CTMW-18-0620	KWG2001687-2	06/10/2020	06/11/2020

Analytical Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/2020
Date Received: 06/10/2020

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name: CTMW-14-0620 **Units:** ug/L
Lab Code: K2004781-002 **Basis:** NA
Extraction Method: EPA 3510C **Level:** Low
Analysis Method: NWTPH-Dx

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	270	1	06/12/20	06/16/20	KWG2001687	
Residual Range Organics (RRO)	ND	U	530	1	06/12/20	06/16/20	KWG2001687	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	115	50-150	06/16/20	Acceptable
n-Triacontane	114	50-150	06/16/20	Acceptable

Comments: _____

Analytical Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/2020
Date Received: 06/10/2020

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name: CTMW-9-0620
Lab Code: K2004781-003
Extraction Method: EPA 3510C
Analysis Method: NWTPH-Dx

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	260	1	06/12/20	06/16/20	KWG2001687	
Residual Range Organics (RRO)	ND	U	520	1	06/12/20	06/16/20	KWG2001687	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	95	50-150	06/16/20	Acceptable
n-Triacontane	99	50-150	06/16/20	Acceptable

Comments: _____

Analytical Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/2020
Date Received: 06/10/2020

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name: CTMW-8-0620
Lab Code: K2004781-004
Extraction Method: EPA 3510C
Analysis Method: NWTPH-Dx

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	260	1	06/18/20	06/24/20	KWG2001731	
Residual Range Organics (RRO)	ND	U	520	1	06/18/20	06/24/20	KWG2001731	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	112	50-150	06/24/20	Acceptable
n-Triacontane	113	50-150	06/24/20	Acceptable

Comments: _____

Analytical Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/2020
Date Received: 06/10/2020

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name: CTMW-17-0620 **Units:** ug/L
Lab Code: K2004781-005 **Basis:** NA
Extraction Method: EPA 3510C **Level:** Low
Analysis Method: NWTPH-Dx

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	260	1	06/12/20	06/16/20	KWG2001687	
Residual Range Organics (RRO)	ND	U	520	1	06/12/20	06/16/20	KWG2001687	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	105	50-150	06/16/20	Acceptable
n-Triacontane	111	50-150	06/16/20	Acceptable

Comments: _____

Analytical Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/2020
Date Received: 06/10/2020

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name: CTMW-17D-0620 **Units:** ug/L
Lab Code: K2004781-006 **Basis:** NA
Extraction Method: EPA 3510C **Level:** Low
Analysis Method: NWTPH-Dx

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	260	1	06/18/20	06/24/20	KWG2001731	
Residual Range Organics (RRO)	ND	U	520	1	06/18/20	06/24/20	KWG2001731	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	106	50-150	06/24/20	Acceptable
n-Triacontane	106	50-150	06/24/20	Acceptable

Comments: _____

Analytical Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/2020
Date Received: 06/10/2020

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name: FieldBlank#1-0620
Lab Code: K2004781-007
Extraction Method: EPA 3510C
Analysis Method: NWTPH-Dx

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	260	1	06/12/20	06/16/20	KWG2001687	
Residual Range Organics (RRO)	ND	U	520	1	06/12/20	06/16/20	KWG2001687	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	106	50-150	06/16/20	Acceptable
n-Triacontane	110	50-150	06/16/20	Acceptable

Comments: _____

Analytical Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/2020
Date Received: 06/11/2020

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name: CTMW-5-0620
Lab Code: K2004781-009
Extraction Method: EPA 3510C
Analysis Method: NWTPH-Dx

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	270	1	06/12/20	06/16/20	KWG2001687	
Residual Range Organics (RRO)	ND	U	530	1	06/12/20	06/16/20	KWG2001687	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	105	50-150	06/16/20	Acceptable
n-Triacontane	112	50-150	06/16/20	Acceptable

Comments: _____

Analytical Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/2020
Date Received: 06/11/2020

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name: CTMW-12-0620 **Units:** ug/L
Lab Code: K2004781-010 **Basis:** NA
Extraction Method: EPA 3510C **Level:** Low
Analysis Method: NWTPH-Dx

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	260	1	06/12/20	06/16/20	KWG2001687	
Residual Range Organics (RRO)	ND	U	520	1	06/12/20	06/16/20	KWG2001687	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	108	50-150	06/16/20	Acceptable
n-Triacontane	113	50-150	06/16/20	Acceptable

Comments: _____

Analytical Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/2020
Date Received: 06/11/2020

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name: CTMW-24-0620
Lab Code: K2004781-011
Extraction Method: EPA 3510C
Analysis Method: NWTPH-Dx

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	260	1	06/12/20	06/16/20	KWG2001687	
Residual Range Organics (RRO)	ND	U	520	1	06/12/20	06/16/20	KWG2001687	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	97	50-150	06/16/20	Acceptable
n-Triacontane	101	50-150	06/16/20	Acceptable

Comments: _____

Analytical Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/2020
Date Received: 06/11/2020

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name: CTMW-24D-0620 **Units:** ug/L
Lab Code: K2004781-012 **Basis:** NA
Extraction Method: EPA 3510C **Level:** Low
Analysis Method: NWTPH-Dx

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	260	1	06/12/20	06/16/20	KWG2001687	
Residual Range Organics (RRO)	ND	U	520	1	06/12/20	06/16/20	KWG2001687	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	100	50-150	06/16/20	Acceptable
n-Triacontane	104	50-150	06/16/20	Acceptable

Comments: _____

Analytical Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/2020
Date Received: 06/11/2020

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name: CTMW-7-0620
Lab Code: K2004781-013
Extraction Method: EPA 3510C
Analysis Method: NWTPH-Dx

Units: ug/L
Basis: NA
Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	260	1	06/12/20	06/16/20	KWG2001687	
Residual Range Organics (RRO)	ND	U	520	1	06/12/20	06/16/20	KWG2001687	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	105	50-150	06/16/20	Acceptable
n-Triacontane	109	50-150	06/16/20	Acceptable

Comments: _____

Analytical Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/2020
Date Received: 06/11/2020

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name: CTMW-9-7-0620 **Units:** ug/L
Lab Code: K2004781-014 **Basis:** NA
Extraction Method: EPA 3510C **Level:** Low
Analysis Method: NWTPH-Dx

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	260	1	06/12/20	06/16/20	KWG2001687	
Residual Range Organics (RRO)	ND	U	520	1	06/12/20	06/16/20	KWG2001687	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	73	50-150	06/16/20	Acceptable
n-Triacontane	77	50-150	06/16/20	Acceptable

Comments: _____

Analytical Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/2020
Date Received: 06/11/2020

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name: CTMW-18-0620 **Units:** ug/L
Lab Code: K2004781-015 **Basis:** NA
Extraction Method: EPA 3510C **Level:** Low
Analysis Method: NWTPH-Dx

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	260	1	06/12/20	06/16/20	KWG2001687	
Residual Range Organics (RRO)	ND	U	520	1	06/12/20	06/16/20	KWG2001687	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	105	50-150	06/16/20	Acceptable
n-Triacontane	110	50-150	06/16/20	Acceptable

Comments: _____

Analytical Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: NA
Date Received: NA

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name: Method Blank **Units:** ug/L
Lab Code: KWG2001687-4 **Basis:** NA
Extraction Method: EPA 3510C **Level:** Low
Analysis Method: NWTPH-Dx

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	250	1	06/12/20	06/16/20	KWG2001687	
Residual Range Organics (RRO)	ND	U	500	1	06/12/20	06/16/20	KWG2001687	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	99	50-150	06/16/20	Acceptable
n-Triacontane	104	50-150	06/16/20	Acceptable

Comments: _____

Analytical Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: NA
Date Received: NA

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name: Method Blank **Units:** ug/L
Lab Code: KWG2001731-3 **Basis:** NA
Extraction Method: EPA 3510C **Level:** Low
Analysis Method: NWTPH-Dx

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND	U	250	1	06/18/20	06/24/20	KWG2001731	
Residual Range Organics (RRO)	ND	U	500	1	06/18/20	06/24/20	KWG2001731	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	117	50-150	06/24/20	Acceptable
n-Triacontane	117	50-150	06/24/20	Acceptable

Comments: _____

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781

**Surrogate Recovery Summary
 Diesel and Residual Range Organics - Silica Gel Treated**

Extraction Method: EPA 3510C
Analysis Method: NWTPH-Dx

Units: Percent
Level: Low

<u>Sample Name</u>	<u>Lab Code</u>	<u>Sur1</u>	<u>Sur2</u>
CTMW-14-0620	K2004781-002	115	114
CTMW-9-0620	K2004781-003	95	99
CTMW-8-0620	K2004781-004	112	113
CTMW-17-0620	K2004781-005	105	111
CTMW-17D-0620	K2004781-006	106	106
FieldBlank#1-0620	K2004781-007	106	110
CTMW-5-0620	K2004781-009	105	112
CTMW-12-0620	K2004781-010	108	113
CTMW-24-0620	K2004781-011	97	101
CTMW-24D-0620	K2004781-012	100	104
CTMW-7-0620	K2004781-013	105	109
CTMW-9-7-0620	K2004781-014	73	77
CTMW-18-0620	K2004781-015	105	110
CTMW-7-0620DUP	KWG2001687-1	97	101
CTMW-18-0620DUP	KWG2001687-2	100	108
Method Blank	KWG2001687-4	99	104
Method Blank	KWG2001731-3	117	117
Lab Control Sample	KWG2001687-3	76	78
Lab Control Sample	KWG2001731-1	113	117
Duplicate Lab Control Sample	KWG2001731-2	120	122

Surrogate Recovery Control Limits (%)

Sur1 = o-Terphenyl	50-150
Sur2 = n-Triacontane	50-150

Results flagged with an asterisk (*) indicate values outside control criteria.
 Results flagged with a pound (#) indicate the control criteria is not applicable.

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Extracted: 06/12/2020
Date Analyzed: 06/16/2020

Duplicate Sample Summary
Diesel and Residual Range Organics - Silica Gel Treated

Sample Name: CTMW-7-0620
Lab Code: K2004781-013
Extraction Method: EPA 3510C
Analysis Method: NWTPH-Dx

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG2001687

Analyte Name	MRL	Sample Result	CTMW-7-0620DUP KWG2001687-1 Duplicate Sample		Relative Percent Difference	RPD Limit
			Result	Average		
Diesel Range Organics (DRO)	260	ND	ND	ND	-	30
Residual Range Organics (RRO)	520	ND	ND	ND	-	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Extracted: 06/12/2020
Date Analyzed: 06/16/2020

Duplicate Sample Summary
Diesel and Residual Range Organics - Silica Gel Treated

Sample Name: CTMW-18-0620
Lab Code: K2004781-015
Extraction Method: EPA 3510C
Analysis Method: NWTPH-Dx

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG2001687

Analyte Name	MRL	Sample Result	CTMW-18-0620DUP KWG2001687-2 Duplicate Sample		Relative Percent Difference	RPD Limit
			Result	Average		
Diesel Range Organics (DRO)	260	ND	ND	ND	-	30
Residual Range Organics (RRO)	520	ND	ND	ND	-	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Extracted: 06/12/2020
Date Analyzed: 06/16/2020

Lab Control Spike Summary
Diesel and Residual Range Organics - Silica Gel Treated

Extraction Method: EPA 3510C
Analysis Method: NWTPH-Dx

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG2001687

Lab Control Sample
 KWG2001687-3
Lab Control Spike

Analyte Name	Result	Spike Amount	%Rec	%Rec Limits
Diesel Range Organics (DRO)	1980	3200	62	46-140
Residual Range Organics (RRO)	1160	1600	73	45-159

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Extracted: 06/18/2020
Date Analyzed: 06/24/2020

Lab Control Spike/Duplicate Lab Control Spike Summary
Diesel and Residual Range Organics - Silica Gel Treated

Extraction Method: EPA 3510C
Analysis Method: NWTPH-Dx

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG2001731

Analyte Name	Lab Control Sample KWG2001731-1 Lab Control Spike			Duplicate Lab Control Sample KWG2001731-2 Duplicate Lab Control Spike			%Rec Limits	RPD	RPD Limit
	Result	Spike Amount	%Rec	Result	Spike Amount	%Rec			
Diesel Range Organics (DRO)	3250	3200	101	3310	3200	103	46-140	2	30
Residual Range Organics (RRO)	1760	1600	110	1840	1600	115	45-159	4	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Extracted: 06/12/2020
Date Analyzed: 06/16/2020
Time Analyzed: 16:19

Method Blank Summary
Diesel and Residual Range Organics - Silica Gel Treated

Sample Name: Method Blank **Instrument ID:** GC21
Lab Code: KWG2001687-4 **File ID:** J:\GC21\DATA\061620F\0616F107.D
Extraction Method: EPA 3510C **Level:** Low
Analysis Method: NWTPH-Dx **Extraction Lot:** KWG2001687

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Lab Control Sample	KWG2001687-3	J:\GC21\DATA\061620F\0616F106.D	06/16/20	15:57
CTMW-14-0620	K2004781-002	J:\GC21\DATA\061620F\0616F108.D	06/16/20	16:42
CTMW-9-0620	K2004781-003	J:\GC21\DATA\061620F\0616F109.D	06/16/20	17:04
CTMW-17-0620	K2004781-005	J:\GC21\DATA\061620F\0616F111.D	06/16/20	17:49
FieldBlank#1-0620	K2004781-007	J:\GC21\DATA\061620F\0616F113.D	06/16/20	18:35
CTMW-5-0620	K2004781-009	J:\GC21\DATA\061620F\0616F114.D	06/16/20	18:57
CTMW-12-0620	K2004781-010	J:\GC21\DATA\061620F\0616F115.D	06/16/20	19:19
CTMW-24-0620	K2004781-011	J:\GC21\DATA\061620F\0616F116.D	06/16/20	19:42
CTMW-24D-0620	K2004781-012	J:\GC21\DATA\061620F\0616F117.D	06/16/20	20:04
CTMW-7-0620	K2004781-013	J:\GC21\DATA\061620F\0616F121.D	06/16/20	21:34
CTMW-7-0620DUP	KWG2001687-1	J:\GC21\DATA\061620F\0616F122.D	06/16/20	21:57
CTMW-9-7-0620	K2004781-014	J:\GC21\DATA\061620F\0616F123.D	06/16/20	22:19
CTMW-18-0620	K2004781-015	J:\GC21\DATA\061620F\0616F124.D	06/16/20	22:42
CTMW-18-0620DUP	KWG2001687-2	J:\GC21\DATA\061620F\0616F125.D	06/16/20	23:04

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Extracted: 06/18/2020
Date Analyzed: 06/24/2020
Time Analyzed: 01:36

Method Blank Summary
Diesel and Residual Range Organics - Silica Gel Treated

Sample Name: Method Blank
Lab Code: KWG2001731-3
Extraction Method: EPA 3510C
Analysis Method: NWTPH-Dx

Instrument ID: GC35
File ID: J:\GC35\DATA\062320\0623F050.D
Level: Low
Extraction Lot: KWG2001731

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Duplicate Lab Control Sample	KWG2001731-2	J:\GC35\DATA\062320\0623F051.D	06/24/20	01:57
Lab Control Sample	KWG2001731-1	J:\GC35\DATA\062320\0623F052.D	06/24/20	02:19
CTMW-8-0620	K2004781-004	J:\GC35\DATA\062320\0623F053.D	06/24/20	02:40
CTMW-17D-0620	K2004781-006	J:\GC35\DATA\062320\0623F054.D	06/24/20	03:02

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Extracted: 06/12/2020
Date Analyzed: 06/16/2020
Time Analyzed: 15:57

Lab Control Sample Summary
Diesel and Residual Range Organics - Silica Gel Treated

Sample Name: Lab Control Sample **Instrument ID:** GC21
Lab Code: KWG2001687-3 **File ID:** J:\GC21\DATA\061620F\0616F106.D
Extraction Method: EPA 3510C **Level:** Low
Analysis Method: NWTPH-Dx **Extraction Lot:** KWG2001687

This Lab Control Sample applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Method Blank	KWG2001687-4	J:\GC21\DATA\061620F\0616F107.D	06/16/20	16:19
CTMW-14-0620	K2004781-002	J:\GC21\DATA\061620F\0616F108.D	06/16/20	16:42
CTMW-9-0620	K2004781-003	J:\GC21\DATA\061620F\0616F109.D	06/16/20	17:04
CTMW-17-0620	K2004781-005	J:\GC21\DATA\061620F\0616F111.D	06/16/20	17:49
FieldBlank#1-0620	K2004781-007	J:\GC21\DATA\061620F\0616F113.D	06/16/20	18:35
CTMW-5-0620	K2004781-009	J:\GC21\DATA\061620F\0616F114.D	06/16/20	18:57
CTMW-12-0620	K2004781-010	J:\GC21\DATA\061620F\0616F115.D	06/16/20	19:19
CTMW-24-0620	K2004781-011	J:\GC21\DATA\061620F\0616F116.D	06/16/20	19:42
CTMW-24D-0620	K2004781-012	J:\GC21\DATA\061620F\0616F117.D	06/16/20	20:04
CTMW-7-0620	K2004781-013	J:\GC21\DATA\061620F\0616F121.D	06/16/20	21:34
CTMW-7-0620DUP	KWG2001687-1	J:\GC21\DATA\061620F\0616F122.D	06/16/20	21:57
CTMW-9-7-0620	K2004781-014	J:\GC21\DATA\061620F\0616F123.D	06/16/20	22:19
CTMW-18-0620	K2004781-015	J:\GC21\DATA\061620F\0616F124.D	06/16/20	22:42
CTMW-18-0620DUP	KWG2001687-2	J:\GC21\DATA\061620F\0616F125.D	06/16/20	23:04

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Extracted: 06/18/2020
Date Analyzed: 06/24/2020
Time Analyzed: 02:19

Lab Control Sample Summary
Diesel and Residual Range Organics - Silica Gel Treated

Sample Name: Lab Control Sample **Instrument ID:** GC35
Lab Code: KWG2001731-1 **File ID:** J:\GC35\DATA\062320\0623F052.D
Extraction Method: EPA 3510C **Level:** Low
Analysis Method: NWTPH-Dx **Extraction Lot:** KWG2001731

This Lab Control Sample applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Method Blank	KWG2001731-3	J:\GC35\DATA\062320\0623F050.D	06/24/20	01:36
CTMW-8-0620	K2004781-004	J:\GC35\DATA\062320\0623F053.D	06/24/20	02:40
CTMW-17D-0620	K2004781-006	J:\GC35\DATA\062320\0623F054.D	06/24/20	03:02

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Calibration Date: 10/21/2019

Initial Calibration Summary
Diesel and Residual Range Organics - Silica Gel Treated

Calibration ID: CAL16158
Instrument ID: GC21

Column: ZB-1

Level ID	File ID	Level ID	File ID
A	J:\GC21\DATA\102119F\1021F105.D	K	J:\GC21\DATA\102119F\1021F121.D
B	J:\GC21\DATA\102119F\1021F106.D	L	J:\GC21\DATA\102119F\1021F122.D
C	J:\GC21\DATA\102119F\1021F107.D	M	J:\GC21\DATA\102119F\1021F123.D
D	J:\GC21\DATA\102119F\1021F108.D	N	J:\GC21\DATA\102119F\1021F124.D
E	J:\GC21\DATA\102119F\1021F112.D	O	J:\GC21\DATA\102119F\1021F125.D
F	J:\GC21\DATA\102119F\1021F113.D	P	J:\GC21\DATA\102119F\1021F126.D
G	J:\GC21\DATA\102119F\1021F114.D	Q	J:\GC21\DATA\102119F\1021F127.D
H	J:\GC21\DATA\102119F\1021F115.D	R	J:\GC21\DATA\102419F\1024F120.D
I	J:\GC21\DATA\102119F\1021F116.D		
J	J:\GC21\DATA\102119F\1021F120.D		

Analyte Name	Level ID	Amt	RF	Level ID	Amt	RF	Level ID	Amt	RF	Level ID	Amt	RF	Level ID	Amt	RF
Diesel Range Organics (DRO)							J	20	1620				O	5000	1430
				K	50	1650	L	200	1560	M	500	1630	N	2000	1480
				P	20000	1320	Q	50000	1350						
Residual Range Organics (RRO)	A	200	990	B	500	922	C	2000	856	D	5000	819			
							R	50	991						
o-Terphenyl													J	1.0	2100
				K	2.5	1990	L	10	1940	M	25	1920	N	100	1820
													O	250	1710
n-Triacontane													J	1.0	1740
				K	2.5	1520	L	10	1580	M	25	1440	N	100	1500
													O	250	1320

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Calibration Date: 10/21/2019

Initial Calibration Summary
Diesel and Residual Range Organics - Silica Gel Treated

Calibration ID: CAL16158
Instrument ID: GC21

Column: ZB-1

Analyte Name	Compound Type	Calibration Evaluation				Control Criteria
		Fit Type	Eval.	Eval. Result	Q	
Diesel Range Organics (DRO)	MS	AverageRF	% RSD	8.6		≤ 20
Residual Range Organics (RRO)	MS	AverageRF	% RSD	8.5		≤ 20
o-Terphenyl	SURR	AverageRF	% RSD	7.1		≤ 20
n-Triacontane	SURR	AverageRF	% RSD	9.2		≤ 20

Results flagged with an asterisk (*) indicate values outside control criteria.

QA/QC Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Calibration Date: 10/21/2019
Date Analyzed: 10/22/2019 - 10/25/2019

Second Source Calibration Verification
Diesel and Residual Range Organics - Silica Gel Treated

Calibration Type: External Standard
Analysis Method: NWTPH-Dx

Calibration ID: CAL16158
Units: ppm

File ID: J:\GC21\DATA\102119F\1021F118.D
 J:\GC21\DATA\102119F\1021F129.D
 J:\GC21\DATA\102519F\1025F110.D

Column ID: ZB-1

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	960	1500	1440	-4	NA	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	890	915	817	-11	NA	± 15 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound

‡ CCC Compound

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Calibration Date: 02/20/2020

Initial Calibration Summary
Diesel and Residual Range Organics - Silica Gel Treated

Calibration ID: CAL16220
Instrument ID: GC35

Column: ZB-1

Level ID	File ID	Level ID	File ID
A	J:\GC35\DATA\022020F\0220F026.D	K	J:\GC35\DATA\022020F\0220F041.D
B	J:\GC35\DATA\022020F\0220F027.D	L	J:\GC35\DATA\022020F\0220F045.D
C	J:\GC35\DATA\022020F\0220F028.D	M	J:\GC35\DATA\022020F\0220F046.D
D	J:\GC35\DATA\022020F\0220F029.D	N	J:\GC35\DATA\022020F\0220F047.D
E	J:\GC35\DATA\022020F\0220F031.D	O	J:\GC35\DATA\022020F\0220F048.D
F	J:\GC35\DATA\022020F\0220F033.D	P	J:\GC35\DATA\022020F\0220F049.D
G	J:\GC35\DATA\022020F\0220F037.D	Q	J:\GC35\DATA\022520F\0225F016.D
H	J:\GC35\DATA\022020F\0220F038.D	R	J:\GC35\DATA\022520F\0225F017.D
I	J:\GC35\DATA\022020F\0220F039.D		
J	J:\GC35\DATA\022020F\0220F040.D		

Analyte Name	Level ID			Level ID			Level ID			Level ID					
	ID	Amt	RF	ID	Amt	RF	ID	Amt	RF	ID	Amt	RF			
Diesel Range Organics (DRO)	A	20	1670	B	50	1640	C	200	1500	D	500	1640	E	5000	1460
	F	50000	1300												
				Q	2000	1410	R	20000	1380						
Residual Range Organics (RRO)				G	50	1270	H	200	1090	I	500	1020	J	2000	977
				K	5000	913									
o-Terphenyl	A	1.0	2360	B	2.5	2110	C	10	2180	D	25	2110	E	250	1860
				Q	100	2030									
n-Triacontane	A	1.0	1890	B	2.5	1740	C	10	1760	D	25	1770	E	250	1580
				Q	100	1650									

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Calibration Date: 02/20/2020

Initial Calibration Summary
Diesel and Residual Range Organics - Silica Gel Treated

Calibration ID: CAL16220
Instrument ID: GC35

Column: ZB-1

Analyte Name	Compound Type	Calibration Evaluation				Control Criteria
		Fit Type	Eval.	Eval. Result	Q	
Diesel Range Organics (DRO)	MS	AverageRF	% RSD	9.0		≤ 20
Residual Range Organics (RRO)	MS	AverageRF	% RSD	13.1		≤ 20
o-Terphenyl	SURR	AverageRF	% RSD	7.8		≤ 20
n-Triacontane	SURR	AverageRF	% RSD	6.3		≤ 20

Results flagged with an asterisk (*) indicate values outside control criteria.

QA/QC Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Calibration Date: 02/20/2020
Date Analyzed: 02/20/2020 - 02/25/2020

Second Source Calibration Verification
Diesel and Residual Range Organics - Silica Gel Treated

Calibration Type: External Standard
Analysis Method: NWTPH-Dx

Calibration ID: CAL16220
Units: ppm

File ID: J:\GC35\DATA\022020F\0220F043.D
 J:\GC35\DATA\022020F\0220F051.D
 J:\GC35\DATA\022520F\0225F019.D

Column ID: ZB-1

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1100	1500	1580	6	NA	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	860	1050	907	-14	NA	± 15 %	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

† SPCC Compound

‡ CCC Compound

QA/QC Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Date Analyzed: 06/16/2020

Continuing Calibration Verification Summary
Diesel and Residual Range Organics - Silica Gel Treated

Calibration Type: External Standard
Analysis Method: NWTPH-Dx

Calibration Date: 10/21/2019
Calibration ID: CAL16158
Analysis Lot: KWG2001733
Units: ppm
Column ID: ZB-1

File ID: J:\GC21\DATA\061620F\0616F103.D
 J:\GC21\DATA\061620F\0616F104.D

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	940	1500	1410	-6	NA	± 15	AverageRF
Residual Range Organics (RRO)	1000	1100	915	966	6	NA	± 15	AverageRF
o-Terphenyl	50	54	1910	2060	8	NA	± 15	AverageRF
n-Triacontane	50	55	1520	1660	10	NA	± 15	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

QA/QC Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Date Analyzed: 06/16/2020

Continuing Calibration Verification Summary
Diesel and Residual Range Organics - Silica Gel Treated

Calibration Type: External Standard
Analysis Method: NWTPH-Dx

Calibration Date: 10/21/2019
Calibration ID: CAL16158
Analysis Lot: KWG2001733
Units: ppm
Column ID: ZB-1

File ID: J:\GC21\DATA\061620F\0616F118.D
 J:\GC21\DATA\061620F\0616F119.D

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	950	1500	1430	-5	NA	± 15	AverageRF
Residual Range Organics (RRO)	1000	1000	915	955	4	NA	± 15	AverageRF
o-Terphenyl	50	55	1910	2100	10	NA	± 15	AverageRF
n-Triacontane	50	56	1520	1710	13	NA	± 15	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

QA/QC Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Date Analyzed: 06/17/2020

Continuing Calibration Verification Summary
Diesel and Residual Range Organics - Silica Gel Treated

Calibration Type: External Standard
Analysis Method: NWTPH-Dx

Calibration Date: 10/21/2019
Calibration ID: CAL16158
Analysis Lot: KWG2001733
Units: ppm
Column ID: ZB-1

File ID: J:\GC21\DATA\061620F\0616F132.D
 J:\GC21\DATA\061620F\0616F133.D

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	980	1500	1480	-2	NA	± 15	AverageRF
Residual Range Organics (RRO)	1000	1100	915	978	7	NA	± 15	AverageRF
o-Terphenyl	50	57	1910	2170	14	NA	± 15	AverageRF
n-Triacontane	50	57	1520	1730	14	NA	± 15	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

QA/QC Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Date Analyzed: 06/24/2020

Continuing Calibration Verification Summary
Diesel and Residual Range Organics - Silica Gel Treated

Calibration Type: External Standard
Analysis Method: NWTPH-Dx

Calibration Date: 02/20/2020
Calibration ID: CAL16220
Analysis Lot: KWG2001794
Units: ppm
Column ID: ZB-1

File ID: J:\GC35\DATA\062320\0623F047.D
 J:\GC35\DATA\062320\0623F048.D

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1100	1500	1660	11	NA	± 15	AverageRF
Residual Range Organics (RRO)	1000	890	1050	939	-11	NA	± 15	AverageRF
o-Terphenyl	50	45	2110	1920	-9	NA	± 15	AverageRF
n-Triacontane	50	47	1730	1620	-7	NA	± 15	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

QA/QC Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Date Analyzed: 06/24/2020

Continuing Calibration Verification Summary
Diesel and Residual Range Organics - Silica Gel Treated

Calibration Type: External Standard
Analysis Method: NWTPH-Dx

Calibration Date: 02/20/2020
Calibration ID: CAL16220
Analysis Lot: KWG2001794
Units: ppm
Column ID: ZB-1

File ID: J:\GC35\DATA\062320\0623F055.D
 J:\GC35\DATA\062320\0623F056.D

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1100	1500	1680	12	NA	± 15	AverageRF
Residual Range Organics (RRO)	1000	900	1050	948	-10	NA	± 15	AverageRF
o-Terphenyl	50	46	2110	1930	-9	NA	± 15	AverageRF
n-Triacontane	50	47	1730	1640	-5	NA	± 15	AverageRF

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

Analysis Run Log
Diesel and Residual Range Organics - Silica Gel Treated

Analysis Method: NWTPH-Dx

Analysis Lot: KWG2001733
Instrument ID: GC21
Column: ZB-1

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0616F103.D	Continuing Calibration Verification	KWG2001733-1	6/16/2020	14:49		6/16/2020	15:05
0616F104.D	Continuing Calibration Verification	KWG2001733-1	6/16/2020	15:12		6/16/2020	15:28
0616F105.D	Instrument Blank	KWG2001733-4	6/16/2020	15:34		6/16/2020	15:50
0616F106.D	Lab Control Sample	KWG2001687-3	6/16/2020	15:57		6/16/2020	16:13
0616F107.D	Method Blank	KWG2001687-4	6/16/2020	16:19		6/16/2020	16:35
0616F108.D	CTMW-14-0620	K2004781-002	6/16/2020	16:42		6/16/2020	16:58
0616F109.D	CTMW-9-0620	K2004781-003	6/16/2020	17:04		6/16/2020	17:20
0616F111.D	CTMW-17-0620	K2004781-005	6/16/2020	17:49		6/16/2020	18:05
0616F113.D	FieldBlank#1-0620	K2004781-007	6/16/2020	18:35		6/16/2020	18:51
0616F114.D	CTMW-5-0620	K2004781-009	6/16/2020	18:57		6/16/2020	19:13
0616F115.D	CTMW-12-0620	K2004781-010	6/16/2020	19:19		6/16/2020	19:35
0616F116.D	CTMW-24-0620	K2004781-011	6/16/2020	19:42		6/16/2020	19:58
0616F117.D	CTMW-24D-0620	K2004781-012	6/16/2020	20:04		6/16/2020	20:20
0616F118.D	Continuing Calibration Verification	KWG2001733-2	6/16/2020	20:27		6/16/2020	20:43
0616F119.D	Continuing Calibration Verification	KWG2001733-2	6/16/2020	20:50		6/16/2020	21:06
0616F120.D	Instrument Blank	KWG2001733-5	6/16/2020	21:12		6/16/2020	21:28
0616F121.D	CTMW-7-0620	K2004781-013	6/16/2020	21:34		6/16/2020	21:50
0616F122.D	CTMW-7-0620DUP	KWG2001687-1	6/16/2020	21:57		6/16/2020	22:13
0616F123.D	CTMW-9-7-0620	K2004781-014	6/16/2020	22:19		6/16/2020	22:35
0616F124.D	CTMW-18-0620	K2004781-015	6/16/2020	22:42		6/16/2020	22:58
0616F125.D	CTMW-18-0620DUP	KWG2001687-2	6/16/2020	23:04		6/16/2020	23:20
0616F126.D	ZZZZZZ	ZZZZZZ	6/16/2020	23:26		6/16/2020	23:42
0616F127.D	ZZZZZZ	ZZZZZZ	6/16/2020	23:49		6/17/2020	00:05
0616F128.D	ZZZZZZ	ZZZZZZ	6/17/2020	00:11		6/17/2020	00:27
0616F129.D	ZZZZZZ	ZZZZZZ	6/17/2020	00:34		6/17/2020	00:50
0616F130.D	ZZZZZZ	ZZZZZZ	6/17/2020	00:56		6/17/2020	01:12
0616F131.D	ZZZZZZ	ZZZZZZ	6/17/2020	01:19		6/17/2020	01:35
0616F132.D	Continuing Calibration Verification	KWG2001733-3	6/17/2020	01:41		6/17/2020	01:57
0616F133.D	Continuing Calibration Verification	KWG2001733-3	6/17/2020	02:03		6/17/2020	02:19
0616F134.D	Instrument Blank	KWG2001733-6	6/17/2020	02:26		6/17/2020	02:42

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

Analysis Run Log
Diesel and Residual Range Organics - Silica Gel Treated

Analysis Method: NWTPH-Dx

Analysis Lot: KWG2001794
Instrument ID: GC35
Column: ZB-1

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0623F034.D	Continuing Calibration Verification	KWG2001794-1	6/23/2020	19:49		6/23/2020	20:05
0623F035.D	Continuing Calibration Verification	KWG2001794-1	6/23/2020	20:11		6/23/2020	20:27
0623F036.D	Instrument Blank	KWG2001794-4	6/23/2020	20:33		6/23/2020	20:49
0623F037.D	ZZZZZZ	ZZZZZZ	6/23/2020	20:54		6/23/2020	21:10
0623F038.D	ZZZZZZ	ZZZZZZ	6/23/2020	21:16		6/23/2020	21:32
0623F039.D	ZZZZZZ	ZZZZZZ	6/23/2020	21:38		6/23/2020	21:54
0623F040.D	ZZZZZZ	ZZZZZZ	6/23/2020	22:00		6/23/2020	22:16
0623F041.D	ZZZZZZ	ZZZZZZ	6/23/2020	22:22		6/23/2020	22:38
0623F042.D	ZZZZZZ	ZZZZZZ	6/23/2020	22:43		6/23/2020	22:59
0623F043.D	ZZZZZZ	ZZZZZZ	6/23/2020	23:05		6/23/2020	23:21
0623F044.D	ZZZZZZ	ZZZZZZ	6/23/2020	23:26		6/23/2020	23:42
0623F045.D	ZZZZZZ	ZZZZZZ	6/23/2020	23:48		6/24/2020	00:04
0623F046.D	ZZZZZZ	ZZZZZZ	6/24/2020	00:10		6/24/2020	00:26
0623F047.D	Continuing Calibration Verification	KWG2001794-2	6/24/2020	00:31		6/24/2020	00:47
0623F048.D	Continuing Calibration Verification	KWG2001794-2	6/24/2020	00:53		6/24/2020	01:09
0623F049.D	Instrument Blank	KWG2001794-5	6/24/2020	01:14		6/24/2020	01:30
0623F050.D	Method Blank	KWG2001731-3	6/24/2020	01:36		6/24/2020	01:52
0623F051.D	Duplicate Lab Control Sample	KWG2001731-2	6/24/2020	01:57		6/24/2020	02:13
0623F052.D	Lab Control Sample	KWG2001731-1	6/24/2020	02:19		6/24/2020	02:35
0623F053.D	CTMW-8-0620	K2004781-004	6/24/2020	02:40		6/24/2020	02:56
0623F054.D	CTMW-17D-0620	K2004781-006	6/24/2020	03:02		6/24/2020	03:18
0623F055.D	Continuing Calibration Verification	KWG2001794-3	6/24/2020	03:24		6/24/2020	03:40
0623F056.D	Continuing Calibration Verification	KWG2001794-3	6/24/2020	03:45		6/24/2020	04:01
0623F057.D	Instrument Blank	KWG2001794-6	6/24/2020	04:07		6/24/2020	04:23

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

QA/QC Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Extracted: 06/12/2020

Extraction Prep Log
Diesel and Residual Range Organics - Silica Gel Treated

Extraction Method: EPA 3510C
Analysis Method: NWTPH-Dx

Extraction Lot: KWG2001687
Level: Low

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Volume	% Solids	Note
CTMW-14-0620	K2004781-002	06/09/20	06/10/20	480mL	1ml	NA	
CTMW-9-0620	K2004781-003	06/09/20	06/10/20	490mL	1ml	NA	
CTMW-17-0620	K2004781-005	06/09/20	06/10/20	485mL	1ml	NA	
FieldBlank#1-0620	K2004781-007	06/09/20	06/10/20	485mL	1ml	NA	
CTMW-5-0620	K2004781-009	06/10/20	06/11/20	480mL	1ml	NA	
CTMW-12-0620	K2004781-010	06/10/20	06/11/20	485mL	1ml	NA	
CTMW-24-0620	K2004781-011	06/10/20	06/11/20	490mL	1ml	NA	
CTMW-24D-0620	K2004781-012	06/10/20	06/11/20	490mL	1ml	NA	
CTMW-7-0620	K2004781-013	06/10/20	06/11/20	485mL	1ml	NA	
CTMW-9-7-0620	K2004781-014	06/10/20	06/11/20	485mL	1ml	NA	
CTMW-18-0620	K2004781-015	06/10/20	06/11/20	485mL	1ml	NA	
CTMW-7-0620DUP	KWG2001687-1	06/10/20	06/11/20	485mL	1ml	NA	
CTMW-18-0620DUP	KWG2001687-2	06/10/20	06/11/20	485mL	1ml	NA	
Method Blank	KWG2001687-4	NA	NA	500mL	1ml	NA	
Lab Control Sample	KWG2001687-3	NA	NA	500mL	1ml	NA	

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis

QA/QC Results

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Extracted: 06/18/2020

Extraction Prep Log
Diesel and Residual Range Organics - Silica Gel Treated

Extraction Method: EPA 3510C
Analysis Method: NWTPH-Dx

Extraction Lot: KWG2001731
Level: Low

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Volume	% Solids	Note
CTMW-8-0620	K2004781-004	06/09/20	06/10/20	485mL	1ml	NA	
CTMW-17D-0620	K2004781-006	06/09/20	06/10/20	485mL	1ml	NA	
Method Blank	KWG2001731-3	NA	NA	500mL	1ml	NA	
Lab Control Sample	KWG2001731-1	NA	NA	500mL	1ml	NA	
Duplicate Lab Control Sample	KWG2001731-2	NA	NA	500mL	1ml	NA	

Results flagged with an asterisk (*) indicate the holding time was exceeded for the analysis



Gasoline Range Organics

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 08:15
Date Received: 06/11/20 09:20

Sample Name: TripBlank#2-0620
Lab Code: K2004781-008

Units: ug/L
Basis: NA

Volatile Petroleum Products Method for Soil and Water for the Northwest

Analysis Method: NWTPH-Gx
Prep Method: None

<u>Analyte Name</u>	<u>Result</u>	<u>MRL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Q</u>
Gasoline Range Organics-NWTPH	ND U	50.0	1	06/16/20 10:37	

<u>Surrogate Name</u>	<u>% Rec</u>	<u>Control Limits</u>	<u>Date Analyzed</u>	<u>Q</u>
1,4-Difluorobenzene	106	50 - 150	06/16/20 10:37	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 12:55
Date Received: 06/11/20 09:20

Sample Name: CTMW-18-0620
Lab Code: K2004781-015

Units: ug/L
Basis: NA

Volatile Petroleum Products Method for Soil and Water for the Northwest

Analysis Method: NWTPH-Gx
Prep Method: None

<u>Analyte Name</u>	<u>Result</u>	<u>MRL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Q</u>
Gasoline Range Organics-NWTPH	ND U	50.0	1	06/16/20 11:02	

<u>Surrogate Name</u>	<u>% Rec</u>	<u>Control Limits</u>	<u>Date Analyzed</u>	<u>Q</u>
1,4-Difluorobenzene	105	50 - 150	06/16/20 11:02	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: KQ2008086-05

Units: ug/L
Basis: NA

Volatile Petroleum Products Method for Soil and Water for the Northwest

Analysis Method: NWTPH-Gx
Prep Method: None

<u>Analyte Name</u>	<u>Result</u>	<u>MRL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Q</u>
Gasoline Range Organics-NWTPH	ND U	50.0	1	06/16/20 09:47	

<u>Surrogate Name</u>	<u>% Rec</u>	<u>Control Limits</u>	<u>Date Analyzed</u>	<u>Q</u>
1,4-Difluorobenzene	103	50 - 150	06/16/20 09:47	

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781

SURROGATE RECOVERY SUMMARY

Volatile Petroleum Products Method for Soil and Water for the Northwest

Analysis Method: NWTPH-Gx
Extraction Method: None

Sample Name	Lab Code	1,4-Difluorobenzene
		50-150
TripBlank#2-0620	K2004781-008	106
CTMW-18-0620	K2004781-015	105
CTMW-18-0620	KQ2008086-07	99
Method Blank	KQ2008086-05	103
Lab Control Sample	KQ2008086-06	107

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20
Date Received: 06/11/20
Date Analyzed: 06/16/20

Replicate Sample Summary

Volatile Petroleum Products Method for Soil and Water for the Northwest

Sample Name: CTMW-18-0620
Lab Code: K2004781-015

Units: ug/L
Basis: NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample	Average	RPD	RPD Limit
				KQ2008086-07 Result			
Gasoline Range Organics-NWTPH	NWTPH-Gx	50.0	ND U	ND U	NC	NC	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Analyzed: 06/16/20
Date Extracted: NA

Lab Control Sample Summary
Volatile Petroleum Products Method for Soil and Water for the Northwest

Analysis Method: NWTPH-Gx
Prep Method: None

Units: ug/L
Basis: NA
Analysis Lot: 683780

Lab Control Sample
KQ2008086-06

<u>Analyte Name</u>	<u>Result</u>	<u>Spike Amount</u>	<u>% Rec</u>	<u>% Rec Limits</u>
Gasoline Range Organics-NWTPH	566	500	113	80-119

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Analyzed: 06/16/20 09:47
Date Extracted:

Method Blank Summary
Volatile Petroleum Products Method for Soil and Water for the Northwest

Sample Name: Method Blank
Lab Code: KQ2008086-05
Analysis Method: NWTPH-Gx
Prep Method: None

Instrument ID: K-GC-60
File ID: J:\GC60\Data\061620\0616F005.D\
Analysis Lot: 683780

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ2008086-06	J:\GC60\Data\061620\0616F006.D\	06/16/20 10:12
TripBlank#2-0620	K2004781-008	J:\GC60\Data\061620\0616F007.D\	06/16/20 10:37
CTMW-18-0620	K2004781-015	J:\GC60\Data\061620\0616F008.D\	06/16/20 11:02
CTMW-18-0620DUP	KQ2008086-07	J:\GC60\Data\061620\0616F009.D\	06/16/20 11:28

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Analyzed: 06/16/20 10:12
Date Extracted:

Lab Control Sample Summary
Volatile Petroleum Products Method for Soil and Water for the Northwest

Sample Name: Lab Control Sample
Lab Code: KQ2008086-06
Analysis Method: NWTPH-Gx
Prep Method: None

Instrument ID: K-GC-60
File ID: J:\GC60\Data\061620\0616F006.D\
Analysis Lot: 683780

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ2008086-05	J:\GC60\Data\061620\0616F005.D\	06/16/20 09:47
TripBlank#2-0620	K2004781-008	J:\GC60\Data\061620\0616F007.D\	06/16/20 10:37
CTMW-18-0620	K2004781-015	J:\GC60\Data\061620\0616F008.D\	06/16/20 11:02
CTMW-18-0620DUP	KQ2008086-07	J:\GC60\Data\061620\0616F009.D\	06/16/20 11:28

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 5/28/2020

Initial Calibration Summary
Volatile Petroleum Products Method for Soil and Water for the Northwest

Calibration ID: KC2000273
Instrument ID: K-GC-60

Signal ID: DB-624

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC2000273-01	ICAL 1 50/20	J:\GC60\Data\052820\0528F009.D	05/28/2020 13:13
02	KC2000273-02	ICAL 2 100/25	J:\GC60\Data\052820\0528F010.D	05/28/2020 13:38
03	KC2000273-03	ICAL 3 200/50	J:\GC60\Data\052820\0528F011.D	05/28/2020 14:03
04	KC2000273-04	ICAL 4 500/100	J:\GC60\Data\052820\0528F012.D	05/28/2020 14:27
05	KC2000273-05	ICAL 5 1000/150	J:\GC60\Data\052820\0528F013.D	05/28/2020 14:52
06	KC2000273-06	ICAL 6 5000	J:\GC60\Data\052820\0528F014.D	05/28/2020 15:17
07	KC2000273-07	ICAL 7 10000	J:\GC60\Data\052820\0528F015.D	05/28/2020 15:42

Analyte

1,4-Difluorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20.000	1.401E5	02	25.000	1.42E5	03	50.000	1.427E5	04	100.000	1.373E5
05	150.000	1.402E5									

Gasoline Range Organics-NWTPH

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	50.000	7.881E4	02	100.000	7.555E4	03	200.000	7.782E4	04	500.000	7.067E4
05	1000.000	7.269E4	06	5000.000	7.351E4						

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 5/28/2020

Initial Calibration Summary
Volatile Petroleum Products Method for Soil and Water for the Northwest

Calibration ID: KC2000273
Instrument ID: K-GC-60

Signal ID: DB-624

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
1,4-Difluorobenzene	SURR	Average RF	% RSD	1.5	20	1.405E5	
Gasoline Range Organics-NWTPH	TRG	Average RF	% RSD	4.2	20	7.484E4	

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 5/28/2020

Initial Calibration Verification Summary
Volatile Petroleum Products Method for Soil and Water for the Northwest

Calibration ID: KC2000273
Instrument ID: K-GC-60

Signal ID: DB-624

#	Lab Code	Sample Name	File Location	Acquisition Date
08	KC2000273-08	ICV	J:\GC60\Data\052820\0528F019.D	05/28/2020 17:22

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Gasoline Range Organics-NWTPH	500	548	7.484E4	8.201E4	9.59	±20	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
1,4-Difluorobenzene	100	99.8	1.405E5	1.403E5	-0.151	±20	Average RF

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Date Analyzed: 06/16/20 08:57

Continuing Calibration Verification (CCV) Summary
Volatile Petroleum Products Method for Soil and Water for the Northwest

Analysis Method: NWTPH-Gx
File ID: J:\GC60\Data\061620\0616F003.D\
Signal ID: DB-624

Calibration Date: 5/28/2020
Calibration ID: KC2000273
Analysis Lot: 683780
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Gasoline Range Organics-NWTPH	500	540	7.484E4	8.085E4	8.0	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,4-Difluorobenzene	100	106	1.405E5	1.493E5	6.3	NA	±20	Average RF

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Date Analyzed: 06/16/20 12:28

Continuing Calibration Verification (CCV) Summary
Volatile Petroleum Products Method for Soil and Water for the Northwest

Analysis Method: NWTPH-Gx
File ID: J:\GC60\Data\061620\0616F011.D\
Signal ID: DB-624

Calibration Date: 5/28/2020
Calibration ID: KC2000273
Analysis Lot: 683780
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Gasoline Range Organics-NWTPH	500	565	7.484E4	8.457E4	13.0	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,4-Difluorobenzene	100	105	1.405E5	1.481E5	5.4	NA	±20	Average RF

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

Analysis Run Log
Volatile Petroleum Products Method for Soil and Water for the Northwest

Analysis Method: NWTPH-Gx

Analysis Lot: 683780

Instrument ID: K-GC-60

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC60\Data\061620\0616F003.D\	Continuing Calibration Verification	KQ2008086-01	6/16/2020	08:57:00	
J:\GC60\Data\061620\0616F004.D\	ZZZZZZZ	ZZZZZZZ	6/16/2020	09:22:00	
J:\GC60\Data\061620\0616F005.D\	Method Blank	KQ2008086-05	6/16/2020	09:47:00	
J:\GC60\Data\061620\0616F006.D\	Lab Control Sample	KQ2008086-06	6/16/2020	10:12:00	
J:\GC60\Data\061620\0616F007.D\	TripBlank#2-0620	K2004781-008	6/16/2020	10:37:00	
J:\GC60\Data\061620\0616F008.D\	CTMW-18-0620	K2004781-015	6/16/2020	11:02:00	
J:\GC60\Data\061620\0616F009.D\	CTMW-18-0620 DUP	KQ2008086-07	6/16/2020	11:28:00	
J:\GC60\Data\061620\0616F010.D\	ZZZZZZZ	ZZZZZZZ	6/16/2020	11:53:00	
J:\GC60\Data\061620\0616F011.D\	Continuing Calibration Verification	KQ2008086-02	6/16/2020	12:28:00	
J:\GC60\Data\061620\0616F012.D\	ZZZZZZZ	ZZZZZZZ	6/16/2020	12:53:00	



Volatile Organic Compounds

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 09:15
Date Received: 06/10/20 09:40

Sample Name: TripBlank#1-0620
Lab Code: K2004781-001

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	06/16/20 13:06	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	06/16/20 13:06	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	06/16/20 13:06	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	06/16/20 13:06	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	06/16/20 13:06	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	06/16/20 13:06	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	06/16/20 13:06	
1,2-Dichloroethane	ND U	0.50	0.080	1	06/16/20 13:06	
1,2-Dichloropropane	ND U	0.50	0.095	1	06/16/20 13:06	
2-Butanone (MEK)	ND U	20	1.9	1	06/16/20 13:06	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	06/16/20 13:06	
2-Hexanone	ND U	20	2.7	1	06/16/20 13:06	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	06/16/20 13:06	
3-Chloro-1-propene	ND U	5.0	0.094	1	06/16/20 13:06	
4-Methyl-2-pentanone	ND U	20	2.6	1	06/16/20 13:06	
Acetone	ND U	20	3.3	1	06/16/20 13:06	*
Acetonitrile	ND U	50	13	1	06/16/20 13:06	*
Acrolein	ND U	20	1.2	1	06/16/20 13:06	
Acrylonitrile	ND U	5.0	0.53	1	06/16/20 13:06	
Benzene	ND U	0.50	0.062	1	06/16/20 13:06	
Bromodichloromethane	ND U	0.50	0.091	1	06/16/20 13:06	
Bromoform	ND U	0.50	0.16	1	06/16/20 13:06	
Bromomethane	ND U	0.50	0.16	1	06/16/20 13:06	
Carbon Disulfide	0.10 J	0.50	0.069	1	06/16/20 13:06	
Carbon Tetrachloride	ND U	0.50	0.096	1	06/16/20 13:06	
Chlorobenzene	ND U	0.50	0.11	1	06/16/20 13:06	
Chloroethane	ND U	0.50	0.16	1	06/16/20 13:06	
Chloroform	ND U	0.50	0.072	1	06/16/20 13:06	
Chloromethane	ND U	0.50	0.068	1	06/16/20 13:06	
Dibromochloromethane	ND U	0.50	0.14	1	06/16/20 13:06	
Dibromomethane	ND U	0.50	0.15	1	06/16/20 13:06	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	06/16/20 13:06	
Dichloromethane	ND U	2.0	0.10	1	06/16/20 13:06	
Ethyl Methacrylate	ND U	5.0	0.15	1	06/16/20 13:06	
Ethylbenzene	ND U	0.50	0.050	1	06/16/20 13:06	
Iodomethane	ND U	5.0	0.12	1	06/16/20 13:06	
Methacrylonitrile	ND U	5.0	0.35	1	06/16/20 13:06	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	06/16/20 13:06	
Toluene	ND U	0.50	0.054	1	06/16/20 13:06	
Trichloroethene (TCE)	ND U	0.50	0.10	1	06/16/20 13:06	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	06/16/20 13:06	
Vinyl Acetate	ND U	5.0	0.43	1	06/16/20 13:06	
Vinyl Chloride	ND U	0.50	0.075	1	06/16/20 13:06	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 09:15
Date Received: 06/10/20 09:40

Sample Name: TripBlank#1-0620
Lab Code: K2004781-001

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	06/16/20 13:06	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	06/16/20 13:06	
m,p-Xylenes	ND U	0.50	0.11	1	06/16/20 13:06	
o-Xylene	ND U	0.50	0.074	1	06/16/20 13:06	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	06/16/20 13:06	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	06/16/20 13:06	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	06/16/20 13:06	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	86	68 - 117	06/16/20 13:06	
Dibromofluoromethane	90	73 - 122	06/16/20 13:06	
Toluene-d8	105	65 - 144	06/16/20 13:06	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 10:02
Date Received: 06/10/20 09:40

Sample Name: CTMW-14-0620
Lab Code: K2004781-002

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	06/16/20 13:32	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	06/16/20 13:32	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	06/16/20 13:32	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	06/16/20 13:32	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	06/16/20 13:32	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	06/16/20 13:32	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	06/16/20 13:32	
1,2-Dichloroethane	ND U	0.50	0.080	1	06/16/20 13:32	
1,2-Dichloropropane	ND U	0.50	0.095	1	06/16/20 13:32	
2-Butanone (MEK)	ND U	20	1.9	1	06/16/20 13:32	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	06/16/20 13:32	
2-Hexanone	ND U	20	2.7	1	06/16/20 13:32	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	06/16/20 13:32	
3-Chloro-1-propene	ND U	5.0	0.094	1	06/16/20 13:32	
4-Methyl-2-pentanone	ND U	20	2.6	1	06/16/20 13:32	
Acetone	ND U	20	3.3	1	06/16/20 13:32	*
Acetonitrile	ND U	50	13	1	06/16/20 13:32	*
Acrolein	ND U	20	1.2	1	06/16/20 13:32	
Acrylonitrile	ND U	5.0	0.53	1	06/16/20 13:32	
Benzene	ND U	0.50	0.062	1	06/16/20 13:32	
Bromodichloromethane	ND U	0.50	0.091	1	06/16/20 13:32	
Bromoform	ND U	0.50	0.16	1	06/16/20 13:32	
Bromomethane	ND U	0.50	0.16	1	06/16/20 13:32	
Carbon Disulfide	0.080 J	0.50	0.069	1	06/16/20 13:32	
Carbon Tetrachloride	ND U	0.50	0.096	1	06/16/20 13:32	
Chlorobenzene	ND U	0.50	0.11	1	06/16/20 13:32	
Chloroethane	ND U	0.50	0.16	1	06/16/20 13:32	
Chloroform	ND U	0.50	0.072	1	06/16/20 13:32	
Chloromethane	ND U	0.50	0.068	1	06/16/20 13:32	
Dibromochloromethane	ND U	0.50	0.14	1	06/16/20 13:32	
Dibromomethane	ND U	0.50	0.15	1	06/16/20 13:32	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	06/16/20 13:32	
Dichloromethane	ND U	2.0	0.10	1	06/16/20 13:32	
Ethyl Methacrylate	ND U	5.0	0.15	1	06/16/20 13:32	
Ethylbenzene	ND U	0.50	0.050	1	06/16/20 13:32	
Iodomethane	ND U	5.0	0.12	1	06/16/20 13:32	
Methacrylonitrile	ND U	5.0	0.35	1	06/16/20 13:32	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	06/16/20 13:32	
Toluene	ND U	0.50	0.054	1	06/16/20 13:32	
Trichloroethene (TCE)	ND U	0.50	0.10	1	06/16/20 13:32	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	06/16/20 13:32	
Vinyl Acetate	ND U	5.0	0.43	1	06/16/20 13:32	
Vinyl Chloride	ND U	0.50	0.075	1	06/16/20 13:32	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 10:02
Date Received: 06/10/20 09:40

Sample Name: CTMW-14-0620
Lab Code: K2004781-002

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	06/16/20 13:32	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	06/16/20 13:32	
m,p-Xylenes	ND U	0.50	0.11	1	06/16/20 13:32	
o-Xylene	ND U	0.50	0.074	1	06/16/20 13:32	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	06/16/20 13:32	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	06/16/20 13:32	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	06/16/20 13:32	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	88	68 - 117	06/16/20 13:32	
Dibromofluoromethane	87	73 - 122	06/16/20 13:32	
Toluene-d8	98	65 - 144	06/16/20 13:32	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 10:57
Date Received: 06/10/20 09:40

Sample Name: CTMW-9-0620
Lab Code: K2004781-003

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	06/16/20 13:59	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	06/16/20 13:59	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	06/16/20 13:59	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	06/16/20 13:59	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	06/16/20 13:59	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	06/16/20 13:59	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	06/16/20 13:59	
1,2-Dichloroethane	ND U	0.50	0.080	1	06/16/20 13:59	
1,2-Dichloropropane	ND U	0.50	0.095	1	06/16/20 13:59	
2-Butanone (MEK)	ND U	20	1.9	1	06/16/20 13:59	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	06/16/20 13:59	
2-Hexanone	ND U	20	2.7	1	06/16/20 13:59	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	06/16/20 13:59	
3-Chloro-1-propene	ND U	5.0	0.094	1	06/16/20 13:59	
4-Methyl-2-pentanone	ND U	20	2.6	1	06/16/20 13:59	
Acetone	ND U	20	3.3	1	06/16/20 13:59	*
Acetonitrile	ND U	50	13	1	06/16/20 13:59	*
Acrolein	ND U	20	1.2	1	06/16/20 13:59	
Acrylonitrile	ND U	5.0	0.53	1	06/16/20 13:59	
Benzene	ND U	0.50	0.062	1	06/16/20 13:59	
Bromodichloromethane	ND U	0.50	0.091	1	06/16/20 13:59	
Bromoform	ND U	0.50	0.16	1	06/16/20 13:59	
Bromomethane	ND U	0.50	0.16	1	06/16/20 13:59	
Carbon Disulfide	0.080 J	0.50	0.069	1	06/16/20 13:59	
Carbon Tetrachloride	ND U	0.50	0.096	1	06/16/20 13:59	
Chlorobenzene	ND U	0.50	0.11	1	06/16/20 13:59	
Chloroethane	ND U	0.50	0.16	1	06/16/20 13:59	
Chloroform	ND U	0.50	0.072	1	06/16/20 13:59	
Chloromethane	ND U	0.50	0.068	1	06/16/20 13:59	
Dibromochloromethane	ND U	0.50	0.14	1	06/16/20 13:59	
Dibromomethane	ND U	0.50	0.15	1	06/16/20 13:59	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	06/16/20 13:59	
Dichloromethane	ND U	2.0	0.10	1	06/16/20 13:59	
Ethyl Methacrylate	ND U	5.0	0.15	1	06/16/20 13:59	
Ethylbenzene	ND U	0.50	0.050	1	06/16/20 13:59	
Iodomethane	ND U	5.0	0.12	1	06/16/20 13:59	
Methacrylonitrile	ND U	5.0	0.35	1	06/16/20 13:59	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	06/16/20 13:59	
Toluene	ND U	0.50	0.054	1	06/16/20 13:59	
Trichloroethene (TCE)	ND U	0.50	0.10	1	06/16/20 13:59	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	06/16/20 13:59	
Vinyl Acetate	ND U	5.0	0.43	1	06/16/20 13:59	
Vinyl Chloride	ND U	0.50	0.075	1	06/16/20 13:59	

ALS Group USA, Corp.
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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 10:57
Date Received: 06/10/20 09:40

Sample Name: CTMW-9-0620
Lab Code: K2004781-003

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	06/16/20 13:59	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	06/16/20 13:59	
m,p-Xylenes	ND U	0.50	0.11	1	06/16/20 13:59	
o-Xylene	ND U	0.50	0.074	1	06/16/20 13:59	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	06/16/20 13:59	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	06/16/20 13:59	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	06/16/20 13:59	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	68 - 117	06/16/20 13:59	
Dibromofluoromethane	94	73 - 122	06/16/20 13:59	
Toluene-d8	102	65 - 144	06/16/20 13:59	

ALS Group USA, Corp.
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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 11:41
Date Received: 06/10/20 09:40

Sample Name: CTMW-8-0620
Lab Code: K2004781-004

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	06/16/20 14:25	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	06/16/20 14:25	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	06/16/20 14:25	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	06/16/20 14:25	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	06/16/20 14:25	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	06/16/20 14:25	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	06/16/20 14:25	
1,2-Dichloroethane	ND U	0.50	0.080	1	06/16/20 14:25	
1,2-Dichloropropane	ND U	0.50	0.095	1	06/16/20 14:25	
2-Butanone (MEK)	5.3 J	20	1.9	1	06/16/20 14:25	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	06/16/20 14:25	
2-Hexanone	ND U	20	2.7	1	06/16/20 14:25	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	06/16/20 14:25	
3-Chloro-1-propene	ND U	5.0	0.094	1	06/16/20 14:25	
4-Methyl-2-pentanone	ND U	20	2.6	1	06/16/20 14:25	
Acetone	68	20	3.3	1	06/16/20 14:25	*
Acetonitrile	ND U	50	13	1	06/16/20 14:25	*
Acrolein	ND U	20	1.2	1	06/16/20 14:25	
Acrylonitrile	ND U	5.0	0.53	1	06/16/20 14:25	
Benzene	0.14 J	0.50	0.062	1	06/16/20 14:25	
Bromodichloromethane	ND U	0.50	0.091	1	06/16/20 14:25	
Bromoform	ND U	0.50	0.16	1	06/16/20 14:25	
Bromomethane	ND U	0.50	0.16	1	06/16/20 14:25	
Carbon Disulfide	0.10 J	0.50	0.069	1	06/16/20 14:25	
Carbon Tetrachloride	ND U	0.50	0.096	1	06/16/20 14:25	
Chlorobenzene	ND U	0.50	0.11	1	06/16/20 14:25	
Chloroethane	ND U	0.50	0.16	1	06/16/20 14:25	
Chloroform	0.21 J	0.50	0.072	1	06/16/20 14:25	
Chloromethane	ND U	0.50	0.068	1	06/16/20 14:25	
Dibromochloromethane	ND U	0.50	0.14	1	06/16/20 14:25	
Dibromomethane	ND U	0.50	0.15	1	06/16/20 14:25	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	06/16/20 14:25	
Dichloromethane	ND U	2.0	0.10	1	06/16/20 14:25	
Ethyl Methacrylate	ND U	5.0	0.15	1	06/16/20 14:25	
Ethylbenzene	ND U	0.50	0.050	1	06/16/20 14:25	
Iodomethane	ND U	5.0	0.12	1	06/16/20 14:25	
Methacrylonitrile	ND U	5.0	0.35	1	06/16/20 14:25	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	06/16/20 14:25	
Toluene	0.98	0.50	0.054	1	06/16/20 14:25	
Trichloroethene (TCE)	ND U	0.50	0.10	1	06/16/20 14:25	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	06/16/20 14:25	
Vinyl Acetate	ND U	5.0	0.43	1	06/16/20 14:25	
Vinyl Chloride	ND U	0.50	0.075	1	06/16/20 14:25	

ALS Group USA, Corp.
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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 11:41
Date Received: 06/10/20 09:40

Sample Name: CTMW-8-0620
Lab Code: K2004781-004

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	06/16/20 14:25	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	06/16/20 14:25	
m,p-Xylenes	ND U	0.50	0.11	1	06/16/20 14:25	
o-Xylene	ND U	0.50	0.074	1	06/16/20 14:25	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	06/16/20 14:25	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	06/16/20 14:25	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	06/16/20 14:25	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	68 - 117	06/16/20 14:25	
Dibromofluoromethane	53	73 - 122	06/16/20 14:25	*
Toluene-d8	99	65 - 144	06/16/20 14:25	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 12:54
Date Received: 06/10/20 09:40

Sample Name: CTMW-17-0620
Lab Code: K2004781-005

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	06/16/20 14:52	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	06/16/20 14:52	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	06/16/20 14:52	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	06/16/20 14:52	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	06/16/20 14:52	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	06/16/20 14:52	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	06/16/20 14:52	
1,2-Dichloroethane	ND U	0.50	0.080	1	06/16/20 14:52	
1,2-Dichloropropane	ND U	0.50	0.095	1	06/16/20 14:52	
2-Butanone (MEK)	ND U	20	1.9	1	06/16/20 14:52	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	06/16/20 14:52	
2-Hexanone	ND U	20	2.7	1	06/16/20 14:52	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	06/16/20 14:52	
3-Chloro-1-propene	ND U	5.0	0.094	1	06/16/20 14:52	
4-Methyl-2-pentanone	ND U	20	2.6	1	06/16/20 14:52	
Acetone	3.4 J	20	3.3	1	06/16/20 14:52	*
Acetonitrile	ND U	50	13	1	06/16/20 14:52	*
Acrolein	ND U	20	1.2	1	06/16/20 14:52	
Acrylonitrile	ND U	5.0	0.53	1	06/16/20 14:52	
Benzene	ND U	0.50	0.062	1	06/16/20 14:52	
Bromodichloromethane	ND U	0.50	0.091	1	06/16/20 14:52	
Bromoform	ND U	0.50	0.16	1	06/16/20 14:52	
Bromomethane	ND U	0.50	0.16	1	06/16/20 14:52	
Carbon Disulfide	0.070 J	0.50	0.069	1	06/16/20 14:52	
Carbon Tetrachloride	ND U	0.50	0.096	1	06/16/20 14:52	
Chlorobenzene	ND U	0.50	0.11	1	06/16/20 14:52	
Chloroethane	ND U	0.50	0.16	1	06/16/20 14:52	
Chloroform	ND U	0.50	0.072	1	06/16/20 14:52	
Chloromethane	ND U	0.50	0.068	1	06/16/20 14:52	
Dibromochloromethane	ND U	0.50	0.14	1	06/16/20 14:52	
Dibromomethane	ND U	0.50	0.15	1	06/16/20 14:52	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	06/16/20 14:52	
Dichloromethane	ND U	2.0	0.10	1	06/16/20 14:52	
Ethyl Methacrylate	ND U	5.0	0.15	1	06/16/20 14:52	
Ethylbenzene	ND U	0.50	0.050	1	06/16/20 14:52	
Iodomethane	ND U	5.0	0.12	1	06/16/20 14:52	
Methacrylonitrile	ND U	5.0	0.35	1	06/16/20 14:52	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	06/16/20 14:52	
Toluene	ND U	0.50	0.054	1	06/16/20 14:52	
Trichloroethene (TCE)	0.14 J	0.50	0.10	1	06/16/20 14:52	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	06/16/20 14:52	
Vinyl Acetate	ND U	5.0	0.43	1	06/16/20 14:52	
Vinyl Chloride	ND U	0.50	0.075	1	06/16/20 14:52	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 12:54
Date Received: 06/10/20 09:40

Sample Name: CTMW-17-0620
Lab Code: K2004781-005

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	06/16/20 14:52	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	06/16/20 14:52	
m,p-Xylenes	ND U	0.50	0.11	1	06/16/20 14:52	
o-Xylene	ND U	0.50	0.074	1	06/16/20 14:52	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	06/16/20 14:52	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	06/16/20 14:52	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	06/16/20 14:52	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	89	68 - 117	06/16/20 14:52	
Dibromofluoromethane	94	73 - 122	06/16/20 14:52	
Toluene-d8	100	65 - 144	06/16/20 14:52	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 13:34
Date Received: 06/10/20 09:40

Sample Name: CTMW-17D-0620
Lab Code: K2004781-006

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	06/16/20 15:18	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	06/16/20 15:18	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	06/16/20 15:18	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	06/16/20 15:18	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	06/16/20 15:18	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	06/16/20 15:18	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	06/16/20 15:18	
1,2-Dichloroethane	ND U	0.50	0.080	1	06/16/20 15:18	
1,2-Dichloropropane	ND U	0.50	0.095	1	06/16/20 15:18	
2-Butanone (MEK)	ND U	20	1.9	1	06/16/20 15:18	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	06/16/20 15:18	
2-Hexanone	ND U	20	2.7	1	06/16/20 15:18	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	06/16/20 15:18	
3-Chloro-1-propene	ND U	5.0	0.094	1	06/16/20 15:18	
4-Methyl-2-pentanone	ND U	20	2.6	1	06/16/20 15:18	
Acetone	ND U	20	3.3	1	06/16/20 15:18	*
Acetonitrile	ND U	50	13	1	06/16/20 15:18	*
Acrolein	ND U	20	1.2	1	06/16/20 15:18	
Acrylonitrile	ND U	5.0	0.53	1	06/16/20 15:18	
Benzene	ND U	0.50	0.062	1	06/16/20 15:18	
Bromodichloromethane	ND U	0.50	0.091	1	06/16/20 15:18	
Bromoform	ND U	0.50	0.16	1	06/16/20 15:18	
Bromomethane	ND U	0.50	0.16	1	06/16/20 15:18	
Carbon Disulfide	ND U	0.50	0.069	1	06/16/20 15:18	
Carbon Tetrachloride	ND U	0.50	0.096	1	06/16/20 15:18	
Chlorobenzene	ND U	0.50	0.11	1	06/16/20 15:18	
Chloroethane	ND U	0.50	0.16	1	06/16/20 15:18	
Chloroform	ND U	0.50	0.072	1	06/16/20 15:18	
Chloromethane	ND U	0.50	0.068	1	06/16/20 15:18	
Dibromochloromethane	ND U	0.50	0.14	1	06/16/20 15:18	
Dibromomethane	ND U	0.50	0.15	1	06/16/20 15:18	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	06/16/20 15:18	
Dichloromethane	ND U	2.0	0.10	1	06/16/20 15:18	
Ethyl Methacrylate	ND U	5.0	0.15	1	06/16/20 15:18	
Ethylbenzene	ND U	0.50	0.050	1	06/16/20 15:18	
Iodomethane	ND U	5.0	0.12	1	06/16/20 15:18	
Methacrylonitrile	ND U	5.0	0.35	1	06/16/20 15:18	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	06/16/20 15:18	
Toluene	ND U	0.50	0.054	1	06/16/20 15:18	
Trichloroethene (TCE)	ND U	0.50	0.10	1	06/16/20 15:18	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	06/16/20 15:18	
Vinyl Acetate	ND U	5.0	0.43	1	06/16/20 15:18	
Vinyl Chloride	ND U	0.50	0.075	1	06/16/20 15:18	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 13:34
Date Received: 06/10/20 09:40

Sample Name: CTMW-17D-0620
Lab Code: K2004781-006

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	06/16/20 15:18	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	06/16/20 15:18	
m,p-Xylenes	ND U	0.50	0.11	1	06/16/20 15:18	
o-Xylene	ND U	0.50	0.074	1	06/16/20 15:18	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	06/16/20 15:18	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	06/16/20 15:18	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	06/16/20 15:18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	88	68 - 117	06/16/20 15:18	
Dibromofluoromethane	95	73 - 122	06/16/20 15:18	
Toluene-d8	102	65 - 144	06/16/20 15:18	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 13:50
Date Received: 06/10/20 09:40

Sample Name: FieldBlank#1-0620
Lab Code: K2004781-007

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	06/16/20 15:45	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	06/16/20 15:45	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	06/16/20 15:45	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	06/16/20 15:45	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	06/16/20 15:45	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	06/16/20 15:45	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	06/16/20 15:45	
1,2-Dichloroethane	ND U	0.50	0.080	1	06/16/20 15:45	
1,2-Dichloropropane	ND U	0.50	0.095	1	06/16/20 15:45	
2-Butanone (MEK)	ND U	20	1.9	1	06/16/20 15:45	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	06/16/20 15:45	
2-Hexanone	ND U	20	2.7	1	06/16/20 15:45	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	06/16/20 15:45	
3-Chloro-1-propene	ND U	5.0	0.094	1	06/16/20 15:45	
4-Methyl-2-pentanone	ND U	20	2.6	1	06/16/20 15:45	
Acetone	ND U	20	3.3	1	06/16/20 15:45	*
Acetonitrile	ND U	50	13	1	06/16/20 15:45	*
Acrolein	ND U	20	1.2	1	06/16/20 15:45	
Acrylonitrile	ND U	5.0	0.53	1	06/16/20 15:45	
Benzene	ND U	0.50	0.062	1	06/16/20 15:45	
Bromodichloromethane	ND U	0.50	0.091	1	06/16/20 15:45	
Bromoform	ND U	0.50	0.16	1	06/16/20 15:45	
Bromomethane	ND U	0.50	0.16	1	06/16/20 15:45	
Carbon Disulfide	ND U	0.50	0.069	1	06/16/20 15:45	
Carbon Tetrachloride	ND U	0.50	0.096	1	06/16/20 15:45	
Chlorobenzene	ND U	0.50	0.11	1	06/16/20 15:45	
Chloroethane	ND U	0.50	0.16	1	06/16/20 15:45	
Chloroform	ND U	0.50	0.072	1	06/16/20 15:45	
Chloromethane	ND U	0.50	0.068	1	06/16/20 15:45	
Dibromochloromethane	ND U	0.50	0.14	1	06/16/20 15:45	
Dibromomethane	ND U	0.50	0.15	1	06/16/20 15:45	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	06/16/20 15:45	
Dichloromethane	0.13 J	2.0	0.10	1	06/16/20 15:45	
Ethyl Methacrylate	ND U	5.0	0.15	1	06/16/20 15:45	
Ethylbenzene	ND U	0.50	0.050	1	06/16/20 15:45	
Iodomethane	ND U	5.0	0.12	1	06/16/20 15:45	
Methacrylonitrile	ND U	5.0	0.35	1	06/16/20 15:45	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	06/16/20 15:45	
Toluene	ND U	0.50	0.054	1	06/16/20 15:45	
Trichloroethene (TCE)	ND U	0.50	0.10	1	06/16/20 15:45	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	06/16/20 15:45	
Vinyl Acetate	ND U	5.0	0.43	1	06/16/20 15:45	
Vinyl Chloride	ND U	0.50	0.075	1	06/16/20 15:45	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 13:50
Date Received: 06/10/20 09:40

Sample Name: FieldBlank#1-0620
Lab Code: K2004781-007

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	06/16/20 15:45	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	06/16/20 15:45	
m,p-Xylenes	ND U	0.50	0.11	1	06/16/20 15:45	
o-Xylene	ND U	0.50	0.074	1	06/16/20 15:45	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	06/16/20 15:45	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	06/16/20 15:45	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	06/16/20 15:45	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	88	68 - 117	06/16/20 15:45	
Dibromofluoromethane	94	73 - 122	06/16/20 15:45	
Toluene-d8	100	65 - 144	06/16/20 15:45	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 08:15
Date Received: 06/11/20 09:20

Sample Name: TripBlank#2-0620
Lab Code: K2004781-008

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	06/16/20 16:12	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	06/16/20 16:12	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	06/16/20 16:12	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	06/16/20 16:12	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	06/16/20 16:12	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	06/16/20 16:12	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	06/16/20 16:12	
1,2-Dichloroethane	ND U	0.50	0.080	1	06/16/20 16:12	
1,2-Dichloropropane	ND U	0.50	0.095	1	06/16/20 16:12	
2-Butanone (MEK)	ND U	20	1.9	1	06/16/20 16:12	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	06/16/20 16:12	
2-Hexanone	ND U	20	2.7	1	06/16/20 16:12	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	06/16/20 16:12	
3-Chloro-1-propene	ND U	5.0	0.094	1	06/16/20 16:12	
4-Methyl-2-pentanone	ND U	20	2.6	1	06/16/20 16:12	
Acetone	ND U	20	3.3	1	06/16/20 16:12	*
Acetonitrile	ND U	50	13	1	06/16/20 16:12	*
Acrolein	ND U	20	1.2	1	06/16/20 16:12	
Acrylonitrile	ND U	5.0	0.53	1	06/16/20 16:12	
Benzene	ND U	0.50	0.062	1	06/16/20 16:12	
Bromodichloromethane	ND U	0.50	0.091	1	06/16/20 16:12	
Bromoform	ND U	0.50	0.16	1	06/16/20 16:12	
Bromomethane	ND U	0.50	0.16	1	06/16/20 16:12	
Carbon Disulfide	ND U	0.50	0.069	1	06/16/20 16:12	
Carbon Tetrachloride	ND U	0.50	0.096	1	06/16/20 16:12	
Chlorobenzene	ND U	0.50	0.11	1	06/16/20 16:12	
Chloroethane	ND U	0.50	0.16	1	06/16/20 16:12	
Chloroform	ND U	0.50	0.072	1	06/16/20 16:12	
Chloromethane	ND U	0.50	0.068	1	06/16/20 16:12	
Dibromochloromethane	ND U	0.50	0.14	1	06/16/20 16:12	
Dibromomethane	ND U	0.50	0.15	1	06/16/20 16:12	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	06/16/20 16:12	
Dichloromethane	0.11 J	2.0	0.10	1	06/16/20 16:12	
Ethyl Methacrylate	ND U	5.0	0.15	1	06/16/20 16:12	
Ethylbenzene	ND U	0.50	0.050	1	06/16/20 16:12	
Iodomethane	ND U	5.0	0.12	1	06/16/20 16:12	
Methacrylonitrile	ND U	5.0	0.35	1	06/16/20 16:12	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	06/16/20 16:12	
Toluene	ND U	0.50	0.054	1	06/16/20 16:12	
Trichloroethene (TCE)	ND U	0.50	0.10	1	06/16/20 16:12	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	06/16/20 16:12	
Vinyl Acetate	ND U	5.0	0.43	1	06/16/20 16:12	
Vinyl Chloride	ND U	0.50	0.075	1	06/16/20 16:12	

ALS Group USA, Corp.
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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 08:15
Date Received: 06/11/20 09:20

Sample Name: TripBlank#2-0620
Lab Code: K2004781-008

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	06/16/20 16:12	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	06/16/20 16:12	
m,p-Xylenes	ND U	0.50	0.11	1	06/16/20 16:12	
o-Xylene	ND U	0.50	0.074	1	06/16/20 16:12	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	06/16/20 16:12	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	06/16/20 16:12	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	06/16/20 16:12	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	87	68 - 117	06/16/20 16:12	
Dibromofluoromethane	93	73 - 122	06/16/20 16:12	
Toluene-d8	99	65 - 144	06/16/20 16:12	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 09:08
Date Received: 06/11/20 09:20

Sample Name: CTMW-5-0620
Lab Code: K2004781-009

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	06/16/20 16:39	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	06/16/20 16:39	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	06/16/20 16:39	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	06/16/20 16:39	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	06/16/20 16:39	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	06/16/20 16:39	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	06/16/20 16:39	
1,2-Dichloroethane	ND U	0.50	0.080	1	06/16/20 16:39	
1,2-Dichloropropane	ND U	0.50	0.095	1	06/16/20 16:39	
2-Butanone (MEK)	ND U	20	1.9	1	06/16/20 16:39	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	06/16/20 16:39	
2-Hexanone	ND U	20	2.7	1	06/16/20 16:39	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	06/16/20 16:39	
3-Chloro-1-propene	ND U	5.0	0.094	1	06/16/20 16:39	
4-Methyl-2-pentanone	ND U	20	2.6	1	06/16/20 16:39	
Acetone	ND U	20	3.3	1	06/16/20 16:39	*
Acetonitrile	ND U	50	13	1	06/16/20 16:39	*
Acrolein	ND U	20	1.2	1	06/16/20 16:39	
Acrylonitrile	ND U	5.0	0.53	1	06/16/20 16:39	
Benzene	0.10 J	0.50	0.062	1	06/16/20 16:39	
Bromodichloromethane	ND U	0.50	0.091	1	06/16/20 16:39	
Bromoform	ND U	0.50	0.16	1	06/16/20 16:39	
Bromomethane	ND U	0.50	0.16	1	06/16/20 16:39	
Carbon Disulfide	ND U	0.50	0.069	1	06/16/20 16:39	
Carbon Tetrachloride	ND U	0.50	0.096	1	06/16/20 16:39	
Chlorobenzene	0.99	0.50	0.11	1	06/16/20 16:39	
Chloroethane	ND U	0.50	0.16	1	06/16/20 16:39	
Chloroform	ND U	0.50	0.072	1	06/16/20 16:39	
Chloromethane	ND U	0.50	0.068	1	06/16/20 16:39	
Dibromochloromethane	ND U	0.50	0.14	1	06/16/20 16:39	
Dibromomethane	ND U	0.50	0.15	1	06/16/20 16:39	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	06/16/20 16:39	
Dichloromethane	ND U	2.0	0.10	1	06/16/20 16:39	
Ethyl Methacrylate	ND U	5.0	0.15	1	06/16/20 16:39	
Ethylbenzene	ND U	0.50	0.050	1	06/16/20 16:39	
Iodomethane	ND U	5.0	0.12	1	06/16/20 16:39	
Methacrylonitrile	ND U	5.0	0.35	1	06/16/20 16:39	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	06/16/20 16:39	
Toluene	0.25 J	0.50	0.054	1	06/16/20 16:39	
Trichloroethene (TCE)	ND U	0.50	0.10	1	06/16/20 16:39	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	06/16/20 16:39	
Vinyl Acetate	ND U	5.0	0.43	1	06/16/20 16:39	
Vinyl Chloride	ND U	0.50	0.075	1	06/16/20 16:39	

ALS Group USA, Corp.
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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 09:08
Date Received: 06/11/20 09:20

Sample Name: CTMW-5-0620
Lab Code: K2004781-009

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	06/16/20 16:39	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	06/16/20 16:39	
m,p-Xylenes	ND U	0.50	0.11	1	06/16/20 16:39	
o-Xylene	ND U	0.50	0.074	1	06/16/20 16:39	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	06/16/20 16:39	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	06/16/20 16:39	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	06/16/20 16:39	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	68 - 117	06/16/20 16:39	
Dibromofluoromethane	95	73 - 122	06/16/20 16:39	
Toluene-d8	101	65 - 144	06/16/20 16:39	

ALS Group USA, Corp.
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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 09:47
Date Received: 06/11/20 09:20

Sample Name: CTMW-12-0620
Lab Code: K2004781-010

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	06/16/20 17:05	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	06/16/20 17:05	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	06/16/20 17:05	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	06/16/20 17:05	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	06/16/20 17:05	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	06/16/20 17:05	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	06/16/20 17:05	
1,2-Dichloroethane	ND U	0.50	0.080	1	06/16/20 17:05	
1,2-Dichloropropane	ND U	0.50	0.095	1	06/16/20 17:05	
2-Butanone (MEK)	ND U	20	1.9	1	06/16/20 17:05	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	06/16/20 17:05	
2-Hexanone	ND U	20	2.7	1	06/16/20 17:05	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	06/16/20 17:05	
3-Chloro-1-propene	ND U	5.0	0.094	1	06/16/20 17:05	
4-Methyl-2-pentanone	ND U	20	2.6	1	06/16/20 17:05	
Acetone	ND U	20	3.3	1	06/16/20 17:05	*
Acetonitrile	ND U	50	13	1	06/16/20 17:05	*
Acrolein	ND U	20	1.2	1	06/16/20 17:05	
Acrylonitrile	ND U	5.0	0.53	1	06/16/20 17:05	
Benzene	ND U	0.50	0.062	1	06/16/20 17:05	
Bromodichloromethane	ND U	0.50	0.091	1	06/16/20 17:05	
Bromoform	ND U	0.50	0.16	1	06/16/20 17:05	
Bromomethane	ND U	0.50	0.16	1	06/16/20 17:05	
Carbon Disulfide	0.080 J	0.50	0.069	1	06/16/20 17:05	
Carbon Tetrachloride	ND U	0.50	0.096	1	06/16/20 17:05	
Chlorobenzene	ND U	0.50	0.11	1	06/16/20 17:05	
Chloroethane	ND U	0.50	0.16	1	06/16/20 17:05	
Chloroform	ND U	0.50	0.072	1	06/16/20 17:05	
Chloromethane	ND U	0.50	0.068	1	06/16/20 17:05	
Dibromochloromethane	ND U	0.50	0.14	1	06/16/20 17:05	
Dibromomethane	ND U	0.50	0.15	1	06/16/20 17:05	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	06/16/20 17:05	
Dichloromethane	ND U	2.0	0.10	1	06/16/20 17:05	
Ethyl Methacrylate	ND U	5.0	0.15	1	06/16/20 17:05	
Ethylbenzene	ND U	0.50	0.050	1	06/16/20 17:05	
Iodomethane	ND U	5.0	0.12	1	06/16/20 17:05	
Methacrylonitrile	ND U	5.0	0.35	1	06/16/20 17:05	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	06/16/20 17:05	
Toluene	ND U	0.50	0.054	1	06/16/20 17:05	
Trichloroethene (TCE)	ND U	0.50	0.10	1	06/16/20 17:05	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	06/16/20 17:05	
Vinyl Acetate	ND U	5.0	0.43	1	06/16/20 17:05	
Vinyl Chloride	ND U	0.50	0.075	1	06/16/20 17:05	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 09:47
Date Received: 06/11/20 09:20

Sample Name: CTMW-12-0620
Lab Code: K2004781-010

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	06/16/20 17:05	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	06/16/20 17:05	
m,p-Xylenes	ND U	0.50	0.11	1	06/16/20 17:05	
o-Xylene	ND U	0.50	0.074	1	06/16/20 17:05	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	06/16/20 17:05	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	06/16/20 17:05	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	06/16/20 17:05	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	87	68 - 117	06/16/20 17:05	
Dibromofluoromethane	93	73 - 122	06/16/20 17:05	
Toluene-d8	101	65 - 144	06/16/20 17:05	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 10:34
Date Received: 06/11/20 09:20

Sample Name: CTMW-24-0620
Lab Code: K2004781-011

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	06/16/20 17:32	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	06/16/20 17:32	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	06/16/20 17:32	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	06/16/20 17:32	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	06/16/20 17:32	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	06/16/20 17:32	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	06/16/20 17:32	
1,2-Dichloroethane	ND U	0.50	0.080	1	06/16/20 17:32	
1,2-Dichloropropane	ND U	0.50	0.095	1	06/16/20 17:32	
2-Butanone (MEK)	ND U	20	1.9	1	06/16/20 17:32	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	06/16/20 17:32	
2-Hexanone	ND U	20	2.7	1	06/16/20 17:32	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	06/16/20 17:32	
3-Chloro-1-propene	ND U	5.0	0.094	1	06/16/20 17:32	
4-Methyl-2-pentanone	ND U	20	2.6	1	06/16/20 17:32	
Acetone	ND U	20	3.3	1	06/16/20 17:32	*
Acetonitrile	ND U	50	13	1	06/16/20 17:32	*
Acrolein	ND U	20	1.2	1	06/16/20 17:32	
Acrylonitrile	ND U	5.0	0.53	1	06/16/20 17:32	
Benzene	ND U	0.50	0.062	1	06/16/20 17:32	
Bromodichloromethane	ND U	0.50	0.091	1	06/16/20 17:32	
Bromoform	ND U	0.50	0.16	1	06/16/20 17:32	
Bromomethane	ND U	0.50	0.16	1	06/16/20 17:32	
Carbon Disulfide	0.090 J	0.50	0.069	1	06/16/20 17:32	
Carbon Tetrachloride	ND U	0.50	0.096	1	06/16/20 17:32	
Chlorobenzene	ND U	0.50	0.11	1	06/16/20 17:32	
Chloroethane	ND U	0.50	0.16	1	06/16/20 17:32	
Chloroform	ND U	0.50	0.072	1	06/16/20 17:32	
Chloromethane	ND U	0.50	0.068	1	06/16/20 17:32	
Dibromochloromethane	ND U	0.50	0.14	1	06/16/20 17:32	
Dibromomethane	ND U	0.50	0.15	1	06/16/20 17:32	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	06/16/20 17:32	
Dichloromethane	ND U	2.0	0.10	1	06/16/20 17:32	
Ethyl Methacrylate	ND U	5.0	0.15	1	06/16/20 17:32	
Ethylbenzene	ND U	0.50	0.050	1	06/16/20 17:32	
Iodomethane	ND U	5.0	0.12	1	06/16/20 17:32	
Methacrylonitrile	ND U	5.0	0.35	1	06/16/20 17:32	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	06/16/20 17:32	
Toluene	ND U	0.50	0.054	1	06/16/20 17:32	
Trichloroethene (TCE)	ND U	0.50	0.10	1	06/16/20 17:32	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	06/16/20 17:32	
Vinyl Acetate	ND U	5.0	0.43	1	06/16/20 17:32	
Vinyl Chloride	ND U	0.50	0.075	1	06/16/20 17:32	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 10:34
Date Received: 06/11/20 09:20

Sample Name: CTMW-24-0620
Lab Code: K2004781-011

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	06/16/20 17:32	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	06/16/20 17:32	
m,p-Xylenes	ND U	0.50	0.11	1	06/16/20 17:32	
o-Xylene	ND U	0.50	0.074	1	06/16/20 17:32	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	06/16/20 17:32	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	06/16/20 17:32	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	06/16/20 17:32	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	87	68 - 117	06/16/20 17:32	
Dibromofluoromethane	93	73 - 122	06/16/20 17:32	
Toluene-d8	102	65 - 144	06/16/20 17:32	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 11:09
Date Received: 06/11/20 09:20

Sample Name: CTMW-24D-0620
Lab Code: K2004781-012

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	06/16/20 17:58	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	06/16/20 17:58	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	06/16/20 17:58	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	06/16/20 17:58	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	06/16/20 17:58	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	06/16/20 17:58	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	06/16/20 17:58	
1,2-Dichloroethane	ND U	0.50	0.080	1	06/16/20 17:58	
1,2-Dichloropropane	ND U	0.50	0.095	1	06/16/20 17:58	
2-Butanone (MEK)	ND U	20	1.9	1	06/16/20 17:58	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	06/16/20 17:58	
2-Hexanone	ND U	20	2.7	1	06/16/20 17:58	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	06/16/20 17:58	
3-Chloro-1-propene	ND U	5.0	0.094	1	06/16/20 17:58	
4-Methyl-2-pentanone	ND U	20	2.6	1	06/16/20 17:58	
Acetone	ND U	20	3.3	1	06/16/20 17:58	*
Acetonitrile	ND U	50	13	1	06/16/20 17:58	*
Acrolein	ND U	20	1.2	1	06/16/20 17:58	
Acrylonitrile	ND U	5.0	0.53	1	06/16/20 17:58	
Benzene	ND U	0.50	0.062	1	06/16/20 17:58	
Bromodichloromethane	ND U	0.50	0.091	1	06/16/20 17:58	
Bromoform	ND U	0.50	0.16	1	06/16/20 17:58	
Bromomethane	ND U	0.50	0.16	1	06/16/20 17:58	
Carbon Disulfide	ND U	0.50	0.069	1	06/16/20 17:58	
Carbon Tetrachloride	ND U	0.50	0.096	1	06/16/20 17:58	
Chlorobenzene	ND U	0.50	0.11	1	06/16/20 17:58	
Chloroethane	ND U	0.50	0.16	1	06/16/20 17:58	
Chloroform	ND U	0.50	0.072	1	06/16/20 17:58	
Chloromethane	ND U	0.50	0.068	1	06/16/20 17:58	
Dibromochloromethane	ND U	0.50	0.14	1	06/16/20 17:58	
Dibromomethane	ND U	0.50	0.15	1	06/16/20 17:58	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	06/16/20 17:58	
Dichloromethane	ND U	2.0	0.10	1	06/16/20 17:58	
Ethyl Methacrylate	ND U	5.0	0.15	1	06/16/20 17:58	
Ethylbenzene	ND U	0.50	0.050	1	06/16/20 17:58	
Iodomethane	ND U	5.0	0.12	1	06/16/20 17:58	
Methacrylonitrile	ND U	5.0	0.35	1	06/16/20 17:58	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	06/16/20 17:58	
Toluene	ND U	0.50	0.054	1	06/16/20 17:58	
Trichloroethene (TCE)	ND U	0.50	0.10	1	06/16/20 17:58	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	06/16/20 17:58	
Vinyl Acetate	ND U	5.0	0.43	1	06/16/20 17:58	
Vinyl Chloride	ND U	0.50	0.075	1	06/16/20 17:58	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 11:09
Date Received: 06/11/20 09:20

Sample Name: CTMW-24D-0620
Lab Code: K2004781-012

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	06/16/20 17:58	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	06/16/20 17:58	
m,p-Xylenes	ND U	0.50	0.11	1	06/16/20 17:58	
o-Xylene	ND U	0.50	0.074	1	06/16/20 17:58	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	06/16/20 17:58	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	06/16/20 17:58	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	06/16/20 17:58	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	89	68 - 117	06/16/20 17:58	
Dibromofluoromethane	91	73 - 122	06/16/20 17:58	
Toluene-d8	101	65 - 144	06/16/20 17:58	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 11:52
Date Received: 06/11/20 09:20

Sample Name: CTMW-7-0620
Lab Code: K2004781-013

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	06/16/20 18:24	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	06/16/20 18:24	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	06/16/20 18:24	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	06/16/20 18:24	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	06/16/20 18:24	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	06/16/20 18:24	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	06/16/20 18:24	
1,2-Dichloroethane	ND U	0.50	0.080	1	06/16/20 18:24	
1,2-Dichloropropane	ND U	0.50	0.095	1	06/16/20 18:24	
2-Butanone (MEK)	ND U	20	1.9	1	06/16/20 18:24	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	06/16/20 18:24	
2-Hexanone	ND U	20	2.7	1	06/16/20 18:24	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	06/16/20 18:24	
3-Chloro-1-propene	ND U	5.0	0.094	1	06/16/20 18:24	
4-Methyl-2-pentanone	ND U	20	2.6	1	06/16/20 18:24	
Acetone	4.3 J	20	3.3	1	06/16/20 18:24	*
Acetonitrile	ND U	50	13	1	06/16/20 18:24	*
Acrolein	ND U	20	1.2	1	06/16/20 18:24	
Acrylonitrile	ND U	5.0	0.53	1	06/16/20 18:24	
Benzene	ND U	0.50	0.062	1	06/16/20 18:24	
Bromodichloromethane	ND U	0.50	0.091	1	06/16/20 18:24	
Bromoform	ND U	0.50	0.16	1	06/16/20 18:24	
Bromomethane	ND U	0.50	0.16	1	06/16/20 18:24	
Carbon Disulfide	ND U	0.50	0.069	1	06/16/20 18:24	
Carbon Tetrachloride	ND U	0.50	0.096	1	06/16/20 18:24	
Chlorobenzene	ND U	0.50	0.11	1	06/16/20 18:24	
Chloroethane	ND U	0.50	0.16	1	06/16/20 18:24	
Chloroform	ND U	0.50	0.072	1	06/16/20 18:24	
Chloromethane	ND U	0.50	0.068	1	06/16/20 18:24	
Dibromochloromethane	ND U	0.50	0.14	1	06/16/20 18:24	
Dibromomethane	ND U	0.50	0.15	1	06/16/20 18:24	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	06/16/20 18:24	
Dichloromethane	ND U	2.0	0.10	1	06/16/20 18:24	
Ethyl Methacrylate	ND U	5.0	0.15	1	06/16/20 18:24	
Ethylbenzene	ND U	0.50	0.050	1	06/16/20 18:24	
Iodomethane	ND U	5.0	0.12	1	06/16/20 18:24	
Methacrylonitrile	ND U	5.0	0.35	1	06/16/20 18:24	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	06/16/20 18:24	
Toluene	ND U	0.50	0.054	1	06/16/20 18:24	
Trichloroethene (TCE)	ND U	0.50	0.10	1	06/16/20 18:24	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	06/16/20 18:24	
Vinyl Acetate	ND U	5.0	0.43	1	06/16/20 18:24	
Vinyl Chloride	ND U	0.50	0.075	1	06/16/20 18:24	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 11:52
Date Received: 06/11/20 09:20

Sample Name: CTMW-7-0620
Lab Code: K2004781-013

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	06/16/20 18:24	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	06/16/20 18:24	
m,p-Xylenes	ND U	0.50	0.11	1	06/16/20 18:24	
o-Xylene	ND U	0.50	0.074	1	06/16/20 18:24	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	06/16/20 18:24	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	06/16/20 18:24	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	06/16/20 18:24	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	68 - 117	06/16/20 18:24	
Dibromofluoromethane	92	73 - 122	06/16/20 18:24	
Toluene-d8	100	65 - 144	06/16/20 18:24	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 11:52
Date Received: 06/11/20 09:20

Sample Name: CTMW-9-7-0620
Lab Code: K2004781-014

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	06/16/20 18:51	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	06/16/20 18:51	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	06/16/20 18:51	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	06/16/20 18:51	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	06/16/20 18:51	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	06/16/20 18:51	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	06/16/20 18:51	
1,2-Dichloroethane	ND U	0.50	0.080	1	06/16/20 18:51	
1,2-Dichloropropane	ND U	0.50	0.095	1	06/16/20 18:51	
2-Butanone (MEK)	ND U	20	1.9	1	06/16/20 18:51	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	06/16/20 18:51	
2-Hexanone	ND U	20	2.7	1	06/16/20 18:51	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	06/16/20 18:51	
3-Chloro-1-propene	ND U	5.0	0.094	1	06/16/20 18:51	
4-Methyl-2-pentanone	ND U	20	2.6	1	06/16/20 18:51	
Acetone	4.0 J	20	3.3	1	06/16/20 18:51	*
Acetonitrile	ND U	50	13	1	06/16/20 18:51	*
Acrolein	ND U	20	1.2	1	06/16/20 18:51	
Acrylonitrile	ND U	5.0	0.53	1	06/16/20 18:51	
Benzene	ND U	0.50	0.062	1	06/16/20 18:51	
Bromodichloromethane	ND U	0.50	0.091	1	06/16/20 18:51	
Bromoform	ND U	0.50	0.16	1	06/16/20 18:51	
Bromomethane	ND U	0.50	0.16	1	06/16/20 18:51	
Carbon Disulfide	ND U	0.50	0.069	1	06/16/20 18:51	
Carbon Tetrachloride	ND U	0.50	0.096	1	06/16/20 18:51	
Chlorobenzene	ND U	0.50	0.11	1	06/16/20 18:51	
Chloroethane	ND U	0.50	0.16	1	06/16/20 18:51	
Chloroform	ND U	0.50	0.072	1	06/16/20 18:51	
Chloromethane	ND U	0.50	0.068	1	06/16/20 18:51	
Dibromochloromethane	ND U	0.50	0.14	1	06/16/20 18:51	
Dibromomethane	ND U	0.50	0.15	1	06/16/20 18:51	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	06/16/20 18:51	
Dichloromethane	ND U	2.0	0.10	1	06/16/20 18:51	
Ethyl Methacrylate	ND U	5.0	0.15	1	06/16/20 18:51	
Ethylbenzene	ND U	0.50	0.050	1	06/16/20 18:51	
Iodomethane	ND U	5.0	0.12	1	06/16/20 18:51	
Methacrylonitrile	ND U	5.0	0.35	1	06/16/20 18:51	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	06/16/20 18:51	
Toluene	ND U	0.50	0.054	1	06/16/20 18:51	
Trichloroethene (TCE)	ND U	0.50	0.10	1	06/16/20 18:51	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	06/16/20 18:51	
Vinyl Acetate	ND U	5.0	0.43	1	06/16/20 18:51	
Vinyl Chloride	ND U	0.50	0.075	1	06/16/20 18:51	

ALS Group USA, Corp.
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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 11:52
Date Received: 06/11/20 09:20

Sample Name: CTMW-9-7-0620
Lab Code: K2004781-014

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	06/16/20 18:51	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	06/16/20 18:51	
m,p-Xylenes	ND U	0.50	0.11	1	06/16/20 18:51	
o-Xylene	ND U	0.50	0.074	1	06/16/20 18:51	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	06/16/20 18:51	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	06/16/20 18:51	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	06/16/20 18:51	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	88	68 - 117	06/16/20 18:51	
Dibromofluoromethane	95	73 - 122	06/16/20 18:51	
Toluene-d8	100	65 - 144	06/16/20 18:51	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 12:55
Date Received: 06/11/20 09:20

Sample Name: CTMW-18-0620
Lab Code: K2004781-015

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	06/16/20 19:18	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	06/16/20 19:18	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	06/16/20 19:18	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	06/16/20 19:18	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	06/16/20 19:18	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	06/16/20 19:18	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	06/16/20 19:18	
1,2-Dichloroethane	ND U	0.50	0.080	1	06/16/20 19:18	
1,2-Dichloropropane	ND U	0.50	0.095	1	06/16/20 19:18	
2-Butanone (MEK)	8.7 J	20	1.9	1	06/16/20 19:18	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	06/16/20 19:18	
2-Hexanone	ND U	20	2.7	1	06/16/20 19:18	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	06/16/20 19:18	
3-Chloro-1-propene	ND U	5.0	0.094	1	06/16/20 19:18	
4-Methyl-2-pentanone	ND U	20	2.6	1	06/16/20 19:18	
Acetone	ND U	20	3.3	1	06/16/20 19:18	*
Acetonitrile	ND U	50	13	1	06/16/20 19:18	*
Acrolein	ND U	20	1.2	1	06/16/20 19:18	
Acrylonitrile	ND U	5.0	0.53	1	06/16/20 19:18	
Benzene	0.29 J	0.50	0.062	1	06/16/20 19:18	
Bromodichloromethane	ND U	0.50	0.091	1	06/16/20 19:18	
Bromoform	ND U	0.50	0.16	1	06/16/20 19:18	
Bromomethane	ND U	0.50	0.16	1	06/16/20 19:18	
Carbon Disulfide	ND U	0.50	0.069	1	06/16/20 19:18	
Carbon Tetrachloride	ND U	0.50	0.096	1	06/16/20 19:18	
Chlorobenzene	ND U	0.50	0.11	1	06/16/20 19:18	
Chloroethane	ND U	0.50	0.16	1	06/16/20 19:18	
Chloroform	0.27 J	0.50	0.072	1	06/16/20 19:18	
Chloromethane	ND U	0.50	0.068	1	06/16/20 19:18	
Dibromochloromethane	ND U	0.50	0.14	1	06/16/20 19:18	
Dibromomethane	ND U	0.50	0.15	1	06/16/20 19:18	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	06/16/20 19:18	
Dichloromethane	0.41 J	2.0	0.10	1	06/16/20 19:18	
Ethyl Methacrylate	ND U	5.0	0.15	1	06/16/20 19:18	
Ethylbenzene	0.17 J	0.50	0.050	1	06/16/20 19:18	
Iodomethane	ND U	5.0	0.12	1	06/16/20 19:18	
Methacrylonitrile	ND U	5.0	0.35	1	06/16/20 19:18	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	06/16/20 19:18	
Toluene	0.24 J	0.50	0.054	1	06/16/20 19:18	
Trichloroethene (TCE)	ND U	0.50	0.10	1	06/16/20 19:18	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	06/16/20 19:18	
Vinyl Acetate	ND U	5.0	0.43	1	06/16/20 19:18	
Vinyl Chloride	ND U	0.50	0.075	1	06/16/20 19:18	

ALS Group USA, Corp.
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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 12:55
Date Received: 06/11/20 09:20

Sample Name: CTMW-18-0620
Lab Code: K2004781-015

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	06/16/20 19:18	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	06/16/20 19:18	
m,p-Xylenes	0.13 J	0.50	0.11	1	06/16/20 19:18	
o-Xylene	0.16 J	0.50	0.074	1	06/16/20 19:18	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	06/16/20 19:18	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	06/16/20 19:18	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	06/16/20 19:18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	88	68 - 117	06/16/20 19:18	
Dibromofluoromethane	93	73 - 122	06/16/20 19:18	
Toluene-d8	100	65 - 144	06/16/20 19:18	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: KQ2008126-09

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	06/16/20 12:39	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	06/16/20 12:39	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	06/16/20 12:39	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	06/16/20 12:39	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	06/16/20 12:39	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	06/16/20 12:39	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	06/16/20 12:39	
1,2-Dichloroethane	ND U	0.50	0.080	1	06/16/20 12:39	
1,2-Dichloropropane	ND U	0.50	0.095	1	06/16/20 12:39	
2-Butanone (MEK)	ND U	20	1.9	1	06/16/20 12:39	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	06/16/20 12:39	
2-Hexanone	ND U	20	2.7	1	06/16/20 12:39	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	06/16/20 12:39	
3-Chloro-1-propene	ND U	5.0	0.094	1	06/16/20 12:39	
4-Methyl-2-pentanone	ND U	20	2.6	1	06/16/20 12:39	
Acetone	ND U	20	3.3	1	06/16/20 12:39	
Acetonitrile	ND U	50	13	1	06/16/20 12:39	
Acrolein	ND U	20	1.2	1	06/16/20 12:39	
Acrylonitrile	ND U	5.0	0.53	1	06/16/20 12:39	
Benzene	ND U	0.50	0.062	1	06/16/20 12:39	
Bromodichloromethane	ND U	0.50	0.091	1	06/16/20 12:39	
Bromoform	ND U	0.50	0.16	1	06/16/20 12:39	
Bromomethane	ND U	0.50	0.16	1	06/16/20 12:39	
Carbon Disulfide	0.11 J	0.50	0.069	1	06/16/20 12:39	
Carbon Tetrachloride	ND U	0.50	0.096	1	06/16/20 12:39	
Chlorobenzene	ND U	0.50	0.11	1	06/16/20 12:39	
Chloroethane	ND U	0.50	0.16	1	06/16/20 12:39	
Chloroform	ND U	0.50	0.072	1	06/16/20 12:39	
Chloromethane	ND U	0.50	0.068	1	06/16/20 12:39	
Dibromochloromethane	ND U	0.50	0.14	1	06/16/20 12:39	
Dibromomethane	ND U	0.50	0.15	1	06/16/20 12:39	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	06/16/20 12:39	
Dichloromethane	0.19 J	2.0	0.10	1	06/16/20 12:39	
Ethyl Methacrylate	ND U	5.0	0.15	1	06/16/20 12:39	
Ethylbenzene	ND U	0.50	0.050	1	06/16/20 12:39	
Iodomethane	0.17 J	5.0	0.12	1	06/16/20 12:39	
Methacrylonitrile	ND U	5.0	0.35	1	06/16/20 12:39	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	06/16/20 12:39	
Toluene	ND U	0.50	0.054	1	06/16/20 12:39	
Trichloroethene (TCE)	ND U	0.50	0.10	1	06/16/20 12:39	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	06/16/20 12:39	
Vinyl Acetate	ND U	5.0	0.43	1	06/16/20 12:39	
Vinyl Chloride	ND U	0.50	0.075	1	06/16/20 12:39	

ALS Group USA, Corp.
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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: KQ2008126-09

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	06/16/20 12:39	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	06/16/20 12:39	
m,p-Xylenes	ND U	0.50	0.11	1	06/16/20 12:39	
o-Xylene	ND U	0.50	0.074	1	06/16/20 12:39	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	06/16/20 12:39	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	06/16/20 12:39	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	06/16/20 12:39	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	68 - 117	06/16/20 12:39	
Dibromofluoromethane	90	73 - 122	06/16/20 12:39	
Toluene-d8	101	65 - 144	06/16/20 12:39	

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781

SURROGATE RECOVERY SUMMARY
Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C

Extraction Method: None

Sample Name	Lab Code	4-Bromofluorobenzene	Dibromofluoromethane	Toluene-d8
		68-117	73-122	65-144
TripBlank#1-0620	K2004781-001	86	90	105
CTMW-14-0620	K2004781-002	88	87	98
CTMW-9-0620	K2004781-003	91	94	102
CTMW-8-0620	K2004781-004	90	53*	99
CTMW-17-0620	K2004781-005	89	94	100
CTMW-17D-0620	K2004781-006	88	95	102
FieldBlank#1-0620	K2004781-007	88	94	100
TripBlank#2-0620	K2004781-008	87	93	99
CTMW-5-0620	K2004781-009	90	95	101
CTMW-12-0620	K2004781-010	87	93	101
CTMW-24-0620	K2004781-011	87	93	102
CTMW-24D-0620	K2004781-012	89	91	101
CTMW-7-0620	K2004781-013	91	92	100
CTMW-9-7-0620	K2004781-014	88	95	100
CTMW-18-0620	K2004781-015	88	93	100
Method Blank	KQ2008126-09	90	90	101
Lab Control Sample	KQ2008126-07	90	97	102
Duplicate Lab Control Sample	KQ2008126-08	88	97	100
CTMW-7-0620	KQ2008126-01	91	96	100
CTMW-7-0620	KQ2008126-02	90	96	102
CTMW-18-0620	KQ2008126-03	93	97	102
CTMW-18-0620	KQ2008126-04	91	96	100

ALS Group USA, Corp.
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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Date Analyzed: 06/16/20 10:26

Internal Standard Area and RT SUMMARY
Volatile Organic Compounds by GC/MS, Unpreserved

File ID: J:\MS13\DATA\061620\0616F006.D\
Instrument ID: K-MS-13
Analysis Method: 8260C

Lab Code: KQ2008126-06
Analysis Lot: 683827
Signal ID: 1

	1,4-Dichlorobenzene-d4		Chlorobenzene-d5		Fluorobenzene	
	Area	RT	Area	RT	Area	RT
Result ==>	82,314	11.97	109,383	9.37	296,176	5.33
Upper Limit ==>	164,628	12.47	218,766	9.87	592,352	5.83
Lower Limit ==>	41,157	11.47	54,692	8.87	148,088	4.83

Associated Analyses

		Area	RT	Area	RT	Area	RT
Continuing Calibration Verification	KQ2008126-06	80243	11.96	120095	9.37	290776	5.33
Lab Control Sample	KQ2008126-07	81486	11.96	119841	9.37	297213	5.33
Duplicate Lab Control Sample	KQ2008126-08	81714	11.96	120428	9.37	292907	5.33
Method Blank	KQ2008126-09	72397	11.96	109579	9.37	272763	5.33
TripBlank#1-0620	K2004781-001	69974	11.96	107434	9.37	258198	5.33
CTMW-14-0620	K2004781-002	73120	11.96	109944	9.37	280763	5.33
CTMW-9-0620	K2004781-003	72781	11.96	111966	9.37	271710	5.33
CTMW-8-0620	K2004781-004	74586	11.96	111390	9.36	277838	5.33
CTMW-17-0620	K2004781-005	73993	11.96	110545	9.37	275725	5.33
CTMW-17D-0620	K2004781-006	75934	11.96	112435	9.37	275452	5.33
FieldBlank#1-0620	K2004781-007	77576	11.96	112416	9.36	278885	5.33
TripBlank#2-0620	K2004781-008	72796	11.96	110874	9.37	270733	5.33
CTMW-5-0620	K2004781-009	77559	11.96	114776	9.37	277506	5.33
CTMW-12-0620	K2004781-010	74422	11.96	110942	9.37	268866	5.33
CTMW-24-0620	K2004781-011	70743	11.96	107749	9.37	263282	5.33
CTMW-24D-0620	K2004781-012	74592	11.96	105668	9.37	258103	5.33
CTMW-7-0620	K2004781-013	69599	11.96	102850	9.37	257948	5.33
CTMW-9-7-0620	K2004781-014	70872	11.96	106176	9.37	263224	5.33
CTMW-18-0620	K2004781-015	69702	11.96	104348	9.37	254626	5.33
CTMW-7-0620MS	KQ2008126-01	79159	11.96	114166	9.37	277613	5.33
CTMW-7-0620DMS	KQ2008126-02	80194	11.96	115998	9.36	283108	5.33
CTMW-18-0620MS	KQ2008126-03	81848	11.96	118427	9.37	292169	5.33
CTMW-18-0620DMS	KQ2008126-04	80458	11.96	118803	9.37	289837	5.33

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20
Date Received: 06/11/20
Date Analyzed: 06/16/20
Date Extracted: NA

Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: CTMW-7-0620
Lab Code: K2004781-013
Analysis Method: 8260C
Prep Method: None

Units: ug/L
Basis: NA

Analyte Name	Sample Result	Matrix Spike KQ2008126-01			Duplicate Matrix Spike KQ2008126-02			% Rec Limits	RPD	RPD Limit
		Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
1,1,1,2-Tetrachloroethane	ND U	9.05	10.0	91	9.60	10.0	96	67-127	6	30
1,1,1-Trichloroethane (TCA)	ND U	11.5	10.0	115	11.7	10.0	117	57-151	2	30
1,1,2,2-Tetrachloroethane	ND U	10.4	10.0	104	10.7	10.0	107	72-129	3	30
1,1,2-Trichloroethane	ND U	9.48	10.0	95	9.25	10.0	93	74-124	2	30
1,1-Dichloroethane (1,1-DCA)	ND U	11.9	10.0	119	12.4	10.0	124	69-141	4	30
1,1-Dichloroethene (1,1-DCE)	ND U	9.96	10.0	100	10.2	10.0	102	59-171	2	30
1,2,3-Trichloropropane	ND U	10.4	10.0	104	10.8	10.0	108	71-127	4	30
1,2-Dichloroethane	ND U	11.4	10.0	114	11.7	10.0	117	56-141	3	30
1,2-Dichloropropane	ND U	11.1	10.0	111	11.4	10.0	114	63-131	3	30
2-Butanone (MEK)	ND U	58.5	50.0	117	61.1	50.0	122	65-147	4	30
2-Chloroethyl Vinyl Ether	ND U	8.63	10.0	86	8.94	10.0	89	10-150	4	30
2-Hexanone	ND U	54.3	50.0	109	53.6	50.0	107	53-132	1	30
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	356	300	119	396	300	132	27-182	11	30
3-Chloro-1-propene	ND U	37.1	30.0	124	37.5	30.0	125	70-151	1	30
4-Methyl-2-pentanone	ND U	58.4	50.0	117	60.5	50.0	121	64-139	3	30
Acetone	4.3 J	72.0	50.0	135 *	71.9	50.0	135 *	68-134	<1	30
Acetonitrile	ND U	383	300	128 *	412	300	137 *	77-127	7	30
Acrolein	ND U	82.8	100	83	81.5	100	81	14-180	2	30
Acrylonitrile	ND U	46.3	40.0	116	48.3	40.0	121	73-131	4	30
Benzene	ND U	10.9	10.0	109	11.2	10.0	112	63-144	2	30
Bromodichloromethane	ND U	11.4	10.0	114	11.7	10.0	117	61-134	3	30
Bromoform	ND U	9.03	10.0	90	8.84	10.0	88	54-140	2	30
Bromomethane	ND U	8.51	10.0	85	8.99	10.0	90	36-127	5	30
Carbon Disulfide	ND U	22.8	20.0	114	23.1	20.0	116	52-156	1	30
Carbon Tetrachloride	ND U	11.6	10.0	116	12.1	10.0	121	53-161	4	30
Chlorobenzene	ND U	8.91	10.0	89	9.16	10.0	92	69-126	3	30
Chloroethane	ND U	12.6	10.0	126	12.6	10.0	126	56-147	<1	30
Chloroform	ND U	11.2	10.0	112	11.4	10.0	114	64-133	2	30
Chloromethane	ND U	10.3	10.0	103	10.3	10.0	103	49-127	<1	30
Dibromochloromethane	ND U	9.90	10.0	99	10.2	10.0	102	68-125	3	30
Dibromomethane	ND U	9.54	10.0	95	10.1	10.0	101	68-132	5	30
Dichlorodifluoromethane (CFC 12)	ND U	8.48	10.0	85	8.49	10.0	85	29-133	<1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20
Date Received: 06/11/20
Date Analyzed: 06/16/20
Date Extracted: NA

Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: CTMW-7-0620
Lab Code: K2004781-013
Analysis Method: 8260C
Prep Method: None

Units: ug/L
Basis: NA

Analyte Name	Sample Result	Matrix Spike KQ2008126-01			Duplicate Matrix Spike KQ2008126-02			% Rec Limits	RPD	RPD Limit
		Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
Dichloromethane	ND U	9.83	10.0	98	10.5	10.0	105	70-133	6	30
Ethyl Methacrylate	ND U	31.7	30.0	106	31.7	30.0	106	63-134	<1	30
Ethylbenzene	ND U	8.91	10.0	89	9.02	10.0	90	66-136	1	30
Iodomethane	ND U	31.4	30.0	105	33.0	30.0	110	65-155	5	30
Methacrylonitrile	ND U	33.3	30.0	111	34.8	30.0	116	68-129	4	30
Tetrachloroethene (PCE)	ND U	8.97	10.0	90	9.25	10.0	93	61-131	3	30
Toluene	ND U	10.7	10.0	107	10.7	10.0	107	71-136	<1	30
Trichloroethene (TCE)	ND U	10.4	10.0	104	10.9	10.0	109	53-139	4	30
Trichlorofluoromethane (CFC 11)	ND U	10.3	10.0	103	10.6	10.0	106	45-124	2	30
Vinyl Acetate	ND U	47.4	50.0	95	48.5	50.0	97	69-148	2	30
Vinyl Chloride	ND U	11.4	10.0	114	11.6	10.0	116	49-136	1	30
cis-1,2-Dichloroethene	ND U	10.7	10.0	107	10.6	10.0	106	61-139	1	30
cis-1,3-Dichloropropene	ND U	10.8	10.0	108	11.1	10.0	111	66-134	3	30
o-Xylene	ND U	8.95	10.0	90	9.11	10.0	91	67-127	2	30
trans-1,2-Dichloroethene	ND U	10.5	10.0	105	10.9	10.0	109	65-143	3	30
trans-1,3-Dichloropropene	ND U	9.24	10.0	92	9.72	10.0	97	56-127	5	30
trans-1,4-Dichloro-2-butene	ND U	33.1	30.0	110	34.7	30.0	116	63-157	5	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20
Date Received: 06/11/20
Date Analyzed: 06/16/20
Date Extracted: NA

Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: CTMW-18-0620
Lab Code: K2004781-015
Analysis Method: 8260C
Prep Method: None

Units: ug/L
Basis: NA

Analyte Name	Sample Result	Matrix Spike KQ2008126-03			Duplicate Matrix Spike KQ2008126-04			% Rec Limits	RPD	RPD Limit
		Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
1,1,1,2-Tetrachloroethane	ND U	8.94	10.0	89	9.35	10.0	94	67-127	4	30
1,1,1-Trichloroethane (TCA)	ND U	11.3	10.0	113	11.2	10.0	112	57-151	1	30
1,1,2,2-Tetrachloroethane	ND U	10.1	10.0	101	10.8	10.0	108	72-129	7	30
1,1,2-Trichloroethane	ND U	9.09	10.0	91	9.32	10.0	93	74-124	2	30
1,1-Dichloroethane (1,1-DCA)	ND U	11.9	10.0	119	12.0	10.0	120	69-141	<1	30
1,1-Dichloroethene (1,1-DCE)	ND U	9.74	10.0	97	9.78	10.0	98	59-171	<1	30
1,2,3-Trichloropropane	ND U	10.1	10.0	101	10.3	10.0	103	71-127	1	30
1,2-Dichloroethane	ND U	11.2	10.0	112	11.1	10.0	111	56-141	<1	30
1,2-Dichloropropane	ND U	11.1	10.0	111	11.2	10.0	112	63-131	<1	30
2-Butanone (MEK)	8.7 J	62.7	50.0	108	64.2	50.0	111	65-147	2	30
2-Chloroethyl Vinyl Ether	ND U	8.60	10.0	86	8.82	10.0	88	10-150	3	30
2-Hexanone	ND U	51.5	50.0	103	52.7	50.0	105	53-132	2	30
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	386	300	129	344	300	115	27-182	11	30
3-Chloro-1-propene	ND U	36.7	30.0	122	36.2	30.0	121	70-151	1	30
4-Methyl-2-pentanone	ND U	60.0	50.0	120	57.0	50.0	114	64-139	5	30
Acetone	ND U	66.7	50.0	133	66.1	50.0	132	68-134	<1	30
Acetonitrile	ND U	391	300	130 *	426	300	142 *	77-127	9	30
Acrolein	ND U	82.4	100	82	80.8	100	81	14-180	2	30
Acrylonitrile	ND U	46.7	40.0	117	45.0	40.0	112	73-131	4	30
Benzene	0.29 J	11.0	10.0	107	11.1	10.0	108	63-144	<1	30
Bromodichloromethane	ND U	11.2	10.0	112	11.0	10.0	110	61-134	2	30
Bromoform	ND U	9.26	10.0	93	9.00	10.0	90	54-140	3	30
Bromomethane	ND U	8.82	10.0	88	9.06	10.0	91	36-127	3	30
Carbon Disulfide	ND U	22.2	20.0	111	22.4	20.0	112	52-156	<1	30
Carbon Tetrachloride	ND U	11.8	10.0	118	11.4	10.0	114	53-161	3	30
Chlorobenzene	ND U	9.20	10.0	92	8.88	10.0	89	69-126	4	30
Chloroethane	ND U	12.2	10.0	122	12.2	10.0	122	56-147	<1	30
Chloroform	0.27 J	11.4	10.0	111	11.1	10.0	109	64-133	2	30
Chloromethane	ND U	10.1	10.0	101	10.0	10.0	100	49-127	1	30
Dibromochloromethane	ND U	10.1	10.0	101	9.94	10.0	99	68-125	1	30
Dibromomethane	ND U	9.92	10.0	99	9.77	10.0	98	68-132	2	30
Dichlorodifluoromethane (CFC 12)	ND U	8.19	10.0	82	8.25	10.0	83	29-133	<1	30

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20
Date Received: 06/11/20
Date Analyzed: 06/16/20
Date Extracted: NA

Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: CTMW-18-0620
Lab Code: K2004781-015
Analysis Method: 8260C
Prep Method: None

Units: ug/L
Basis: NA

Analyte Name	Sample Result	Matrix Spike KQ2008126-03			Duplicate Matrix Spike KQ2008126-04			% Rec Limits	RPD	RPD Limit
		Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
Dichloromethane	0.41 J	10.5	10.0	101	10.4	10.0	100	70-133	<1	30
Ethyl Methacrylate	ND U	30.7	30.0	102	30.1	30.0	100	63-134	2	30
Ethylbenzene	0.17 J	9.37	10.0	92	8.81	10.0	86	66-136	6	30
Iodomethane	ND U	33.1	30.0	110	33.1	30.0	110	65-155	<1	30
Methacrylonitrile	ND U	33.6	30.0	112	31.8	30.0	106	68-129	6	30
Tetrachloroethene (PCE)	ND U	8.82	10.0	88	8.85	10.0	89	61-131	<1	30
Toluene	0.24 J	10.8	10.0	106	10.8	10.0	105	71-136	<1	30
Trichloroethene (TCE)	ND U	10.8	10.0	108	10.5	10.0	105	53-139	3	30
Trichlorofluoromethane (CFC 11)	ND U	10.2	10.0	102	10.1	10.0	101	45-124	<1	30
Vinyl Acetate	ND U	46.7	50.0	93	44.8	50.0	90	69-148	4	30
Vinyl Chloride	ND U	11.2	10.0	112	11.2	10.0	112	49-136	<1	30
cis-1,2-Dichloroethene	ND U	10.1	10.0	101	10.6	10.0	106	61-139	5	30
cis-1,3-Dichloropropene	ND U	10.8	10.0	108	10.7	10.0	107	66-134	2	30
o-Xylene	0.16 J	9.27	10.0	91	8.92	10.0	88	67-127	4	30
trans-1,2-Dichloroethene	ND U	10.5	10.0	105	10.4	10.0	104	65-143	1	30
trans-1,3-Dichloropropene	ND U	9.35	10.0	94	9.43	10.0	94	56-127	<1	30
trans-1,4-Dichloro-2-butene	ND U	35.0	30.0	117	33.9	30.0	113	63-157	3	30

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Results flagged with a pound (#) indicate the control criteria is not applicable.

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Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Analyzed: 06/16/20
Date Extracted: NA

Duplicate Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Units: ug/L
Basis: NA
Analysis Lot: 683827

Analyte Name	Lab Control Sample KQ2008126-07			Duplicate Lab Control Sample KQ2008126-08			% Rec Limits	RPD	RPD Limit
	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
1,1,1,2-Tetrachloroethane	8.64	10.0	86	8.72	10.0	87	66-124	<1	30
1,1,1-Trichloroethane (TCA)	9.92	10.0	99	9.95	10.0	100	59-136	<1	30
1,1,2,2-Tetrachloroethane	10.1	10.0	101	10.2	10.0	102	70-127	<1	30
1,1,2-Trichloroethane	8.48	10.0	85	8.46	10.0	85	74-118	<1	30
1,1-Dichloroethane (1,1-DCA)	10.4	10.0	104	10.7	10.0	107	68-132	3	30
1,1-Dichloroethene (1,1-DCE)	8.21	10.0	82	8.69	10.0	87	66-129	6	30
1,2,3-Trichloropropane	9.52	10.0	95	10.1	10.0	101	69-123	6	30
1,2-Dichloroethane	10.7	10.0	107	10.6	10.0	106	56-142	<1	30
1,2-Dichloropropane	10.2	10.0	102	10.2	10.0	102	67-126	<1	30
2-Butanone (MEK)	55.7	50.0	111	59.7	50.0	119	71-149	7	30
2-Chloroethyl Vinyl Ether	8.40	10.0	84	8.46	10.0	85	61-126	<1	30
2-Hexanone	51.0	50.0	102	49.0	50.0	98	59-131	4	30
2-Methyl-1-propanol (Isobutyl Alcohol)	382	300	127	352	300	117	36-142	8	30
3-Chloro-1-propene	33.0	30.0	110	33.0	30.0	110	42-147	<1	30
4-Methyl-2-pentanone	54.5	50.0	109	56.3	50.0	113	64-134	3	30
Acetone	65.9	50.0	132	68.2	50.0	136 *	68-135	3	30
Acetonitrile	390	300	130	407	300	136 *	69-132	4	30
Acrolein	81.9	100	82	80.7	100	81	42-118	1	30
Acrylonitrile	46.3	40.0	116	46.7	40.0	117	65-129	<1	30
Benzene	9.50	10.0	95	9.66	10.0	97	69-124	2	30
Bromodichloromethane	10.3	10.0	103	10.4	10.0	104	63-129	<1	30
Bromoform	9.12	10.0	91	9.31	10.0	93	52-144	2	30
Bromomethane	8.05	10.0	81	8.30	10.0	83	35-113	3	30
Carbon Disulfide	18.8	20.0	94	19.8	20.0	99	46-144	5	30
Carbon Tetrachloride	9.94	10.0	99	10.3	10.0	103	55-140	4	30
Chlorobenzene	7.94	10.0	79	8.09	10.0	81	72-116	2	30
Chloroethane	10.3	10.0	103	10.9	10.0	109	58-134	5	30
Chloroform	9.92	10.0	99	9.93	10.0	99	70-129	<1	30
Chloromethane	8.51	10.0	85	8.95	10.0	90	34-130	5	30
cis-1,2-Dichloroethene	9.20	10.0	92	9.40	10.0	94	71-118	2	30
cis-1,3-Dichloropropene	9.95	10.0	100	10.3	10.0	103	62-132	3	30
Dibromochloromethane	9.49	10.0	95	9.80	10.0	98	67-126	3	30
Dibromomethane	9.06	10.0	91	9.67	10.0	97	69-128	7	30
Dichlorodifluoromethane (CFC 12)	6.79	10.0	68	7.18	10.0	72	32-124	6	30
Dichloromethane	9.52	10.0	95	9.72	10.0	97	71-122	2	30
Ethyl Methacrylate	30.5	30.0	102	29.3	30.0	98	48-143	4	30
Ethylbenzene	7.72	10.0	77	7.83	10.0	78	67-121	1	30
Iodomethane	29.4	30.0	98	30.0	30.0	100	51-164	2	30
m,p-Xylenes	15.6	20.0	78	15.9	20.0	79	69-121	2	30
Methacrylonitrile	33.4	30.0	111	32.5	30.0	108	47-136	3	30
o-Xylene	7.83	10.0	78	8.09	10.0	81	71-119	3	30

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Analyzed: 06/16/20
Date Extracted: NA

Duplicate Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Units: ug/L
Basis: NA
Analysis Lot: 683827

Analyte Name	Lab Control Sample KQ2008126-07			Duplicate Lab Control Sample KQ2008126-08			% Rec Limits	RPD	RPD Limit
	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
Tetrachloroethene (PCE)	7.63	10.0	76	7.65	10.0	77	62-126	<1	30
Toluene	9.25	10.0	93	9.37	10.0	94	69-124	1	30
trans-1,2-Dichloroethene	8.99	10.0	90	9.36	10.0	94	67-125	4	30
trans-1,3-Dichloropropene	9.19	10.0	92	9.18	10.0	92	59-125	<1	30
trans-1,4-Dichloro-2-butene	33.8	30.0	113	33.5	30.0	112	46-170	<1	30
Trichloroethene (TCE)	9.25	10.0	93	9.61	10.0	96	67-128	4	30
Trichlorofluoromethane (CFC 11)	8.57	10.0	86	8.92	10.0	89	52-141	4	30
Vinyl Acetate	41.4	50.0	83	38.7	50.0	77	44-156	7	30
Vinyl Chloride	9.33	10.0	93	9.72	10.0	97	55-123	4	30

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Analyzed: 06/16/20 12:39
Date Extracted:

Method Blank Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: Method Blank **Instrument ID:** K-MS-13
Lab Code: KQ2008126-09 **File ID:** J:\MS13\DATA\061620\0616F011.D\
Analysis Method: 8260C **Analysis Lot:** 683827
Prep Method: None

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ2008126-07	J:\MS13\DATA\061620\0616F007.D\	06/16/20 10:53
Duplicate Lab Control Sample	KQ2008126-08	J:\MS13\DATA\061620\0616F008.D\	06/16/20 11:19
TripBlank#1-0620	K2004781-001	J:\MS13\DATA\061620\0616F012.D\	06/16/20 13:06
CTMW-14-0620	K2004781-002	J:\MS13\DATA\061620\0616F013.D\	06/16/20 13:32
CTMW-9-0620	K2004781-003	J:\MS13\DATA\061620\0616F014.D\	06/16/20 13:59
CTMW-8-0620	K2004781-004	J:\MS13\DATA\061620\0616F015.D\	06/16/20 14:25
CTMW-17-0620	K2004781-005	J:\MS13\DATA\061620\0616F016.D\	06/16/20 14:52
CTMW-17D-0620	K2004781-006	J:\MS13\DATA\061620\0616F017.D\	06/16/20 15:18
FieldBlank#1-0620	K2004781-007	J:\MS13\DATA\061620\0616F018.D\	06/16/20 15:45
TripBlank#2-0620	K2004781-008	J:\MS13\DATA\061620\0616F019.D\	06/16/20 16:12
CTMW-5-0620	K2004781-009	J:\MS13\DATA\061620\0616F020.D\	06/16/20 16:39
CTMW-12-0620	K2004781-010	J:\MS13\DATA\061620\0616F021.D\	06/16/20 17:05
CTMW-24-0620	K2004781-011	J:\MS13\DATA\061620\0616F022.D\	06/16/20 17:32
CTMW-24D-0620	K2004781-012	J:\MS13\DATA\061620\0616F023.D\	06/16/20 17:58
CTMW-7-0620	K2004781-013	J:\MS13\DATA\061620\0616F024.D\	06/16/20 18:24
CTMW-9-7-0620	K2004781-014	J:\MS13\DATA\061620\0616F025.D\	06/16/20 18:51
CTMW-18-0620	K2004781-015	J:\MS13\DATA\061620\0616F026.D\	06/16/20 19:18
CTMW-7-0620MS	KQ2008126-01	J:\MS13\DATA\061620\0616F027.D\	06/16/20 19:44
CTMW-7-0620DMS	KQ2008126-02	J:\MS13\DATA\061620\0616F028.D\	06/16/20 20:11
CTMW-18-0620MS	KQ2008126-03	J:\MS13\DATA\061620\0616F029.D\	06/16/20 20:37
CTMW-18-0620DMS	KQ2008126-04	J:\MS13\DATA\061620\0616F030.D\	06/16/20 21:04

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Analyzed: 06/16/20 10:53
Date Extracted:

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: Lab Control Sample **Instrument ID:** K-MS-13
Lab Code: KQ2008126-07 **File ID:** J:\MS13\DATA\061620\0616F007.D\
Analysis Method: 8260C **Analysis Lot:** 683827
Prep Method: None

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Duplicate Lab Control Sample	KQ2008126-08	J:\MS13\DATA\061620\0616F008.D\	06/16/20 11:19
Method Blank	KQ2008126-09	J:\MS13\DATA\061620\0616F011.D\	06/16/20 12:39
TripBlank#1-0620	K2004781-001	J:\MS13\DATA\061620\0616F012.D\	06/16/20 13:06
CTMW-14-0620	K2004781-002	J:\MS13\DATA\061620\0616F013.D\	06/16/20 13:32
CTMW-9-0620	K2004781-003	J:\MS13\DATA\061620\0616F014.D\	06/16/20 13:59
CTMW-8-0620	K2004781-004	J:\MS13\DATA\061620\0616F015.D\	06/16/20 14:25
CTMW-17-0620	K2004781-005	J:\MS13\DATA\061620\0616F016.D\	06/16/20 14:52
CTMW-17D-0620	K2004781-006	J:\MS13\DATA\061620\0616F017.D\	06/16/20 15:18
FieldBlank#1-0620	K2004781-007	J:\MS13\DATA\061620\0616F018.D\	06/16/20 15:45
TripBlank#2-0620	K2004781-008	J:\MS13\DATA\061620\0616F019.D\	06/16/20 16:12
CTMW-5-0620	K2004781-009	J:\MS13\DATA\061620\0616F020.D\	06/16/20 16:39
CTMW-12-0620	K2004781-010	J:\MS13\DATA\061620\0616F021.D\	06/16/20 17:05
CTMW-24-0620	K2004781-011	J:\MS13\DATA\061620\0616F022.D\	06/16/20 17:32
CTMW-24D-0620	K2004781-012	J:\MS13\DATA\061620\0616F023.D\	06/16/20 17:58
CTMW-7-0620	K2004781-013	J:\MS13\DATA\061620\0616F024.D\	06/16/20 18:24
CTMW-9-7-0620	K2004781-014	J:\MS13\DATA\061620\0616F025.D\	06/16/20 18:51
CTMW-18-0620	K2004781-015	J:\MS13\DATA\061620\0616F026.D\	06/16/20 19:18
CTMW-7-0620MS	KQ2008126-01	J:\MS13\DATA\061620\0616F027.D\	06/16/20 19:44
CTMW-7-0620DMS	KQ2008126-02	J:\MS13\DATA\061620\0616F028.D\	06/16/20 20:11
CTMW-18-0620MS	KQ2008126-03	J:\MS13\DATA\061620\0616F029.D\	06/16/20 20:37
CTMW-18-0620DMS	KQ2008126-04	J:\MS13\DATA\061620\0616F030.D\	06/16/20 21:04

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QC/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Date Analyzed: 06/16/20 09:53

Tune Summary
Volatile Organic Compounds by GC/MS, Unpreserved

File ID: J:\MS13\DATA\061620\0616F005.D\
Instrument ID: K-MS-13

Analytical Method: 8260C
Analysis Lot: 683827

Target Mass	Relative to Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	26.19	2983	Pass
75	95	30	60	57.46	6544	Pass
95	95	100	100	100.00	11389	Pass
96	95	5	9	6.67	760	Pass
173	174	0	2	0.75	64	Pass
174	95	50	120	75.08	8551	Pass
175	174	5	9	7.86	672	Pass
176	174	95	101	96.90	8286	Pass
177	176	5	9	7.65	634	Pass

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ2008126-06	J:\MS13\DATA\061620\0616F006.D\	06/16/20 10:26	
Lab Control Sample	KQ2008126-07	J:\MS13\DATA\061620\0616F007.D\	06/16/20 10:53	
Duplicate Lab Control Sample	KQ2008126-08	J:\MS13\DATA\061620\0616F008.D\	06/16/20 11:19	
Method Blank	KQ2008126-09	J:\MS13\DATA\061620\0616F011.D\	06/16/20 12:39	
TripBlank#1-0620	K2004781-001	J:\MS13\DATA\061620\0616F012.D\	06/16/20 13:06	
CTMW-14-0620	K2004781-002	J:\MS13\DATA\061620\0616F013.D\	06/16/20 13:32	
CTMW-9-0620	K2004781-003	J:\MS13\DATA\061620\0616F014.D\	06/16/20 13:59	
CTMW-8-0620	K2004781-004	J:\MS13\DATA\061620\0616F015.D\	06/16/20 14:25	
CTMW-17-0620	K2004781-005	J:\MS13\DATA\061620\0616F016.D\	06/16/20 14:52	
CTMW-17D-0620	K2004781-006	J:\MS13\DATA\061620\0616F017.D\	06/16/20 15:18	
FieldBlank#1-0620	K2004781-007	J:\MS13\DATA\061620\0616F018.D\	06/16/20 15:45	
TripBlank#2-0620	K2004781-008	J:\MS13\DATA\061620\0616F019.D\	06/16/20 16:12	
CTMW-5-0620	K2004781-009	J:\MS13\DATA\061620\0616F020.D\	06/16/20 16:39	
CTMW-12-0620	K2004781-010	J:\MS13\DATA\061620\0616F021.D\	06/16/20 17:05	
CTMW-24-0620	K2004781-011	J:\MS13\DATA\061620\0616F022.D\	06/16/20 17:32	
CTMW-24D-0620	K2004781-012	J:\MS13\DATA\061620\0616F023.D\	06/16/20 17:58	
CTMW-7-0620	K2004781-013	J:\MS13\DATA\061620\0616F024.D\	06/16/20 18:24	
CTMW-9-7-0620	K2004781-014	J:\MS13\DATA\061620\0616F025.D\	06/16/20 18:51	
CTMW-18-0620	K2004781-015	J:\MS13\DATA\061620\0616F026.D\	06/16/20 19:18	
CTMW-7-0620	KQ2008126-01	J:\MS13\DATA\061620\0616F027.D\	06/16/20 19:44	
CTMW-7-0620	KQ2008126-02	J:\MS13\DATA\061620\0616F028.D\	06/16/20 20:11	
CTMW-18-0620	KQ2008126-03	J:\MS13\DATA\061620\0616F029.D\	06/16/20 20:37	
CTMW-18-0620	KQ2008126-04	J:\MS13\DATA\061620\0616F030.D\	06/16/20 21:04	

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 7/25/2019

Initial Calibration Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Calibration ID: KC1900305
Instrument ID: K-MS-13

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1900305-01	CAL 0.1 PPB	I:\MS13\DATA\072519\0725F006.D	07/25/2019 09:26
02	KC1900305-02	CAL 0.2 PPB	I:\MS13\DATA\072519\0725F007.D	07/25/2019 09:52
03	KC1900305-03	CAL 0.5 PPB	I:\MS13\DATA\072519\0725F008.D	07/25/2019 10:19
04	KC1900305-04	CAL 1.0 PPB	I:\MS13\DATA\072519\0725F009.D	07/25/2019 10:45
05	KC1900305-05	CAL 2.0 PPB	I:\MS13\DATA\072519\0725F010.D	07/25/2019 11:12
06	KC1900305-06	CAL 5.0 PPB	I:\MS13\DATA\072519\0725F011.D	07/25/2019 11:38
07	KC1900305-07	CAL 10 PPB	I:\MS13\DATA\072519\0725F012.D	07/25/2019 12:04
08	KC1900305-08	CAL 40 PPB	I:\MS13\DATA\072519\0725F014.D	07/25/2019 12:57
09	KC1900305-09	CAL 60 PPB	I:\MS13\DATA\072519\0725F015.D	07/25/2019 13:24
10	KC1900305-10	CAL 80 PPB	I:\MS13\DATA\072519\0725F016.D	07/25/2019 13:50
11	KC1900305-11	CAL 20 PPB	I:\MS13\DATA\072519\0725F020.D	07/25/2019 15:37

Analyte

1,1,1,2-Tetrachloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.5788	02	0.200	0.6941	03	0.500	0.5621	04	1.000	0.5542
05	2.000	0.5394	06	5.000	0.5919	07	10.000	0.6521	11	20.000	0.644
08	40.000	0.7323	09	60.000	0.7387	10	80.000	0.739			

1,1,1-Trichloroethane (TCA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.3816	02	0.200	0.4249	03	0.500	0.4148	04	1.000	0.3927
05	2.000	0.4022	06	5.000	0.4448	07	10.000	0.4676	11	20.000	0.4636
08	40.000	0.514	09	60.000	0.4972	10	80.000	0.4986			

1,1,2,2-Tetrachloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.200	0.7116	03	0.500	0.5801	04	1.000	0.5425	05	2.000	0.5169
06	5.000	0.6034	07	10.000	0.6106	11	20.000	0.5497	08	40.000	0.5855
09	60.000	0.5597	10	80.000	0.5462						

1,1,2-Trichloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.200	0.4182	03	0.500	0.4633	04	1.000	0.3869	05	2.000	0.3943
06	5.000	0.4317	07	10.000	0.4491	11	20.000	0.4233	08	40.000	0.4606
09	60.000	0.4547	10	80.000	0.436						

1,1-Dichloroethane (1,1-DCA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.5704	02	0.200	0.4919	03	0.500	0.5431	04	1.000	0.5019
05	2.000	0.4932	06	5.000	0.5297	07	10.000	0.5519	11	20.000	0.5356
08	40.000	0.57	09	60.000	0.5556	10	80.000	0.5521			

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 7/25/2019

Initial Calibration Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Calibration ID: KC1900305
Instrument ID: K-MS-13

Signal ID: 1

Analyte

1,1-Dichloroethene (1,1-DCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.1884	02	0.200	0.2911	03	0.500	0.298	04	1.000	0.2666
05	2.000	0.2712	06	5.000	0.2865	07	10.000	0.2847	11	20.000	0.2813
08	40.000	0.2955	09	60.000	0.2903	10	80.000	0.2995			

1,2,3-Trichloropropane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	0.500	0.1308	04	1.000	0.1763	05	2.000	0.1661	06	5.000	0.1891
07	10.000	0.1916	11	20.000	0.1698	08	40.000	0.1829	09	60.000	0.1732
10	80.000	0.1665									

1,2-Dichloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.4218	02	0.200	0.3337	03	0.500	0.369	04	1.000	0.3553
05	2.000	0.3236	06	5.000	0.3645	07	10.000	0.3599	11	20.000	0.3456
08	40.000	0.3694	09	60.000	0.3602	10	80.000	0.348			

1,2-Dichloropropane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.200	0.289	03	0.500	0.3274	04	1.000	0.2719	05	2.000	0.2777
06	5.000	0.3098	07	10.000	0.3084	11	20.000	0.2942	08	40.000	0.3207
09	60.000	0.3073	10	80.000	0.3029						

2-Butanone (MEK)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	5.000	0.01305	04	10.000	0.01435	05	20.000	0.01168	06	50.000	0.01303
07	100.000	0.01298	11	200.000	0.01257	08	400.000	0.0134	09	600.000	0.01373
10	800.000	0.0133									

2-Chloroethyl Vinyl Ether

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.200	0.1376	03	0.500	0.1172	04	1.000	0.1143	05	2.000	0.1113
06	5.000	0.1237	07	10.000	0.1249	11	20.000	0.1175	08	40.000	0.126
09	60.000	0.1241	10	80.000	0.1189						

2-Hexanone

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	2.000	0.05024	03	5.000	0.05074	04	10.000	0.04076	05	20.000	0.03945
06	50.000	0.04269	07	100.000	0.04572	11	200.000	0.04227	08	400.000	0.04553
09	600.000	0.04454	10	800.000	0.04264						

2-Methyl-1-propanol (Isobutyl Alcohol)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	20.000	0.004995	04	40.000	0.00478	05	80.000	0.003898	06	200.000	0.004128
07	400.000	0.004002	11	800.000	0.003583	08	1600.000	0.004142	09	2400.000	0.004366
10	3200.000	0.004349									

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 7/25/2019

Initial Calibration Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Calibration ID: KC1900305
Instrument ID: K-MS-13

Signal ID: 1

Analyte

3-Chloro-1-propene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.200	0.1428	03	0.500	0.1437	04	1.000	0.1282	05	2.000	0.1387
06	5.000	0.1524	07	10.000	0.1486	11	20.000	0.1445	08	40.000	0.1522
09	60.000	0.1536	10	80.000	0.1559						

4-Bromofluorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
04	4.000	0.7102	05	6.000	0.7459	06	8.000	0.8099	07	10.000	0.884
11	12.000	0.8483	08	14.000	0.9184	09	16.000	0.9014	10	20.000	0.8605

4-Methyl-2-pentanone

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.05302	02	2.000	0.05357	03	5.000	0.04948	04	10.000	0.05126
05	20.000	0.04625	06	50.000	0.05152	07	100.000	0.05107	11	200.000	0.04847
08	400.000	0.05155	09	600.000	0.04994	10	800.000	0.04838			

Acetone

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
04	10.000	0.0404	05	20.000	0.03496	06	50.000	0.03664	07	100.000	0.03708
11	200.000	0.03555	08	400.000	0.03723	09	600.000	0.03767	10	800.000	0.03669

Acetonitrile

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	20.000	0.008059	04	40.000	0.008374	05	80.000	0.007746	06	200.000	0.008952
07	400.000	0.008648	11	800.000	0.007605	08	1600.000	0.008628	09	2400.000	0.008402
10	3200.000	0.008356									

Acrolein

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	2.000	0.04123	02	4.000	0.02994	03	10.000	0.03026	04	20.000	0.02835
05	40.000	0.02551	06	100.000	0.02783	07	200.000	0.02826	11	400.000	0.02502
08	800.000	0.0281	09	1200.000	0.02798	10	1600.000	0.02718			

Acrylonitrile

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.800	0.0539	03	2.000	0.05336	04	4.000	0.05045	05	8.000	0.04629
06	20.000	0.05199	07	40.000	0.05088	11	80.000	0.04758	08	160.000	0.05076
09	240.000	0.04964	10	320.000	0.04885						

Benzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	1.319	02	0.200	1.194	03	0.500	1.255	04	1.000	1.159
05	2.000	1.15	06	5.000	1.243	07	10.000	1.258	11	20.000	1.196
08	40.000	1.281	09	60.000	1.245	10	80.000	1.231			

Bromodichloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.3065	02	0.200	0.2624	03	0.500	0.3047	04	1.000	0.2996

ALS Group USA, Corp.
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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 7/25/2019

Initial Calibration Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Calibration ID: KC1900305
Instrument ID: K-MS-13

Signal ID: 1

Analyte

Bromodichloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
05	2.000	0.291	06	5.000	0.3235	07	10.000	0.3242	11	20.000	0.3283
08	40.000	0.3639	09	60.000	0.3616	10	80.000	0.3528			

Bromoform

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.200	0.1963	03	0.500	0.15	04	1.000	0.1875	05	2.000	0.1847
06	5.000	0.2236	07	10.000	0.2444	11	20.000	0.2524	08	40.000	0.3063
09	60.000	0.324	10	80.000	0.326						

Bromomethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	0.500	0.237	04	1.000	0.2285	05	2.000	0.2252	06	5.000	0.2248
07	10.000	0.222	11	20.000	0.2132	08	40.000	0.2204	09	60.000	0.2165
10	80.000	0.2154									

Carbon Disulfide

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	0.500	0.8432	04	1.000	0.7338	05	2.000	0.7209	06	5.000	0.7501
07	10.000	0.7744	11	20.000	0.7339	08	40.000	0.7895	09	60.000	0.7685
10	80.000	0.7747									

Carbon Tetrachloride

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.324	02	0.200	0.3124	03	0.500	0.3236	04	1.000	0.334
05	2.000	0.3241	06	5.000	0.3497	07	10.000	0.3693	11	20.000	0.3879
08	40.000	0.4306	09	60.000	0.4261	10	80.000	0.4285			

Chlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	2.246	02	0.200	1.866	03	0.500	2.061	04	1.000	1.925
05	2.000	1.868	06	5.000	2.044	07	10.000	2.074	11	20.000	2.046
08	40.000	2.229	09	60.000	2.164	10	80.000	2.139			

Chloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.1997	02	0.200	0.1939	03	0.500	0.219	04	1.000	0.2321
05	2.000	0.2275	06	5.000	0.2215	07	10.000	0.223	11	20.000	0.2149
08	40.000	0.2204	09	60.000	0.2084	10	80.000	0.2087			

Chloroform

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.5621	02	0.200	0.5065	03	0.500	0.459	04	1.000	0.4473
05	2.000	0.4629	06	5.000	0.4965	07	10.000	0.5054	11	20.000	0.4953
08	40.000	0.5347	09	60.000	0.5265	10	80.000	0.5203			

ALS Group USA, Corp.
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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 7/25/2019

Initial Calibration Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Calibration ID: KC1900305
Instrument ID: K-MS-13

Signal ID: 1

Analyte

Chloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.4571	02	0.200	0.4193	03	0.500	0.4088	04	1.000	0.3958
05	2.000	0.4047	06	5.000	0.393	07	10.000	0.3868	11	20.000	0.3604
08	40.000	0.3743	09	60.000	0.3616	10	80.000	0.3672			

Dibromochloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.200	0.4931	03	0.500	0.417	04	1.000	0.3988	05	2.000	0.4255
06	5.000	0.493	07	10.000	0.5249	11	20.000	0.55			

Dibromofluoromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
04	4.000	0.1918	05	6.000	0.1983	06	8.000	0.2236	07	10.000	0.2269
11	12.000	0.2303	08	14.000	0.2471	09	16.000	0.2509	10	20.000	0.2449

Dibromomethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.200	0.1515	03	0.500	0.1362	04	1.000	0.1293	05	2.000	0.1255
06	5.000	0.1294	07	10.000	0.1369	11	20.000	0.1291	08	40.000	0.1378
09	60.000	0.1366	10	80.000	0.1334						

Dichlorodifluoromethane (CFC 12)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.3439	02	0.200	0.318	03	0.500	0.3588	04	1.000	0.3068
05	2.000	0.3243	06	5.000	0.3463	07	10.000	0.3272	11	20.000	0.3321
08	40.000	0.3243	09	60.000	0.315	10	80.000	0.3261			

Dichloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	0.500	0.3351	04	1.000	0.3152	05	2.000	0.2873	06	5.000	0.2921
07	10.000	0.2797	11	20.000	0.2674	08	40.000	0.2736	09	60.000	0.2724
10	80.000	0.2689									

Ethyl Methacrylate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.200	0.6941	03	0.500	0.5996	04	1.000	0.544	05	2.000	0.5124
06	5.000	0.5919	07	10.000	0.613	11	20.000	0.5814	08	40.000	0.6467
09	60.000	0.6303	10	80.000	0.6102						

Ethylbenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	1.174	02	0.200	1.134	03	0.500	1.184	04	1.000	1.083
05	2.000	1.11	06	5.000	1.179	07	10.000	1.209	11	20.000	1.173
08	40.000	1.313	09	60.000	1.263	10	80.000	1.25			

Iodomethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.400	0.3269	02	0.800	0.2898	03	2.000	0.2784	04	4.000	0.26

ALS Group USA, Corp.
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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 7/25/2019

Initial Calibration Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Calibration ID: KC1900305
Instrument ID: K-MS-13

Signal ID: 1

Analyte

Iodomethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
05	8.000	0.2641	06	20.000	0.2921	07	40.000	0.3069	11	80.000	0.2984
08	160.000	0.319	09	240.000	0.3249	10	320.000	0.3395			

Methacrylonitrile

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.400	0.06632	02	0.800	0.04749	03	2.000	0.05833	04	4.000	0.05575
05	8.000	0.05708	06	20.000	0.06074	07	40.000	0.06288	11	80.000	0.06045
08	160.000	0.06569	09	240.000	0.06558	10	320.000	0.06246			

Tetrachloroethene (PCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.6296	02	0.200	0.601	03	0.500	0.6478	04	1.000	0.5824
05	2.000	0.6031	06	5.000	0.6351	07	10.000	0.6643	11	20.000	0.6581
08	40.000	0.7325	09	60.000	0.7023	10	80.000	0.7056			

Toluene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.6486	02	0.200	0.6778	03	0.500	0.7077	04	1.000	0.7018
05	2.000	0.7108	06	5.000	0.7494	07	10.000	0.7641	11	20.000	0.7271
08	40.000	0.7865	09	60.000	0.7678	10	80.000	0.7562			

Toluene-d8

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
04	4.000	0.871	05	6.000	0.8991	06	8.000	0.9763	07	10.000	1.003
11	12.000	0.9751	08	14.000	1.012	09	16.000	1.016	10	20.000	1.007

Trichloroethene (TCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.3058	02	0.200	0.2936	03	0.500	0.3093	04	1.000	0.2745
05	2.000	0.2848	06	5.000	0.296	07	10.000	0.3042	11	20.000	0.2976
08	40.000	0.3205	09	60.000	0.3134	10	80.000	0.3095			

Trichlorofluoromethane (CFC 11)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.5357	02	0.200	0.5284	03	0.500	0.5256	04	1.000	0.5098
05	2.000	0.5165	06	5.000	0.5601	07	10.000	0.5632	11	20.000	0.5532
08	40.000	0.5738	09	60.000	0.5427	10	80.000	0.5567			

Vinyl Acetate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	1.000	0.0389	04	2.000	0.03832	05	4.000	0.03414	06	10.000	0.03722
07	20.000	0.03946	11	40.000	0.04047	08	80.000	0.04254	09	120.000	0.04238
10	160.000	0.04323									

Vinyl Chloride

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.3391	02	0.200	0.3474	03	0.500	0.3835	04	1.000	0.3532

ALS Group USA, Corp.
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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 7/25/2019

Initial Calibration Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Calibration ID: KC1900305
Instrument ID: K-MS-13

Signal ID: 1

Analyte

Vinyl Chloride

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
05	2.000	0.3737	06	5.000	0.3938	07	10.000	0.3856	11	20.000	0.3722
08	40.000	0.3827	09	60.000	0.3661	10	80.000	0.3706			

cis-1,2-Dichloroethene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.2567	02	0.200	0.3138	03	0.500	0.3259	04	1.000	0.2778
05	2.000	0.2594	06	5.000	0.3063	07	10.000	0.3064	11	20.000	0.307
08	40.000	0.3268	09	60.000	0.3251	10	80.000	0.3207			

cis-1,3-Dichloropropene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.3909	02	0.200	0.3733	03	0.500	0.338	04	1.000	0.3478
05	2.000	0.3496	06	5.000	0.3878	07	10.000	0.4196	11	20.000	0.4105
08	40.000	0.4434	09	60.000	0.442	10	80.000	0.4322			

m,p-Xylenes

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.346	02	0.400	1.392	03	1.000	1.338	04	2.000	1.331
05	4.000	1.275	06	10.000	1.409	07	20.000	1.443	11	40.000	1.413
08	80.000	1.555	09	120.000	1.532	10	160.000	1.492			

o-Xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	1.315	02	0.200	1.113	03	0.500	1.251	04	1.000	1.24
05	2.000	1.219	06	5.000	1.34	07	10.000	1.334	11	20.000	1.332
08	40.000	1.461	09	60.000	1.421	10	80.000	1.379			

trans-1,2-Dichloroethene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.2876	02	0.200	0.2125	03	0.500	0.2664	04	1.000	0.2467
05	2.000	0.2484	06	5.000	0.2684	07	10.000	0.2749	11	20.000	0.2733
08	40.000	0.2998	09	60.000	0.2949	10	80.000	0.3004			

trans-1,3-Dichloropropene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.9585	02	0.200	0.8987	03	0.500	0.8123	04	1.000	0.7296
05	2.000	0.7481	06	5.000	0.8529	07	10.000	0.9029	11	20.000	0.9004
08	40.000	0.99	09	60.000	0.9984	10	80.000	0.9652			

trans-1,4-Dichloro-2-butene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	0.500	0.2185	04	1.000	0.1687	05	2.000	0.1795	06	5.000	0.1963
07	10.000	0.1928	11	20.000	0.1727	08	40.000	0.1873	09	60.000	0.1822
10	80.000	0.1631									

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 7/25/2019

Initial Calibration Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Calibration ID: KC1900305
Instrument ID: K-MS-13

Signal ID: 1

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
1,1,1,2-Tetrachloroethane	TRG	Average RF	% RSD	12.2	20	0.6388	0.01
1,1,1-Trichloroethane (TCA)	TRG	Average RF	% RSD	10.3	20	0.4456	0.100
1,1,2,2-Tetrachloroethane	TRG	Average RF	% RSD	9.4	20	0.5806	0.300
1,1,2-Trichloroethane	TRG	Average RF	% RSD	6.1	20	0.4318	0.100
1,1-Dichloroethane (1,1-DCA)	TRG	Average RF	% RSD	5.4	20	0.5359	0.200
1,1-Dichloroethene (1,1-DCE)	TRG	Average RF	% RSD	11.3	20	0.2775	0.100
1,2,3-Trichloropropane	TRG	Average RF	% RSD	10.5	20	0.1718	0.01
1,2-Dichloroethane	TRG	Average RF	% RSD	7.0	20	0.3592	0.100
1,2-Dichloropropane	TRG	Average RF	% RSD	5.9	20	0.3009	0.100
2-Butanone (MEK)	TRG	Average RF	% RSD	5.7	20	0.01312	0.010
2-Chloroethyl Vinyl Ether	TRG	Average RF	% RSD	6.1	20	0.1216	0.01
2-Hexanone	TRG	Average RF	% RSD	8.4	20	0.04446	0.015
2-Methyl-1-propanol (Isobutyl Alcohol)	TRG	Average RF	% RSD	10.3	20	0.004249	0.01
3-Chloro-1-propene	TRG	Average RF	% RSD	5.7	20	0.146	0.01
4-Bromofluorobenzene	SURR	Average RF	% RSD	8.9	20	0.8348	0.01
4-Methyl-2-pentanone	TRG	Average RF	% RSD	4.3	20	0.05041	0.010
Acetone	TRG	Average RF	% RSD	4.4	20	0.03703	0.010
Acetonitrile	TRG	Average RF	% RSD	5.2	20	0.008308	0.01
Acrolein	TRG	Average RF	% RSD	14.9	20	0.02906	0.01
Acrylonitrile	TRG	Average RF	% RSD	4.8	20	0.05037	0.01
Benzene	TRG	Average RF	% RSD	4.2	20	1.23	0.500
Bromodichloromethane	TRG	Average RF	% RSD	9.8	20	0.3198	0.200
Bromoform	TRG	Quadratic (0,0)	COD	0.9977	0.990	0.2395	0.100
Bromomethane	TRG	Average RF	% RSD	3.3	20	0.2225	0.100
Carbon Disulfide	TRG	Average RF	% RSD	4.8	20	0.7654	0.100
Carbon Tetrachloride	TRG	Average RF	% RSD	12.8	20	0.3646	0.100
Chlorobenzene	TRG	Average RF	% RSD	6.4	20	2.06	0.500
Chloroethane	TRG	Average RF	% RSD	5.4	20	0.2154	0.100
Chloroform	TRG	Average RF	% RSD	6.9	20	0.5015	0.200
Chloromethane	TRG	Average RF	% RSD	7.3	20	0.3935	0.100
Dibromochloromethane	TRG	Average RF	% RSD	12.3	20	0.4717	0.100
Dibromofluoromethane	SURR	Average RF	% RSD	9.7	20	0.2267	0.01
Dibromomethane	TRG	Average RF	% RSD	5.4	20	0.1346	0.01
Dichlorodifluoromethane (CFC 12)	TRG	Average RF	% RSD	4.6	20	0.3293	0.100

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 7/25/2019

Initial Calibration Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Calibration ID: KC1900305
Instrument ID: K-MS-13

Signal ID: 1

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Dichloromethane	TRG	Average RF	% RSD	8.0	20	0.288	0.100
Ethyl Methacrylate	TRG	Average RF	% RSD	8.5	20	0.6024	0.01
Ethylbenzene	TRG	Average RF	% RSD	5.7	20	1.188	0.100
Iodomethane	TRG	Average RF	% RSD	8.7	20	0.3	0.01
Methacrylonitrile	TRG	Average RF	% RSD	9.1	20	0.06025	0.01
Tetrachloroethene (PCE)	TRG	Average RF	% RSD	7.3	20	0.6511	0.200
Toluene	TRG	Average RF	% RSD	5.8	20	0.7271	0.400
Toluene-d8	SURR	Average RF	% RSD	5.7	20	0.97	0.01
Trichloroethene (TCE)	TRG	Average RF	% RSD	4.4	20	0.3008	0.200
Trichlorofluoromethane (CFC 11)	TRG	Average RF	% RSD	3.8	20	0.5423	0.100
Vinyl Acetate	TRG	Average RF	% RSD	7.4	20	0.03963	0.01
Vinyl Chloride	TRG	Average RF	% RSD	4.6	20	0.3698	0.100
cis-1,2-Dichloroethene	TRG	Average RF	% RSD	8.6	20	0.3024	0.100
cis-1,3-Dichloropropene	TRG	Average RF	% RSD	9.8	20	0.3941	0.200
m,p-Xylenes	TRG	Average RF	% RSD	6.3	20	1.411	0.100
o-Xylene	TRG	Average RF	% RSD	7.5	20	1.309	0.300
trans-1,2-Dichloroethene	TRG	Average RF	% RSD	9.9	20	0.2703	0.100
trans-1,3-Dichloropropene	TRG	Average RF	% RSD	10.4	20	0.887	0.100
trans-1,4-Dichloro-2-butene	TRG	Average RF	% RSD	9.1	20	0.1846	0.01

ALS Group USA, Corp.
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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 7/25/2019

Initial Calibration Verification Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Calibration ID: KC1900305
Instrument ID: K-MS-13

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
12	KC1900305-12	ICV	I:\MS13\DATA\072519\0725F023.D	07/25/2019 16:56

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	10.0	9.20	6.388E-1	5.878E-1	-7.980	±30	Average RF
1,1,1-Trichloroethane (TCA)	10.0	9.20	4.456E-1	4.1E-1	-7.996	±30	Average RF
1,1,2,2-Tetrachloroethane	10.0	8.93	5.806E-1	5.186E-1	-10.676	±30	Average RF
1,1,2-Trichloroethane	10.0	9.31	4.318E-1	4.022E-1	-6.868	±30	Average RF
1,1-Dichloroethane (1,1-DCA)	10.0	9.43	5.359E-1	5.055E-1	-5.670	±30	Average RF
1,1-Dichloroethene (1,1-DCE)	10.0	9.09	2.775E-1	2.523E-1	-9.099	±30	Average RF
1,2,3-Trichloropropane	10.0	9.37	1.718E-1	1.609E-1	-6.337	±30	Average RF
1,2-Dichloroethane	10.0	9.03	3.592E-1	3.244E-1	-9.672	±30	Average RF
1,2-Dichloropropane	10.0	8.88	3.009E-1	2.673E-1	-11.166	±30	Average RF
2-Butanone (MEK)	50.0	53.3	1.312E-2	1.399E-2	6.62	±30	Average RF
2-Chloroethyl Vinyl Ether	10.0	9.76	1.216E-1	1.186E-1	-2.435	±30	Average RF
2-Hexanone	50.0	51.5	4.446E-2	4.577E-2	2.96	±30	Average RF
2-Methyl-1-propanol (Isobutyl Alcohol)	300	250	4.249E-3	3.537E-3	-16.756	±30	Average RF
3-Chloro-1-propene	30.0	31.8	1.46E-1	1.546E-1	5.86	±30	Average RF
4-Methyl-2-pentanone	50.0	50.9	5.041E-2	5.129E-2	1.74	±30	Average RF
Acetone	50.0	54.7	3.703E-2	4.053E-2	9.46	±30	Average RF
Acetonitrile	300	287	8.308E-3	7.936E-3	-4.472	±30	Average RF
Acrolein	100	95.4	2.906E-2	2.772E-2	-4.597	±30	Average RF
Acrylonitrile	40.0	38.9	5.037E-2	4.895E-2	-2.816	±30	Average RF
Benzene	10.0	9.15	1.23E0	1.126E0	-8.489	±30	Average RF
Bromodichloromethane	10.0	8.87	3.198E-1	2.837E-1	-11.312	±30	Average RF
Bromoform	10.0	8.71	2.395E-1	2.177E-1	-12.879	±30	Quadratic (0,0)
Bromomethane	10.0	9.36	2.225E-1	2.083E-1	-6.387	±30	Average RF
Carbon Disulfide	20.0	18.9	7.654E-1	7.219E-1	-5.694	±30	Average RF
Carbon Tetrachloride	10.0	9.46	3.646E-1	3.45E-1	-5.353	±30	Average RF
Chlorobenzene	10.0	9.42	2.06E0	1.94E0	-5.824	±30	Average RF
Chloroethane	10.0	10.1	2.154E-1	2.177E-1	1.09	±30	Average RF
Chloroform	10.0	9.17	5.015E-1	4.596E-1	-8.349	±30	Average RF
Chloromethane	10.0	8.82	3.935E-1	3.471E-1	-11.802	±30	Average RF
Dibromochloromethane	10.0	10.0	4.717E-1	4.722E-1	0.104	±30	Average RF
Dibromomethane	10.0	8.80	1.346E-1	1.184E-1	-12.048	±30	Average RF
Dichlorodifluoromethane (CFC 12)	10.0	8.81	3.293E-1	2.903E-1	-11.852	±30	Average RF
Dichloromethane	10.0	8.84	2.88E-1	2.544E-1	-11.648	±30	Average RF

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 7/25/2019

**Initial Calibration Verification Summary
Volatile Organic Compounds by GC/MS, Unpreserved**

Calibration ID: KC1900305
Instrument ID: K-MS-13

Signal ID: 1

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Ethyl Methacrylate	30.0	31.5	6.024E-1	6.325E-1	5.00	±30	Average RF
Ethylbenzene	10.0	9.51	1.188E0	1.13E0	-4.917	±30	Average RF
Iodomethane	30.0	33.6	3.0E-1	3.361E-1	12.02	±30	Average RF
Methacrylonitrile	30.0	30.6	6.025E-2	6.145E-2	1.99	±30	Average RF
Tetrachloroethene (PCE)	10.0	9.59	6.511E-1	6.243E-1	-4.109	±30	Average RF
Toluene	10.0	9.37	7.271E-1	6.815E-1	-6.263	±30	Average RF
Trichloroethene (TCE)	10.0	8.95	3.008E-1	2.692E-1	-10.524	±30	Average RF
Trichlorofluoromethane (CFC 11)	10.0	8.35	5.423E-1	4.528E-1	-16.509	±30	Average RF
Vinyl Acetate	50.0	45.6	3.963E-2	3.617E-2	-8.731	±30	Average RF
Vinyl Chloride	10.0	9.52	3.698E-1	3.519E-1	-4.849	±30	Average RF
cis-1,2-Dichloroethene	10.0	9.28	3.024E-1	2.806E-1	-7.202	±30	Average RF
cis-1,3-Dichloropropene	10.0	9.20	3.941E-1	3.627E-1	-7.963	±30	Average RF
m,p-Xylenes	20.0	18.8	1.411E0	1.33E0	-5.759	±30	Average RF
o-Xylene	10.0	9.46	1.309E0	1.238E0	-5.412	±30	Average RF
trans-1,2-Dichloroethene	10.0	9.13	2.703E-1	2.469E-1	-8.659	±30	Average RF
trans-1,3-Dichloropropene	10.0	9.30	8.87E-1	8.249E-1	-6.999	±30	Average RF
trans-1,4-Dichloro-2-butene	30.0	25.6	1.846E-1	1.576E-1	-14.586	±30	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
4-Bromofluorobenzene	10.0	9.42	8.348E-1	7.864E-1	-5.803	±30	Average RF
Dibromofluoromethane	10.0	9.59	2.267E-1	2.175E-1	-4.065	±30	Average RF
Toluene-d8	10.0	10.0	9.7E-1	9.723E-1	0.230	±30	Average RF

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Date Analyzed: 06/16/20 10:26

Continuing Calibration Verification (CCV) Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
File ID: J:\MS13\DATA\061620\0616F006.D\
Signal ID: 1

Calibration Date: 7/25/2019
Calibration ID: KC1900305
Analysis Lot: 683827
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	10.0	9.05	0.6388	0.5783	-9.5	NA	±20	Average RF
1,1,1-Trichloroethane (TCA)	10.0	11.4	0.4456	0.5095	14.3	NA	±20	Average RF
1,1,2,2-Tetrachloroethane	10.0	10.6	0.5806	0.6152	6.0	NA	±20	Average RF
1,1,2-Trichloroethane	10.0	9.16	0.4318	0.3958	-8.4	NA	±20	Average RF
1,1-Dichloroethane (1,1-DCA)	10.0	11.5	0.5359	0.6139	14.6	NA	±20	Average RF
1,1-Dichloroethene (1,1-DCE)	10.0	10.1	0.2775	0.2804	1.0	NA	±20	Average RF
1,2,3-Trichloropropane	10.0	10.5	0.1718	0.1811	5.4	NA	±20	Average RF
1,2-Dichloroethane	10.0	11.5	0.3592	0.4111	14.5	NA	±20	Average RF
1,2-Dichloropropane	10.0	11.1	0.3009	0.3346	11.2	NA	±20	Average RF
2-Butanone (MEK)	100	97.8	0.0131	0.0128	-2.2	NA	±20	Average RF
2-Chloroethyl Vinyl Ether	10.0	8.71	0.1216	0.1059	-12.9	NA	±20	Average RF
2-Hexanone	100	88.1	0.0445	0.0391	-11.9	NA	±20	Average RF
2-Methyl-1-propanol (Isobutyl Alcohol)	400	429	0.0042	0.0046	7.3	NA	±20	Average RF
3-Chloro-1-propene	10.0	11.4	0.146	0.1663	13.9	NA	±20	Average RF
4-Methyl-2-pentanone	100	101	0.0504	0.0509	1.0	NA	±20	Average RF
Acetone	100	124	0.037	0.0458	23.8*	NA	±20	Average RF
Acetonitrile	400	518	0.0083	0.0108	29.6*	NA	±20	Average RF
Acrolein	200	200	0.0291	0.0291	0.1	NA	±20	Average RF
Acrylonitrile	40.0	45.6	0.0504	0.0574	14.0	NA	±20	Average RF
Benzene	10.0	10.4	1.23	1.2765	3.8	NA	±20	Average RF
Bromodichloromethane	10.0	11.9	0.3198	0.3797	18.7	NA	±20	Average RF
Bromoform	10.0	9.67	0.2395	0.2427	NA	-3.3	±20	Quadratic (0,0)
Bromomethane	10.0	8.99	0.2225	0.2	-10.1	NA	±20	Average RF
Carbon Disulfide	10.0	11.0	0.7654	0.8421	10.0	NA	±20	Average RF
Carbon Tetrachloride	10.0	11.3	0.3646	0.4114	12.9	NA	±20	Average RF
Chlorobenzene	10.0	8.70	2.06	1.7913	-13.0	NA	±20	Average RF
Chloroethane	10.0	11.6	0.2154	0.2504	16.2	NA	±20	Average RF
Chloroform	10.0	11.1	0.5015	0.5544	10.5	NA	±20	Average RF
Chloromethane	10.0	10.5	0.3935	0.4134	5.1	NA	±20	Average RF
Dibromochloromethane	10.0	10.4	0.4717	0.4901	3.9	NA	±20	Average RF
Dibromomethane	10.0	10.3	0.1346	0.1384	2.9	NA	±20	Average RF
Dichlorodifluoromethane (CFC 12)	10.0	9.99	0.3293	0.3289	-0.1	NA	±20	Average RF
Dichloromethane	10.0	10.3	0.288	0.2971	3.2	NA	±20	Average RF
Ethyl Methacrylate	10.0	9.32	0.6024	0.5615	-6.8	NA	±20	Average RF
Ethylbenzene	10.0	8.57	1.1883	1.0179	-14.3	NA	±20	Average RF
Iodomethane	40.0	37.2	0.3	0.2791	-7.0	NA	±20	Average RF
Methacrylonitrile	40.0	43.4	0.0603	0.0653	8.5	NA	±20	Average RF
Tetrachloroethene (PCE)	10.0	8.71	0.6511	0.5668	-12.9	NA	±20	Average RF
Toluene	10.0	10.7	0.7271	0.7811	7.4	NA	±20	Average RF

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Date Analyzed: 06/16/20 10:26

Continuing Calibration Verification (CCV) Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
File ID: J:\MS13\DATA\061620\0616F006.D\
Signal ID: 1

Calibration Date: 7/25/2019
Calibration ID: KC1900305
Analysis Lot: 683827
Units: ppb

Trichloroethene (TCE)	10.0	10.5	0.3008	0.3149	4.7	NA	±20	Average RF
Trichlorofluoromethane (CFC 11)	10.0	11.0	0.5423	0.5976	10.2	NA	±20	Average RF
Vinyl Acetate	20.0	17.5	0.0396	0.0346	-12.7	NA	±20	Average RF
Vinyl Chloride	10.0	11.1	0.3698	0.4099	10.8	NA	±20	Average RF
cis-1,2-Dichloroethene	10.0	10.1	0.3024	0.3054	1.0	NA	±20	Average RF
cis-1,3-Dichloropropene	10.0	11.3	0.3941	0.4466	13.3	NA	±20	Average RF
m,p-Xylenes	20.0	16.8	1.4114	1.1875	-15.9	NA	±20	Average RF
o-Xylene	10.0	8.59	1.3093	1.1243	-14.1	NA	±20	Average RF
trans-1,2-Dichloroethene	10.0	10.4	0.2703	0.2819	4.3	NA	±20	Average RF
trans-1,3-Dichloropropene	10.0	9.48	0.887	0.8413	-5.2	NA	±20	Average RF
trans-1,4-Dichloro-2-butene	10.0	11.2	0.1846	0.2069	12.1	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
4-Bromofluorobenzene	10.0	9.07	0.8348	0.7568	-9.3	NA	±20	Average RF
Dibromofluoromethane	10.0	9.70	0.2267	0.2199	-3.0	NA	±20	Average RF
Toluene-d8	10.0	10.2	0.97	0.9879	1.8	NA	±20	Average RF

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request:K2004781

Analysis Run Log
Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method:

Analysis Lot:683827
Instrument ID:K-MS-13

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS13\DATA\061620\0616F005.D\	ZZZZZZZ	ZZZZZZZ	6/16/2020	09:53:00	
J:\MS13\DATA\061620\0616F006.D\	Continuing Calibration Verification	KQ2008126-06	6/16/2020	10:26:00	
J:\MS13\DATA\061620\0616F007.D\	Lab Control Sample	KQ2008126-07	6/16/2020	10:53:00	
J:\MS13\DATA\061620\0616F008.D\	Duplicate Lab Control Sample	KQ2008126-08	6/16/2020	11:19:00	
J:\MS13\DATA\061620\0616F011.D\	Method Blank	KQ2008126-09	6/16/2020	12:39:00	
J:\MS13\DATA\061620\0616F012.D\	TripBlank#1-0620	K2004781-001	6/16/2020	13:06:00	
J:\MS13\DATA\061620\0616F013.D\	CTMW-14-0620	K2004781-002	6/16/2020	13:32:00	
J:\MS13\DATA\061620\0616F014.D\	CTMW-9-0620	K2004781-003	6/16/2020	13:59:00	
J:\MS13\DATA\061620\0616F015.D\	CTMW-8-0620	K2004781-004	6/16/2020	14:25:00	
J:\MS13\DATA\061620\0616F016.D\	CTMW-17-0620	K2004781-005	6/16/2020	14:52:00	
J:\MS13\DATA\061620\0616F017.D\	CTMW-17D-0620	K2004781-006	6/16/2020	15:18:00	
J:\MS13\DATA\061620\0616F018.D\	FieldBlank#1-0620	K2004781-007	6/16/2020	15:45:00	
J:\MS13\DATA\061620\0616F019.D\	TripBlank#2-0620	K2004781-008	6/16/2020	16:12:00	
J:\MS13\DATA\061620\0616F020.D\	CTMW-5-0620	K2004781-009	6/16/2020	16:39:00	
J:\MS13\DATA\061620\0616F021.D\	CTMW-12-0620	K2004781-010	6/16/2020	17:05:00	
J:\MS13\DATA\061620\0616F022.D\	CTMW-24-0620	K2004781-011	6/16/2020	17:32:00	
J:\MS13\DATA\061620\0616F023.D\	CTMW-24D-0620	K2004781-012	6/16/2020	17:58:00	
J:\MS13\DATA\061620\0616F024.D\	CTMW-7-0620	K2004781-013	6/16/2020	18:24:00	
J:\MS13\DATA\061620\0616F025.D\	CTMW-9-7-0620	K2004781-014	6/16/2020	18:51:00	
J:\MS13\DATA\061620\0616F026.D\	CTMW-18-0620	K2004781-015	6/16/2020	19:18:00	
J:\MS13\DATA\061620\0616F027.D\	CTMW-7-0620 MS	KQ2008126-01	6/16/2020	19:44:00	
J:\MS13\DATA\061620\0616F028.D\	CTMW-7-0620 DMS	KQ2008126-02	6/16/2020	20:11:00	
J:\MS13\DATA\061620\0616F029.D\	CTMW-18-0620 MS	KQ2008126-03	6/16/2020	20:37:00	
J:\MS13\DATA\061620\0616F030.D\	CTMW-18-0620 DMS	KQ2008126-04	6/16/2020	21:04:00	



Volatile Organic Compounds

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 09:15
Date Received: 06/10/20 09:40

Sample Name: TripBlank#1-0620
Lab Code: K2004781-001

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	06/23/20 16:39	
1,2-Dichloroethane	7.4 J	20	5.8	1	06/23/20 16:39	
1,1-Dichloroethene	6.1 J	20	5.9	1	06/23/20 16:39	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	06/23/20 16:39	
Vinyl Chloride	26 J	50	4.6	1	06/23/20 16:39	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	76	46 - 118	06/23/20 16:39	
Dibromofluoromethane	122	77 - 123	06/23/20 16:39	
Toluene-d8	91	74 - 112	06/23/20 16:39	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 10:02
Date Received: 06/10/20 09:40

Sample Name: CTMW-14-0620
Lab Code: K2004781-002

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	06/23/20 17:30	
1,2-Dichloroethane	ND U	20	5.8	1	06/23/20 17:30	
1,1-Dichloroethene	ND U	20	5.9	1	06/23/20 17:30	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	06/23/20 17:30	
Vinyl Chloride	25 J	50	4.6	1	06/23/20 17:30	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	77	46 - 118	06/23/20 17:30	
Dibromofluoromethane	131	77 - 123	06/23/20 17:30	*
Toluene-d8	94	74 - 112	06/23/20 17:30	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 10:57
Date Received: 06/10/20 09:40

Sample Name: CTMW-9-0620
Lab Code: K2004781-003

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	06/23/20 17:56	
1,2-Dichloroethane	ND U	20	5.8	1	06/23/20 17:56	
1,1-Dichloroethene	ND U	20	5.9	1	06/23/20 17:56	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	06/23/20 17:56	
Vinyl Chloride	24 J	50	4.6	1	06/23/20 17:56	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	75	46 - 118	06/23/20 17:56	
Dibromofluoromethane	128	77 - 123	06/23/20 17:56	*
Toluene-d8	91	74 - 112	06/23/20 17:56	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 11:41
Date Received: 06/10/20 09:40

Sample Name: CTMW-8-0620
Lab Code: K2004781-004

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	06/23/20 18:22	
1,2-Dichloroethane	6.0 J	20	5.8	1	06/23/20 18:22	
1,1-Dichloroethene	8.1 J	20	5.9	1	06/23/20 18:22	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	06/23/20 18:22	
Vinyl Chloride	28 J	50	4.6	1	06/23/20 18:22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	79	46 - 118	06/23/20 18:22	
Dibromofluoromethane	0	77 - 123	06/23/20 18:22	*
Toluene-d8	97	74 - 112	06/23/20 18:22	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 12:54
Date Received: 06/10/20 09:40

Sample Name: CTMW-17-0620
Lab Code: K2004781-005

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	06/23/20 18:47	
1,2-Dichloroethane	ND U	20	5.8	1	06/23/20 18:47	
1,1-Dichloroethene	6.6 J	20	5.9	1	06/23/20 18:47	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	06/23/20 18:47	
Vinyl Chloride	42 J	50	4.6	1	06/23/20 18:47	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	77	46 - 118	06/23/20 18:47	
Dibromofluoromethane	125	77 - 123	06/23/20 18:47	*
Toluene-d8	92	74 - 112	06/23/20 18:47	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 13:34
Date Received: 06/10/20 09:40

Sample Name: CTMW-17D-0620
Lab Code: K2004781-006

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	06/23/20 19:13	
1,2-Dichloroethane	5.8 J	20	5.8	1	06/23/20 19:13	
1,1-Dichloroethene	ND U	20	5.9	1	06/23/20 19:13	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	06/23/20 19:13	
Vinyl Chloride	27 J	50	4.6	1	06/23/20 19:13	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	77	46 - 118	06/23/20 19:13	
Dibromofluoromethane	133	77 - 123	06/23/20 19:13	*
Toluene-d8	93	74 - 112	06/23/20 19:13	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 13:50
Date Received: 06/10/20 09:40

Sample Name: FieldBlank#1-0620
Lab Code: K2004781-007

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	06/23/20 19:38	
1,2-Dichloroethane	7.1 J	20	5.8	1	06/23/20 19:38	
1,1-Dichloroethene	6.1 J	20	5.9	1	06/23/20 19:38	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	06/23/20 19:38	
Vinyl Chloride	26 J	50	4.6	1	06/23/20 19:38	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	74	46 - 118	06/23/20 19:38	
Dibromofluoromethane	128	77 - 123	06/23/20 19:38	*
Toluene-d8	90	74 - 112	06/23/20 19:38	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 08:15
Date Received: 06/11/20 09:20

Sample Name: TripBlank#2-0620
Lab Code: K2004781-008

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	06/23/20 17:05	
1,2-Dichloroethane	6.3 J	20	5.8	1	06/23/20 17:05	
1,1-Dichloroethene	ND U	20	5.9	1	06/23/20 17:05	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	06/23/20 17:05	
Vinyl Chloride	25 J	50	4.6	1	06/23/20 17:05	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	75	46 - 118	06/23/20 17:05	
Dibromofluoromethane	122	77 - 123	06/23/20 17:05	
Toluene-d8	90	74 - 112	06/23/20 17:05	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 09:08
Date Received: 06/11/20 09:20

Sample Name: CTMW-5-0620
Lab Code: K2004781-009

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	06/23/20 20:04	
1,2-Dichloroethane	6.2 J	20	5.8	1	06/23/20 20:04	
1,1-Dichloroethene	6.6 J	20	5.9	1	06/23/20 20:04	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	06/23/20 20:04	
Vinyl Chloride	29 J	50	4.6	1	06/23/20 20:04	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	76	46 - 118	06/23/20 20:04	
Dibromofluoromethane	135	77 - 123	06/23/20 20:04	*
Toluene-d8	93	74 - 112	06/23/20 20:04	

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dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 09:47
Date Received: 06/11/20 09:20

Sample Name: CTMW-12-0620
Lab Code: K2004781-010

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	06/23/20 20:30	
1,2-Dichloroethane	ND U	20	5.8	1	06/23/20 20:30	
1,1-Dichloroethene	ND U	20	5.9	1	06/23/20 20:30	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	06/23/20 20:30	
Vinyl Chloride	25 J	50	4.6	1	06/23/20 20:30	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	76	46 - 118	06/23/20 20:30	
Dibromofluoromethane	128	77 - 123	06/23/20 20:30	*
Toluene-d8	94	74 - 112	06/23/20 20:30	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 10:34
Date Received: 06/11/20 09:20

Sample Name: CTMW-24-0620
Lab Code: K2004781-011

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	06/23/20 20:55	
1,2-Dichloroethane	ND U	20	5.8	1	06/23/20 20:55	
1,1-Dichloroethene	ND U	20	5.9	1	06/23/20 20:55	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	06/23/20 20:55	
Vinyl Chloride	26 J	50	4.6	1	06/23/20 20:55	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	79	46 - 118	06/23/20 20:55	
Dibromofluoromethane	136	77 - 123	06/23/20 20:55	*
Toluene-d8	95	74 - 112	06/23/20 20:55	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 11:09
Date Received: 06/11/20 09:20

Sample Name: CTMW-24D-0620
Lab Code: K2004781-012

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	06/23/20 21:21	
1,2-Dichloroethane	ND U	20	5.8	1	06/23/20 21:21	
1,1-Dichloroethene	ND U	20	5.9	1	06/23/20 21:21	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	06/23/20 21:21	
Vinyl Chloride	26 J	50	4.6	1	06/23/20 21:21	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	76	46 - 118	06/23/20 21:21	
Dibromofluoromethane	134	77 - 123	06/23/20 21:21	*
Toluene-d8	93	74 - 112	06/23/20 21:21	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 11:52
Date Received: 06/11/20 09:20

Sample Name: CTMW-7-0620
Lab Code: K2004781-013

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	06/23/20 21:46	
1,2-Dichloroethane	ND U	20	5.8	1	06/23/20 21:46	
1,1-Dichloroethene	ND U	20	5.9	1	06/23/20 21:46	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	06/23/20 21:46	
Vinyl Chloride	28 J	50	4.6	1	06/23/20 21:46	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	75	46 - 118	06/23/20 21:46	
Dibromofluoromethane	133	77 - 123	06/23/20 21:46	*
Toluene-d8	92	74 - 112	06/23/20 21:46	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 11:52
Date Received: 06/11/20 09:20

Sample Name: CTMW-9-7-0620
Lab Code: K2004781-014

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	06/23/20 22:12	
1,2-Dichloroethane	ND U	20	5.8	1	06/23/20 22:12	
1,1-Dichloroethene	ND U	20	5.9	1	06/23/20 22:12	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	06/23/20 22:12	
Vinyl Chloride	25 J	50	4.6	1	06/23/20 22:12	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	74	46 - 118	06/23/20 22:12	
Dibromofluoromethane	126	77 - 123	06/23/20 22:12	*
Toluene-d8	91	74 - 112	06/23/20 22:12	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 12:55
Date Received: 06/11/20 09:20

Sample Name: CTMW-18-0620
Lab Code: K2004781-015

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	06/23/20 22:37	
1,2-Dichloroethane	17 J	20	5.8	1	06/23/20 22:37	
1,1-Dichloroethene	7.1 J	20	5.9	1	06/23/20 22:37	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	06/23/20 22:37	
Vinyl Chloride	34 J	50	4.6	1	06/23/20 22:37	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	80	46 - 118	06/23/20 22:37	
Dibromofluoromethane	136	77 - 123	06/23/20 22:37	*
Toluene-d8	93	74 - 112	06/23/20 22:37	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: KQ2008921-08

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	06/23/20 16:14	
1,2-Dichloroethane	6.0 J	20	5.8	1	06/23/20 16:14	
1,1-Dichloroethene	6.3 J	20	5.9	1	06/23/20 16:14	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	06/23/20 16:14	
Vinyl Chloride	25 J	50	4.6	1	06/23/20 16:14	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	72	46 - 118	06/23/20 16:14	
Dibromofluoromethane	117	77 - 123	06/23/20 16:14	
Toluene-d8	87	74 - 112	06/23/20 16:14	

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781

SURROGATE RECOVERY SUMMARY
Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Extraction Method: None

Sample Name	Lab Code	4-Bromofluorobenzene	Dibromofluoromethane	Toluene-d8
		46-118	77-123	74-112
TripBlank#1-0620	K2004781-001	76	122	91
CTMW-14-0620	K2004781-002	77	131*	94
CTMW-9-0620	K2004781-003	75	128*	91
CTMW-8-0620	K2004781-004	79	0*	97
CTMW-17-0620	K2004781-005	77	125*	92
CTMW-17D-0620	K2004781-006	77	133*	93
FieldBlank#1-0620	K2004781-007	74	128*	90
TripBlank#2-0620	K2004781-008	75	122	90
CTMW-5-0620	K2004781-009	76	135*	93
CTMW-12-0620	K2004781-010	76	128*	94
CTMW-24-0620	K2004781-011	79	136*	95
CTMW-24D-0620	K2004781-012	76	134*	93
CTMW-7-0620	K2004781-013	75	133*	92
CTMW-9-7-0620	K2004781-014	74	126*	91
CTMW-18-0620	K2004781-015	80	136*	93
Method Blank	KQ2008921-08	72	117	87
Lab Control Sample	KQ2008921-05	79	108	86
Duplicate Lab Control Sample	KQ2008921-06	79	104	85
CTMW-7-0620	KQ2008921-01	87	129*	94
CTMW-7-0620	KQ2008921-02	83	121	90
CTMW-18-0620	KQ2008921-03	88	125*	94
CTMW-18-0620	KQ2008921-04	85	120	91

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Date Analyzed: 06/23/20 14:06

Internal Standard Area and RT SUMMARY
Volatile Organic Compounds by GC/MS SIM

File ID: J:\MS30\DATA\062320_SIM\0623F006.D\
Instrument ID: K-MS-30
Analysis Method: 8260C

Lab Code: KQ2008921-07
Analysis Lot: 684676
Signal ID: 1

	Chlorobenzene-d5		1,4-Dichlorobenzene-d4		Fluorobenzene	
	Area	RT	Area	RT	Area	RT
Result ==>	43,671	9.67	22,628	12.00	57,572	6.51
Upper Limit ==>	87,342	10.17	45,256	12.50	115,144	7.01
Lower Limit ==>	21,836	9.17	11,314	11.50	28,786	6.01

Associated Analyses

		Area	RT	Area	RT	Area	RT
Continuing Calibration Verification	KQ2008921-07	43671	9.67	22628	12.00	57572	6.51
Lab Control Sample	KQ2008921-05	45006	9.68	23120	12.01	58948	6.51
Duplicate Lab Control Sample	KQ2008921-06	44356	9.68	23362	12.01	58159	6.51
Method Blank	KQ2008921-08	39703	9.68	16024	12.01	54825	6.52
TripBlank#1-0620	K2004781-001	39660	9.68	16135	12.01	54581	6.51
TripBlank#2-0620	K2004781-008	39890	9.68	16185	12.01	54666	6.52
CTMW-14-0620	K2004781-002	38990	9.68	15722	12.01	53380	6.51
CTMW-9-0620	K2004781-003	39866	9.68	16217	12.01	54695	6.52
CTMW-8-0620	K2004781-004	40118	9.68	16418	12.00	54119	6.52
CTMW-17-0620	K2004781-005	38438	9.68	15604	12.01	53351	6.52
CTMW-17D-0620	K2004781-006	38283	9.68	15708	12.01	52147	6.52
FieldBlank#1-0620	K2004781-007	38511	9.68	15044	12.01	52921	6.51
CTMW-5-0620	K2004781-009	38163	9.68	15396	12.01	51875	6.52
CTMW-12-0620	K2004781-010	38149	9.67	15497	12.01	52027	6.52
CTMW-24-0620	K2004781-011	37355	9.68	14800	12.01	51614	6.52
CTMW-24D-0620	K2004781-012	37759	9.68	14800	12.01	51685	6.51
CTMW-7-0620	K2004781-013	37914	9.67	15083	12.01	51883	6.52
CTMW-9-7-0620	K2004781-014	38601	9.68	15543	12.01	51991	6.52
CTMW-18-0620	K2004781-015	37095	9.67	15817	12.01	50853	6.52
CTMW-7-0620MS	KQ2008921-01	40680	9.68	21427	12.01	53188	6.51
CTMW-7-0620DMS	KQ2008921-02	42785	9.68	22630	12.00	55201	6.52
CTMW-18-0620MS	KQ2008921-03	42922	9.68	22381	12.00	56356	6.52
CTMW-18-0620DMS	KQ2008921-04	43206	9.68	23053	12.00	56698	6.52

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20
Date Received: 06/11/20
Date Analyzed: 06/23/20
Date Extracted: NA

Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS SIM

Sample Name: CTMW-7-0620
Lab Code: K2004781-013
Analysis Method: 8260C
Prep Method: None

Units: ng/L
Basis: NA

Analyte Name	Sample Result	Matrix Spike KQ2008921-01			Duplicate Matrix Spike KQ2008921-02			% Rec Limits	RPD	RPD Limit
		Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
Carbon Tetrachloride	ND U	2680	2000	134 *	2490	2000	125	70-130	7	30
1,2-Dichloroethane	ND U	2090	2000	104	1980	2000	99	70-130	5	30
1,1-Dichloroethene	ND U	2400	2000	120	2240	2000	112	70-130	7	30
1,1,2,2-Tetrachloroethane	ND U	2120	2000	106	2010	2000	101	70-130	5	30
Vinyl Chloride	28 J	1900	2000	94	1760	2000	87	70-130	8	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20
Date Received: 06/11/20
Date Analyzed: 06/23/20
Date Extracted: NA

Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS SIM

Sample Name: CTMW-18-0620
Lab Code: K2004781-015
Analysis Method: 8260C
Prep Method: None

Units: ng/L
Basis: NA

Analyte Name	Sample Result	Matrix Spike KQ2008921-03			Duplicate Matrix Spike KQ2008921-04			% Rec Limits	RPD	RPD Limit
		Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
Carbon Tetrachloride	ND U	2640	2000	132 *	2510	2000	125	70-130	5	30
1,2-Dichloroethane	17 J	2040	2000	101	2000	2000	99	70-130	2	30
1,1-Dichloroethene	7.1 J	2390	2000	119	2270	2000	113	70-130	5	30
1,1,2,2-Tetrachloroethane	ND U	2090	2000	105	2020	2000	101	70-130	3	30
Vinyl Chloride	34 J	1870	2000	92	1750	2000	86	70-130	6	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Analyzed: 06/23/20
Date Extracted: NA

Duplicate Lab Control Sample Summary
Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Units: ng/L
Basis: NA
Analysis Lot: 684676

Lab Control Sample
KQ2008921-05

Duplicate Lab Control Sample
KQ2008921-06

Analyte Name	Lab Control Sample			Duplicate Lab Control Sample			% Rec Limits	RPD	RPD Limit
	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
1,1,2,2-Tetrachloroethane	1780	2000	89	1850	2000	93	70-128	4	30
1,1-Dichloroethene	2100	2000	105	2040	2000	102	75-133	3	30
1,2-Dichloroethane	1810	2000	90	1820	2000	91	75-124	<1	30
Carbon Tetrachloride	2320	2000	116	2240	2000	112	71-141	3	30
Vinyl Chloride	1630	2000	81	1580	2000	79	70-136	3	30

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Analyzed: 06/23/20 16:14
Date Extracted:

Method Blank Summary
Volatile Organic Compounds by GC/MS SIM

Sample Name: Method Blank **Instrument ID:** K-MS-30
Lab Code: KQ2008921-08 **File ID:** J:\MS30\DATA\062320_SIM\0623F011.D\
Analysis Method: 8260C **Analysis Lot:** 684676
Prep Method: None

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ2008921-05	J:\MS30\DATA\062320_SIM\0623F007.D\	06/23/20 14:31
Duplicate Lab Control Sample	KQ2008921-06	J:\MS30\DATA\062320_SIM\0623F008.D\	06/23/20 14:57
TripBlank#1-0620	K2004781-001	J:\MS30\DATA\062320_SIM\0623F012.D\	06/23/20 16:39
TripBlank#2-0620	K2004781-008	J:\MS30\DATA\062320_SIM\0623F013.D\	06/23/20 17:05
CTMW-14-0620	K2004781-002	J:\MS30\DATA\062320_SIM\0623F014.D\	06/23/20 17:30
CTMW-9-0620	K2004781-003	J:\MS30\DATA\062320_SIM\0623F015.D\	06/23/20 17:56
CTMW-8-0620	K2004781-004	J:\MS30\DATA\062320_SIM\0623F016.D\	06/23/20 18:22
CTMW-17-0620	K2004781-005	J:\MS30\DATA\062320_SIM\0623F017.D\	06/23/20 18:47
CTMW-17D-0620	K2004781-006	J:\MS30\DATA\062320_SIM\0623F018.D\	06/23/20 19:13
FieldBlank#1-0620	K2004781-007	J:\MS30\DATA\062320_SIM\0623F019.D\	06/23/20 19:38
CTMW-5-0620	K2004781-009	J:\MS30\DATA\062320_SIM\0623F020.D\	06/23/20 20:04
CTMW-12-0620	K2004781-010	J:\MS30\DATA\062320_SIM\0623F021.D\	06/23/20 20:30
CTMW-24-0620	K2004781-011	J:\MS30\DATA\062320_SIM\0623F022.D\	06/23/20 20:55
CTMW-24D-0620	K2004781-012	J:\MS30\DATA\062320_SIM\0623F023.D\	06/23/20 21:21
CTMW-7-0620	K2004781-013	J:\MS30\DATA\062320_SIM\0623F024.D\	06/23/20 21:46
CTMW-9-7-0620	K2004781-014	J:\MS30\DATA\062320_SIM\0623F025.D\	06/23/20 22:12
CTMW-18-0620	K2004781-015	J:\MS30\DATA\062320_SIM\0623F026.D\	06/23/20 22:37
CTMW-7-0620MS	KQ2008921-01	J:\MS30\DATA\062320_SIM\0623F027.D\	06/23/20 23:03
CTMW-7-0620DMS	KQ2008921-02	J:\MS30\DATA\062320_SIM\0623F028.D\	06/23/20 23:28
CTMW-18-0620MS	KQ2008921-03	J:\MS30\DATA\062320_SIM\0623F029.D\	06/23/20 23:54
CTMW-18-0620DMS	KQ2008921-04	J:\MS30\DATA\062320_SIM\0623F030.D\	06/24/20 00:20

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Analyzed: 06/23/20 14:31
Date Extracted:

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS SIM

Sample Name: Lab Control Sample **Instrument ID:** K-MS-30
Lab Code: KQ2008921-05 **File ID:** J:\MS30\DATA\062320_SIM\0623F007.D\
Analysis Method: 8260C **Analysis Lot:** 684676
Prep Method: None

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Duplicate Lab Control Sample	KQ2008921-06	J:\MS30\DATA\062320_SIM\0623F008.D\	06/23/20 14:57
Method Blank	KQ2008921-08	J:\MS30\DATA\062320_SIM\0623F011.D\	06/23/20 16:14
TripBlank#1-0620	K2004781-001	J:\MS30\DATA\062320_SIM\0623F012.D\	06/23/20 16:39
TripBlank#2-0620	K2004781-008	J:\MS30\DATA\062320_SIM\0623F013.D\	06/23/20 17:05
CTMW-14-0620	K2004781-002	J:\MS30\DATA\062320_SIM\0623F014.D\	06/23/20 17:30
CTMW-9-0620	K2004781-003	J:\MS30\DATA\062320_SIM\0623F015.D\	06/23/20 17:56
CTMW-8-0620	K2004781-004	J:\MS30\DATA\062320_SIM\0623F016.D\	06/23/20 18:22
CTMW-17-0620	K2004781-005	J:\MS30\DATA\062320_SIM\0623F017.D\	06/23/20 18:47
CTMW-17D-0620	K2004781-006	J:\MS30\DATA\062320_SIM\0623F018.D\	06/23/20 19:13
FieldBlank#1-0620	K2004781-007	J:\MS30\DATA\062320_SIM\0623F019.D\	06/23/20 19:38
CTMW-5-0620	K2004781-009	J:\MS30\DATA\062320_SIM\0623F020.D\	06/23/20 20:04
CTMW-12-0620	K2004781-010	J:\MS30\DATA\062320_SIM\0623F021.D\	06/23/20 20:30
CTMW-24-0620	K2004781-011	J:\MS30\DATA\062320_SIM\0623F022.D\	06/23/20 20:55
CTMW-24D-0620	K2004781-012	J:\MS30\DATA\062320_SIM\0623F023.D\	06/23/20 21:21
CTMW-7-0620	K2004781-013	J:\MS30\DATA\062320_SIM\0623F024.D\	06/23/20 21:46
CTMW-9-7-0620	K2004781-014	J:\MS30\DATA\062320_SIM\0623F025.D\	06/23/20 22:12
CTMW-18-0620	K2004781-015	J:\MS30\DATA\062320_SIM\0623F026.D\	06/23/20 22:37
CTMW-7-0620MS	KQ2008921-01	J:\MS30\DATA\062320_SIM\0623F027.D\	06/23/20 23:03
CTMW-7-0620DMS	KQ2008921-02	J:\MS30\DATA\062320_SIM\0623F028.D\	06/23/20 23:28
CTMW-18-0620MS	KQ2008921-03	J:\MS30\DATA\062320_SIM\0623F029.D\	06/23/20 23:54
CTMW-18-0620DMS	KQ2008921-04	J:\MS30\DATA\062320_SIM\0623F030.D\	06/24/20 00:20

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QC/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Date Analyzed: 06/23/20 13:36

Tune Summary
Volatile Organic Compounds by GC/MS SIM

File ID: J:\MS30\DATA\062320_SIM\0623F005.D\
Instrument ID: K-MS-30

Analytical Method: 8260C
Analysis Lot: 684676

Target Mass	Relative to Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	17.63	4106	Pass
75	95	30	60	50.19	11692	Pass
95	95	100	100	100.00	23295	Pass
96	95	5	9	7.37	1717	Pass
173	174	0	2	0.77	185	Pass
174	95	50	120	102.94	23981	Pass
175	174	5	9	6.94	1664	Pass
176	174	95	101	95.64	22936	Pass
177	176	5	9	6.72	1541	Pass

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ2008921-07	J:\MS30\DATA\062320_SIM\0623F006.D\	06/23/20 14:06	
Lab Control Sample	KQ2008921-05	J:\MS30\DATA\062320_SIM\0623F007.D\	06/23/20 14:31	
Duplicate Lab Control Sample	KQ2008921-06	J:\MS30\DATA\062320_SIM\0623F008.D\	06/23/20 14:57	
Method Blank	KQ2008921-08	J:\MS30\DATA\062320_SIM\0623F011.D\	06/23/20 16:14	
TripBlank#1-0620	K2004781-001	J:\MS30\DATA\062320_SIM\0623F012.D\	06/23/20 16:39	
TripBlank#2-0620	K2004781-008	J:\MS30\DATA\062320_SIM\0623F013.D\	06/23/20 17:05	
CTMW-14-0620	K2004781-002	J:\MS30\DATA\062320_SIM\0623F014.D\	06/23/20 17:30	
CTMW-9-0620	K2004781-003	J:\MS30\DATA\062320_SIM\0623F015.D\	06/23/20 17:56	
CTMW-8-0620	K2004781-004	J:\MS30\DATA\062320_SIM\0623F016.D\	06/23/20 18:22	
CTMW-17-0620	K2004781-005	J:\MS30\DATA\062320_SIM\0623F017.D\	06/23/20 18:47	
CTMW-17D-0620	K2004781-006	J:\MS30\DATA\062320_SIM\0623F018.D\	06/23/20 19:13	
FieldBlank#1-0620	K2004781-007	J:\MS30\DATA\062320_SIM\0623F019.D\	06/23/20 19:38	
CTMW-5-0620	K2004781-009	J:\MS30\DATA\062320_SIM\0623F020.D\	06/23/20 20:04	
CTMW-12-0620	K2004781-010	J:\MS30\DATA\062320_SIM\0623F021.D\	06/23/20 20:30	
CTMW-24-0620	K2004781-011	J:\MS30\DATA\062320_SIM\0623F022.D\	06/23/20 20:55	
CTMW-24D-0620	K2004781-012	J:\MS30\DATA\062320_SIM\0623F023.D\	06/23/20 21:21	
CTMW-7-0620	K2004781-013	J:\MS30\DATA\062320_SIM\0623F024.D\	06/23/20 21:46	
CTMW-9-7-0620	K2004781-014	J:\MS30\DATA\062320_SIM\0623F025.D\	06/23/20 22:12	
CTMW-18-0620	K2004781-015	J:\MS30\DATA\062320_SIM\0623F026.D\	06/23/20 22:37	
CTMW-7-0620	KQ2008921-01	J:\MS30\DATA\062320_SIM\0623F027.D\	06/23/20 23:03	
CTMW-7-0620	KQ2008921-02	J:\MS30\DATA\062320_SIM\0623F028.D\	06/23/20 23:28	
CTMW-18-0620	KQ2008921-03	J:\MS30\DATA\062320_SIM\0623F029.D\	06/23/20 23:54	
CTMW-18-0620	KQ2008921-04	J:\MS30\DATA\062320_SIM\0623F030.D\	06/24/20 00:20	

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 12/9/2019

Initial Calibration Summary
Volatile Organic Compounds by GC/MS SIM

Calibration ID: KC2000330
Instrument ID: K-MS-30

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC2000330-01	ICAL 0.005	J:\MS30\DATA\120919\1209F007.D	12/09/2019 19:24
02	KC2000330-02	ICAL 0.01	J:\MS30\DATA\120919\1209F008.D	12/09/2019 19:50
03	KC2000330-03	ICAL 0.02	J:\MS30\DATA\120919\1209F009.D	12/09/2019 20:15
04	KC2000330-04	ICAL 0.05	J:\MS30\DATA\120919\1209F010.D	12/09/2019 20:41
05	KC2000330-05	ICAL 0.1	J:\MS30\DATA\120919\1209F011.D	12/09/2019 21:06
06	KC2000330-06	ICAL 0.5	J:\MS30\DATA\120919\1209F012.D	12/09/2019 21:32
07	KC2000330-07	ICAL 1.0	J:\MS30\DATA\120919\1209F013.D	12/09/2019 21:57
08	KC2000330-08	ICAL 2.0	J:\MS30\DATA\120919\1209F014.D	12/09/2019 22:23
09	KC2000330-09	ICAL 5.0	J:\MS30\DATA\120919\1209F015.D	12/09/2019 22:48
10	KC2000330-10	ICAL 7.0	J:\MS30\DATA\120919\1209F016.D	12/09/2019 23:14
11	KC2000330-11	ICAL 10.0	J:\MS30\DATA\120919\1209F017.D	12/09/2019 23:39

Analyte

1,1,2,2-Tetrachloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	10.000	0.3937	03	20.000	0.4467	04	50.000	0.4467	05	100.000	0.4865
06	500.000	0.4562	07	1000.000	0.4569	08	2000.000	0.4495	09	5000.000	0.4655
10	7000.000	0.4435	11	10000.000	0.4557						

1,1-Dichloroethene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	20.000	0.3681	04	50.000	0.3242	05	100.000	0.3005	06	500.000	0.2806
07	1000.000	0.2826	08	2000.000	0.287	09	5000.000	0.279	10	7000.000	0.2732
11	10000.000	0.275									

1,2-Dichloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5.000	0.5934	02	10.000	0.4689	03	20.000	0.4885	04	50.000	0.4891
05	100.000	0.5106	06	500.000	0.4739	07	1000.000	0.4686	08	2000.000	0.464
09	5000.000	0.4649	10	7000.000	0.4489	11	10000.000	0.4481			

4-Bromofluorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
06	600.000	0.5104	07	800.000	0.4974	08	1000.000	0.5292	09	2000.000	0.5328
10	2400.000	0.537	11	4000.000	0.5454						

Carbon Tetrachloride

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	20.000	0.47	04	50.000	0.4477	05	100.000	0.445	06	500.000	0.4428
07	1000.000	0.4408	08	2000.000	0.4479	09	5000.000	0.4416	10	7000.000	0.435
11	10000.000	0.4366									

Dibromofluoromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
05	400.000	0.3016	06	600.000	0.3021	07	800.000	0.2813	08	1000.000	0.2967

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 12/9/2019

Initial Calibration Summary
Volatile Organic Compounds by GC/MS SIM

Calibration ID: KC2000330
Instrument ID: K-MS-30

Signal ID: 1

Analyte

Dibromofluoromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
09	2000.000	0.2991									

Toluene-d8

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
06	600.000	1.07	07	800.000	1.012	08	1000.000	1.021	09	2000.000	1.039
10	2400.000	1.042									

Vinyl Chloride

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	20.000	0.6066	04	50.000	0.5777	05	100.000	0.5528	06	500.000	0.5253
07	1000.000	0.5353	08	2000.000	0.5391	09	5000.000	0.5239	10	7000.000	0.5126
11	10000.000	0.5101									

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 12/9/2019

Initial Calibration Summary
Volatile Organic Compounds by GC/MS SIM

Calibration ID: KC2000330
Instrument ID: K-MS-30

Signal ID: 1

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
1,1,2,2-Tetrachloroethane	TRG	Average RF	% RSD	5.2	20	0.4501	0.3
1,1-Dichloroethene	TRG	Average RF	% RSD	10.5	20	0.2967	0.1
1,2-Dichloroethane	TRG	Average RF	% RSD	8.4	20	0.4835	0.1
4-Bromofluorobenzene	SURR	Average RF	% RSD	3.4	20	0.5254	0.01
Carbon Tetrachloride	TRG	Average RF	% RSD	2.3	20	0.4453	0.1
Dibromofluoromethane	SURR	Average RF	% RSD	2.9	20	0.2962	0.01
Toluene-d8	SURR	Average RF	% RSD	2.2	20	1.037	0.01
Vinyl Chloride	TRG	Average RF	% RSD	5.9	20	0.5426	0.1

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 12/9/2019

**Initial Calibration Verification Summary
Volatile Organic Compounds by GC/MS SIM**

Calibration ID: KC2000330
Instrument ID: K-MS-30

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
12	KC2000330-12	ICV	J:\MS30\DATA\121119_SIM\1211F007.D	12/11/2019 14:29

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Carbon Tetrachloride	2000	2120	4.453E-1	4.718E-1	5.96	±30	Average RF
1,2-Dichloroethane	2000	2030	4.835E-1	4.908E-1	1.50	±30	Average RF
1,1-Dichloroethene	2000	2020	2.967E-1	2.991E-1	0.822	±30	Average RF
1,1,2,2-Tetrachloroethane	2000	2070	4.501E-1	4.655E-1	3.42	±30	Average RF
Vinyl Chloride	2000	1710	5.426E-1	4.628E-1	-14.706	±30	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
4-Bromofluorobenzene	1000	943	5.254E-1	4.953E-1	-5.722	±30	Average RF
Dibromofluoromethane	1000	978	2.962E-1	2.896E-1	-2.209	±30	Average RF
Toluene-d8	1000	990	1.037E0	1.027E0	-1.002	±30	Average RF

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Date Analyzed: 06/23/20 14:06

Continuing Calibration Verification (CCV) Summary
Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
File ID: J:\MS30\DATA\062320_SIM\0623F006.D\
Signal ID: 1

Calibration Date: 12/9/2019
Calibration ID: KC2000330
Analysis Lot: 684676
Units: ng/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Carbon Tetrachloride	2000	2390	0.4453	0.5327	19.6	NA	±30	Average RF
1,2-Dichloroethane	2000	1740	0.4835	0.4197	-13.2	NA	±30	Average RF
1,1-Dichloroethene	2000	2160	0.2967	0.3203	7.9	NA	±30	Average RF
1,1,2,2-Tetrachloroethane	2000	1560	0.4501	0.3515	-21.9	NA	±30	Average RF
Vinyl Chloride	2000	1720	0.5426	0.4659	-14.1	NA	±30	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
4-Bromofluorobenzene	1000	765	0.5254	0.4021	76.5	NA	±30	Average RF
Dibromofluoromethane	1000	970	0.2962	0.2874	97.0	NA	±30	Average RF
Toluene-d8	1000	816	1.037	0.8461	81.6	NA	±30	Average RF

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

Analysis Run Log
Volatile Organic Compounds by GC/MS SIM

Analysis Method:

Analysis Lot: 684676
Instrument ID: K-MS-30

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS30\DATA\062320_SIM\0623F005.D\	ZZZZZZZ	ZZZZZZZ	6/23/2020	13:36:00	
J:\MS30\DATA\062320_SIM\0623F006.D\	Continuing Calibration Verification	KQ2008921-07	6/23/2020	14:06:00	
J:\MS30\DATA\062320_SIM\0623F007.D\	Lab Control Sample	KQ2008921-05	6/23/2020	14:31:00	
J:\MS30\DATA\062320_SIM\0623F008.D\	Duplicate Lab Control Sample	KQ2008921-06	6/23/2020	14:57:00	
J:\MS30\DATA\062320_SIM\0623F011.D\	Method Blank	KQ2008921-08	6/23/2020	16:14:00	
J:\MS30\DATA\062320_SIM\0623F012.D\	TripBlank#1-0620	K2004781-001	6/23/2020	16:39:00	
J:\MS30\DATA\062320_SIM\0623F013.D\	TripBlank#2-0620	K2004781-008	6/23/2020	17:05:00	
J:\MS30\DATA\062320_SIM\0623F014.D\	CTMW-14-0620	K2004781-002	6/23/2020	17:30:00	
J:\MS30\DATA\062320_SIM\0623F015.D\	CTMW-9-0620	K2004781-003	6/23/2020	17:56:00	
J:\MS30\DATA\062320_SIM\0623F016.D\	CTMW-8-0620	K2004781-004	6/23/2020	18:22:00	
J:\MS30\DATA\062320_SIM\0623F017.D\	CTMW-17-0620	K2004781-005	6/23/2020	18:47:00	
J:\MS30\DATA\062320_SIM\0623F018.D\	CTMW-17D-0620	K2004781-006	6/23/2020	19:13:00	
J:\MS30\DATA\062320_SIM\0623F019.D\	FieldBlank#1-0620	K2004781-007	6/23/2020	19:38:00	
J:\MS30\DATA\062320_SIM\0623F020.D\	CTMW-5-0620	K2004781-009	6/23/2020	20:04:00	
J:\MS30\DATA\062320_SIM\0623F021.D\	CTMW-12-0620	K2004781-010	6/23/2020	20:30:00	
J:\MS30\DATA\062320_SIM\0623F022.D\	CTMW-24-0620	K2004781-011	6/23/2020	20:55:00	
J:\MS30\DATA\062320_SIM\0623F023.D\	CTMW-24D-0620	K2004781-012	6/23/2020	21:21:00	
J:\MS30\DATA\062320_SIM\0623F024.D\	CTMW-7-0620	K2004781-013	6/23/2020	21:46:00	
J:\MS30\DATA\062320_SIM\0623F025.D\	CTMW-9-7-0620	K2004781-014	6/23/2020	22:12:00	
J:\MS30\DATA\062320_SIM\0623F026.D\	CTMW-18-0620	K2004781-015	6/23/2020	22:37:00	
J:\MS30\DATA\062320_SIM\0623F027.D\	CTMW-7-0620 MS	KQ2008921-01	6/23/2020	23:03:00	
J:\MS30\DATA\062320_SIM\0623F028.D\	CTMW-7-0620 DMS	KQ2008921-02	6/23/2020	23:28:00	
J:\MS30\DATA\062320_SIM\0623F029.D\	CTMW-18-0620 MS	KQ2008921-03	6/23/2020	23:54:00	
J:\MS30\DATA\062320_SIM\0623F030.D\	CTMW-18-0620 DMS	KQ2008921-04	6/24/2020	00:20:00	



1,4-Dioxane by GC/MS

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 10:57
Date Received: 06/10/20 09:40

Sample Name: CTMW-9-0620
Lab Code: K2004781-003

Units: ug/L
Basis: NA

1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	32	0.40	0.16	1	06/12/20 14:45	6/11/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	83	48 - 118	06/12/20 14:45	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 11:41
Date Received: 06/10/20 09:40

Sample Name: CTMW-8-0620
Lab Code: K2004781-004

Units: ug/L
Basis: NA

1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	ND U	0.40	0.16	1	06/12/20 15:04	6/11/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	92	48 - 118	06/12/20 15:04	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20 13:50
Date Received: 06/10/20 09:40

Sample Name: FieldBlank#1-0620
Lab Code: K2004781-007

Units: ug/L
Basis: NA

1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	ND U	0.40	0.16	1	06/12/20 15:23	6/11/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	97	48 - 118	06/12/20 15:23	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 09:08
Date Received: 06/11/20 09:20

Sample Name: CTMW-5-0620
Lab Code: K2004781-009

Units: ug/L
Basis: NA

1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	ND U	0.40	0.16	1	06/16/20 16:47	6/15/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	88	48 - 118	06/16/20 16:47	

ALS Group USA, Corp.
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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 10:34
Date Received: 06/11/20 09:20

Sample Name: CTMW-24-0620
Lab Code: K2004781-011

Units: ug/L
Basis: NA

1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	ND U	0.40	0.16	1	06/16/20 17:06	6/15/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	77	48 - 118	06/16/20 17:06	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 11:09
Date Received: 06/11/20 09:20

Sample Name: CTMW-24D-0620
Lab Code: K2004781-012

Units: ug/L
Basis: NA

1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	2.2	0.40	0.16	1	06/16/20 17:25	6/15/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	89	48 - 118	06/16/20 17:25	

ALS Group USA, Corp.
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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 11:52
Date Received: 06/11/20 09:20

Sample Name: CTMW-7-0620
Lab Code: K2004781-013

Units: ug/L
Basis: NA

1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	22	0.40	0.16	1	06/16/20 17:43	6/15/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	92	48 - 118	06/16/20 17:43	

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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 11:52
Date Received: 06/11/20 09:20

Sample Name: CTMW-9-7-0620
Lab Code: K2004781-014

Units: ug/L
Basis: NA

1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	21	0.40	0.16	1	06/16/20 18:02	6/15/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	87	48 - 118	06/16/20 18:02	

ALS Group USA, Corp.
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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20 12:55
Date Received: 06/11/20 09:20

Sample Name: CTMW-18-0620
Lab Code: K2004781-015

Units: ug/L
Basis: NA

1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	3.0	0.40	0.16	1	06/16/20 18:21	6/15/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	114	48 - 118	06/16/20 18:21	

ALS Group USA, Corp.
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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: KQ2007905-04

Units: ug/L
Basis: NA

1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	ND U	0.40	0.16	1	06/12/20 12:14	6/11/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	96	48 - 118	06/12/20 12:14	

ALS Group USA, Corp.
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Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: KQ2008023-06

Units: ug/L
Basis: NA

1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	ND U	0.40	0.16	1	06/16/20 14:53	6/15/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	81	48 - 118	06/16/20 14:53	

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781

SURROGATE RECOVERY SUMMARY
1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Extraction Method: EPA 3535A

Sample Name	Lab Code	1,4-Dioxane-d8
		48-118
CTMW-9-0620	K2004781-003	83
CTMW-8-0620	K2004781-004	92
FieldBlank#1-0620	K2004781-007	97
CTMW-5-0620	K2004781-009	88
CTMW-24-0620	K2004781-011	77
CTMW-24D-0620	K2004781-012	89
CTMW-7-0620	K2004781-013	92
CTMW-9-7-0620	K2004781-014	87
CTMW-18-0620	K2004781-015	114
Method Blank	KQ2007905-04	96
Method Blank	KQ2008023-06	81
Lab Control Sample	KQ2007905-03	97
Lab Control Sample	KQ2008023-05	83
FieldBlank#1-0620	KQ2007905-01	93
FieldBlank#1-0620	KQ2007905-02	91
CTMW-18-0620	KQ2008023-01	85
CTMW-18-0620	KQ2008023-02	89
CTMW-7-0620	KQ2008023-03	102
CTMW-7-0620	KQ2008023-04	88

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dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Date Analyzed: 06/12/20 11:55

Internal Standard Area and RT SUMMARY
1,4-Dioxane by GC/MS

File ID: J:\MS26\DATA\061220\0612F003.D\
Instrument ID: K-MS-26
Analysis Method: 8270D SIM

Lab Code: KQ2008021-02
Analysis Lot: 683613
Signal ID: 1

	1,4-Dichlorobenzene-d4	
	Area	RT
Result ==>	12,687	5.17
Upper Limit ==>	25,374	5.67
Lower Limit ==>	6,344	4.67

Associated Analyses

Method Blank	KQ2007905-04	14086	5.18
Lab Control Sample	KQ2007905-03	15166	5.18
FieldBlank#1-0620MS	KQ2007905-01	14326	5.18
FieldBlank#1-0620DMS	KQ2007905-02	13708	5.17
CTMW-9-0620	K2004781-003	13711	5.17
CTMW-8-0620	K2004781-004	14904	5.18
FieldBlank#1-0620	K2004781-007	14124	5.18

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Date Analyzed: 06/16/20 14:34

Internal Standard Area and RT SUMMARY
1,4-Dioxane by GC/MS

File ID: J:\MS26\DATA\061620\0616F012.D\
Instrument ID: K-MS-26
Analysis Method: 8270D SIM

Lab Code: KQ2008226-02
Analysis Lot: 684128
Signal ID: 1

	1,4-Dichlorobenzene-d4	
	Area	RT
Result ==>	14,065	5.20
Upper Limit ==>	28,130	5.70
Lower Limit ==>	7,033	4.70

Associated Analyses

Method Blank	KQ2008023-06	16612	5.20
Lab Control Sample	KQ2008023-05	17615	5.20
CTMW-7-0620MS	KQ2008023-03	15473	5.20
CTMW-7-0620DMS	KQ2008023-04	17229	5.20
CTMW-18-0620MS	KQ2008023-01	15807	5.20
CTMW-18-0620DMS	KQ2008023-02	16754	5.20
CTMW-5-0620	K2004781-009	16640	5.19
CTMW-24-0620	K2004781-011	16339	5.20
CTMW-24D-0620	K2004781-012	16657	5.20
CTMW-7-0620	K2004781-013	17667	5.20
CTMW-9-7-0620	K2004781-014	17846	5.20
CTMW-18-0620	K2004781-015	14274	5.20

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dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/09/20
Date Received: 06/10/20
Date Analyzed: 06/12/20
Date Extracted: 06/11/20

Duplicate Matrix Spike Summary
1,4-Dioxane by GC/MS

Sample Name: FieldBlank#1-0620
Lab Code: K2004781-007
Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Units: ug/L
Basis: NA

Analyte Name	Sample Result	Result	Matrix Spike KQ2007905-01		Duplicate Matrix Spike KQ2007905-02		% Rec Limits	RPD	RPD Limit	
			Spike Amount	% Rec	Result	Spike Amount				% Rec
1,4-Dioxane	ND U	9.10	10.0	91	9.00	10.0	90	33-127	1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20
Date Received: 06/11/20
Date Analyzed: 06/16/20
Date Extracted: 06/15/20

Duplicate Matrix Spike Summary
1,4-Dioxane by GC/MS

Sample Name: CTMW-18-0620
Lab Code: K2004781-015
Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Units: ug/L
Basis: NA

Analyte Name	Sample Result	Result	Matrix Spike KQ2008023-01		Duplicate Matrix Spike KQ2008023-02		% Rec Limits	RPD	RPD Limit	
			Spike Amount	% Rec	Result	Spike Amount				% Rec
1,4-Dioxane	3.0	11.3	10.0	83	10.9	10.0	79	33-127	3	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Collected: 06/10/20
Date Received: 06/11/20
Date Analyzed: 06/16/20
Date Extracted: 06/15/20

Duplicate Matrix Spike Summary
1,4-Dioxane by GC/MS

Sample Name: CTMW-7-0620
Lab Code: K2004781-013
Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Units: ug/L
Basis: NA

Analyte Name	Sample Result	Result	Matrix Spike KQ2008023-03		Duplicate Matrix Spike KQ2008023-04		% Rec Limits	RPD	RPD Limit	
			Spike Amount	% Rec	Result	Spike Amount				% Rec
1,4-Dioxane	22	32.9	10.0	107	29.2	10.0	69	33-127	12	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Analyzed: 06/12/20
Date Extracted: 06/11/20

Lab Control Sample Summary
1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Units: ug/L
Basis: NA
Analysis Lot: 683613

Lab Control Sample
KQ2007905-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,4-Dioxane	9.42	10.0	94	52-111

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Analyzed: 06/16/20
Date Extracted: 06/15/20

Lab Control Sample Summary
1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Units: ug/L
Basis: NA
Analysis Lot: 684128

Lab Control Sample
KQ2008023-05

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,4-Dioxane	8.97	10.0	90	52-111

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Analyzed: 06/12/20 12:14
Date Extracted: 06/11/20

Method Blank Summary
1,4-Dioxane by GC/MS

Sample Name: Method Blank
Lab Code: KQ2007905-04
Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Instrument ID: K-MS-26
File ID: J:\MS26\DATA\061220\0612F004.D\
Analysis Lot: 683613
Extraction Lot: 359939

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ2007905-03	J:\MS26\DATA\061220\0612F005.D\	06/12/20 12:33
FieldBlank#1-0620MS	KQ2007905-01	J:\MS26\DATA\061220\0612F006.D\	06/12/20 12:52
FieldBlank#1-0620DMS	KQ2007905-02	J:\MS26\DATA\061220\0612F007.D\	06/12/20 13:11
CTMW-9-0620	K2004781-003	J:\MS26\DATA\061220\0612F012.D\	06/12/20 14:45
CTMW-8-0620	K2004781-004	J:\MS26\DATA\061220\0612F013.D\	06/12/20 15:04
FieldBlank#1-0620	K2004781-007	J:\MS26\DATA\061220\0612F014.D\	06/12/20 15:23

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Analyzed: 06/16/20 14:53
Date Extracted: 06/15/20

Method Blank Summary
1,4-Dioxane by GC/MS

Sample Name: Method Blank
Lab Code: KQ2008023-06
Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Instrument ID: K-MS-26
File ID: J:\MS26\DATA\061620\0616F013.D\
Analysis Lot: 684128
Extraction Lot: 360068

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ2008023-05	J:\MS26\DATA\061620\0616F014.D\	06/16/20 15:12
CTMW-7-0620MS	KQ2008023-03	J:\MS26\DATA\061620\0616F015.D\	06/16/20 15:31
CTMW-7-0620DMS	KQ2008023-04	J:\MS26\DATA\061620\0616F016.D\	06/16/20 15:50
CTMW-18-0620MS	KQ2008023-01	J:\MS26\DATA\061620\0616F017.D\	06/16/20 16:09
CTMW-18-0620DMS	KQ2008023-02	J:\MS26\DATA\061620\0616F018.D\	06/16/20 16:28
CTMW-5-0620	K2004781-009	J:\MS26\DATA\061620\0616F019.D\	06/16/20 16:47
CTMW-24-0620	K2004781-011	J:\MS26\DATA\061620\0616F020.D\	06/16/20 17:06
CTMW-24D-0620	K2004781-012	J:\MS26\DATA\061620\0616F021.D\	06/16/20 17:25
CTMW-7-0620	K2004781-013	J:\MS26\DATA\061620\0616F022.D\	06/16/20 17:43
CTMW-9-7-0620	K2004781-014	J:\MS26\DATA\061620\0616F023.D\	06/16/20 18:02
CTMW-18-0620	K2004781-015	J:\MS26\DATA\061620\0616F024.D\	06/16/20 18:21

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Analyzed: 06/12/20 12:33
Date Extracted: 06/11/20

Lab Control Sample Summary
1,4-Dioxane by GC/MS

Sample Name: Lab Control Sample **Instrument ID:** K-MS-26
Lab Code: KQ2007905-03 **File ID:** J:\MS26\DATA\061220\0612F005.D\
Analysis Method: 8270D SIM **Analysis Lot:** 683613
Prep Method: EPA 3535A **Extraction Lot:** 359939

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ2007905-04	J:\MS26\DATA\061220\0612F004.D\	06/12/20 12:14
FieldBlank#1-0620MS	KQ2007905-01	J:\MS26\DATA\061220\0612F006.D\	06/12/20 12:52
FieldBlank#1-0620DMS	KQ2007905-02	J:\MS26\DATA\061220\0612F007.D\	06/12/20 13:11
CTMW-9-0620	K2004781-003	J:\MS26\DATA\061220\0612F012.D\	06/12/20 14:45
CTMW-8-0620	K2004781-004	J:\MS26\DATA\061220\0612F013.D\	06/12/20 15:04
FieldBlank#1-0620	K2004781-007	J:\MS26\DATA\061220\0612F014.D\	06/12/20 15:23

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781
Date Analyzed: 06/16/20 15:12
Date Extracted: 06/15/20

Lab Control Sample Summary
1,4-Dioxane by GC/MS

Sample Name: Lab Control Sample **Instrument ID:** K-MS-26
Lab Code: KQ2008023-05 **File ID:** J:\MS26\DATA\061620\0616F014.D\
Analysis Method: 8270D SIM **Analysis Lot:** 684128
Prep Method: EPA 3535A **Extraction Lot:** 360068

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ2008023-06	J:\MS26\DATA\061620\0616F013.D\	06/16/20 14:53
CTMW-7-0620MS	KQ2008023-03	J:\MS26\DATA\061620\0616F015.D\	06/16/20 15:31
CTMW-7-0620DMS	KQ2008023-04	J:\MS26\DATA\061620\0616F016.D\	06/16/20 15:50
CTMW-18-0620MS	KQ2008023-01	J:\MS26\DATA\061620\0616F017.D\	06/16/20 16:09
CTMW-18-0620DMS	KQ2008023-02	J:\MS26\DATA\061620\0616F018.D\	06/16/20 16:28
CTMW-5-0620	K2004781-009	J:\MS26\DATA\061620\0616F019.D\	06/16/20 16:47
CTMW-24-0620	K2004781-011	J:\MS26\DATA\061620\0616F020.D\	06/16/20 17:06
CTMW-24D-0620	K2004781-012	J:\MS26\DATA\061620\0616F021.D\	06/16/20 17:25
CTMW-7-0620	K2004781-013	J:\MS26\DATA\061620\0616F022.D\	06/16/20 17:43
CTMW-9-7-0620	K2004781-014	J:\MS26\DATA\061620\0616F023.D\	06/16/20 18:02
CTMW-18-0620	K2004781-015	J:\MS26\DATA\061620\0616F024.D\	06/16/20 18:21

ALS Group USA, Corp.
dba ALS Environmental

QC/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Date Analyzed: 06/12/20 11:36

Tune Summary
1,4-Dioxane by GC/MS

File ID: J:\MS26\DATA\061220\0612F002.D\
Instrument ID: K-MS-26

Analytical Method: 8270D SIM
Analysis Lot: 683613

Target Mass	Relative to Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	10	80	14.20	119253	Pass
68	69	0	2	1.44	2269	Pass
69	198	0	100	18.73	157254	Pass
70	69	0	2	0.58	916	Pass
127	198	10	80	37.13	311786	Pass
197	198	0	2	0.00	0	Pass
198	442	30	100	68.58	839701	Pass
199	198	5	9	6.72	56461	Pass
275	198	10	60	30.39	255168	Pass
365	442	1	50	2.50	30570	Pass
441	443	0.01	100	76.42	185341	Pass
442	442	100	100	100.00	1224405	Pass
443	442	15	24	19.81	242536	Pass

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ2008021-02	J:\MS26\DATA\061220\0612F003.D\	06/12/20 11:55	
Method Blank	KQ2007905-04	J:\MS26\DATA\061220\0612F004.D\	06/12/20 12:14	
Lab Control Sample	KQ2007905-03	J:\MS26\DATA\061220\0612F005.D\	06/12/20 12:33	
FieldBlank#1-0620	KQ2007905-01	J:\MS26\DATA\061220\0612F006.D\	06/12/20 12:52	
FieldBlank#1-0620	KQ2007905-02	J:\MS26\DATA\061220\0612F007.D\	06/12/20 13:11	
CTMW-9-0620	K2004781-003	J:\MS26\DATA\061220\0612F012.D\	06/12/20 14:45	
CTMW-8-0620	K2004781-004	J:\MS26\DATA\061220\0612F013.D\	06/12/20 15:04	
FieldBlank#1-0620	K2004781-007	J:\MS26\DATA\061220\0612F014.D\	06/12/20 15:23	

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QC/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Date Analyzed: 06/16/20 14:16

Tune Summary
1,4-Dioxane by GC/MS

File ID: J:\MS26\DATA\061620\0616F011.D\
Instrument ID: K-MS-26

Analytical Method: 8270D SIM
Analysis Lot: 684128

Target Mass	Relative to Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	10	80	14.98	144054	Pass
68	69	0	2	1.33	2529	Pass
69	198	0	100	19.75	189883	Pass
70	69	0	2	0.53	998	Pass
127	198	10	80	37.56	361130	Pass
197	198	0	2	0.00	0	Pass
198	442	30	100	69.39	961386	Pass
199	198	5	9	6.73	64709	Pass
275	198	10	60	29.24	281152	Pass
365	442	1	50	2.40	33189	Pass
441	443	0.01	100	76.13	213226	Pass
442	442	100	100	100.00	1385429	Pass
443	442	15	24	20.22	280093	Pass

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ2008226-02	J:\MS26\DATA\061620\0616F012.D\	06/16/20 14:34	
Method Blank	KQ2008023-06	J:\MS26\DATA\061620\0616F013.D\	06/16/20 14:53	
Lab Control Sample	KQ2008023-05	J:\MS26\DATA\061620\0616F014.D\	06/16/20 15:12	
CTMW-7-0620	KQ2008023-03	J:\MS26\DATA\061620\0616F015.D\	06/16/20 15:31	
CTMW-7-0620	KQ2008023-04	J:\MS26\DATA\061620\0616F016.D\	06/16/20 15:50	
CTMW-18-0620	KQ2008023-01	J:\MS26\DATA\061620\0616F017.D\	06/16/20 16:09	
CTMW-18-0620	KQ2008023-02	J:\MS26\DATA\061620\0616F018.D\	06/16/20 16:28	
CTMW-5-0620	K2004781-009	J:\MS26\DATA\061620\0616F019.D\	06/16/20 16:47	
CTMW-24-0620	K2004781-011	J:\MS26\DATA\061620\0616F020.D\	06/16/20 17:06	
CTMW-24D-0620	K2004781-012	J:\MS26\DATA\061620\0616F021.D\	06/16/20 17:25	
CTMW-7-0620	K2004781-013	J:\MS26\DATA\061620\0616F022.D\	06/16/20 17:43	
CTMW-9-7-0620	K2004781-014	J:\MS26\DATA\061620\0616F023.D\	06/16/20 18:02	
CTMW-18-0620	K2004781-015	J:\MS26\DATA\061620\0616F024.D\	06/16/20 18:21	

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 6/25/2019

Initial Calibration Summary
1,4-Dioxane by GC/MS

Calibration ID: KC1900245
Instrument ID: K-MS-26

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1900245-01	1,4 DX ICAL 2.0ng/mL SVM61-35	J:\MS26\DATA\062519\0625F016.D	06/25/2019 16:55
02	KC1900245-02	1,4 DX ICAL 4.0ng/mL SVM61-35B	J:\MS26\DATA\062519\0625F017.D	06/25/2019 17:14
03	KC1900245-03	1,4 DX ICAL 10ng/mL SVM61-35C	J:\MS26\DATA\062519\0625F018.D	06/25/2019 17:32
04	KC1900245-04	1,4 DX ICAL 20ng/mL SVM61-35D	J:\MS26\DATA\062519\0625F019.D	06/25/2019 17:51
05	KC1900245-05	1,4 DX ICAL 50ng/mL SVM61-35E	J:\MS26\DATA\062519\0625F020.D	06/25/2019 18:10
06	KC1900245-06	1,4 DX ICAL 100ng/mL SVM61-35F	J:\MS26\DATA\062519\0625F021.D	06/25/2019 18:28
07	KC1900245-07	1,4 DX ICAL 200ng/mL SVM61-35G	J:\MS26\DATA\062519\0625F022.D	06/25/2019 18:47

Analyte

1,4-Dioxane											
#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	2.000	0.4906	02	4.000	0.417	03	10.000	0.406	04	20.000	0.4149
05	50.000	0.4036	06	100.000	0.4163	07	200.000	0.397			

1,4-Dioxane-d8											
#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	2.000	0.426	02	4.000	0.4094	03	10.000	0.4013	04	20.000	0.4024
05	50.000	0.403	06	100.000	0.4065	07	200.000	0.3863			

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 6/25/2019

Initial Calibration Summary
1,4-Dioxane by GC/MS

Calibration ID: KC1900245
Instrument ID: K-MS-26

Signal ID: 1

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
1,4-Dioxane	TRG	Average RF	% RSD	7.5	20	0.4208	0.01
1,4-Dioxane-d8	SURR	Average RF	% RSD	2.9	20	0.405	0.01

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 6/16/2020

Initial Calibration Summary
1,4-Dioxane by GC/MS

Calibration ID: KC2000298
Instrument ID: K-MS-26

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC2000298-01	1,4 Dx ICAL 2.0ppb SVM64-7A	J:\MS26\DATA\061620\0616F003.D	06/16/2020 11:42
02	KC2000298-02	1,4 Dx ICAL 4.0ppb SVM64-7B	J:\MS26\DATA\061620\0616F004.D	06/16/2020 12:01
03	KC2000298-03	1,4 Dx ICAL 10ppb SVM64-7C	J:\MS26\DATA\061620\0616F005.D	06/16/2020 12:22
04	KC2000298-04	1,4 Dx ICAL 20ppb SVM64-7D	J:\MS26\DATA\061620\0616F006.D	06/16/2020 12:41
05	KC2000298-05	1,4 Dx ICAL 50ppb SVM64-7E	J:\MS26\DATA\061620\0616F007.D	06/16/2020 13:00
06	KC2000298-06	1,4 Dx ICAL 100ppb SVM64-7F	J:\MS26\DATA\061620\0616F008.D	06/16/2020 13:19
07	KC2000298-07	1,4 Dx ICAL 200ppb SVM64-7G	J:\MS26\DATA\061620\0616F009.D	06/16/2020 13:38

Analyte

1,4-Dioxane											
#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	2.000	0.4923	02	4.000	0.4313	03	10.000	0.4302	04	20.000	0.4303
05	50.000	0.4463	06	100.000	0.4182	07	200.000	0.4426			

1,4-Dioxane-d8											
#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	2.000	0.4451	02	4.000	0.4052	03	10.000	0.4562	04	20.000	0.424
05	50.000	0.4353	06	100.000	0.414	07	200.000	0.4272			

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 6/16/2020

Initial Calibration Summary
1,4-Dioxane by GC/MS

Calibration ID: KC2000298
Instrument ID: K-MS-26

Signal ID: 1

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
1,4-Dioxane	TRG	Average RF	% RSD	5.5	20	0.4416	0.01
1,4-Dioxane-d8	SURR	Average RF	% RSD	4.1	20	0.4296	0.01

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 6/25/2019

Initial Calibration Verification Summary
1,4-Dioxane by GC/MS

Calibration ID: KC1900245
Instrument ID: K-MS-26

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
08	KC1900245-08	1,4 DX ICV 20ng/mL SVM61-35H	J:\MS26\DATA\062519\0625F023.D	06/25/2019 19:06

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
1,4-Dioxane	20.0	19.6	4.208E-1	4.127E-1	-1.907	±30	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
1,4-Dioxane-d8	20.0	20.1	4.05E-1	4.071E-1	0.529	±30	Average RF

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20

Service Request: K2004781
Calibration Date: 6/16/2020

Initial Calibration Verification Summary
1,4-Dioxane by GC/MS

Calibration ID: KC2000298
Instrument ID: K-MS-26

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
08	KC2000298-08	1,4 Dx ICV 20ppb SVM64-7H	J:\MS26\DATA\061620\0616F010.D	06/16/2020 13:56

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
1,4-Dioxane	20.0	21.1	4.416E-1	4.664E-1	5.62	±30	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
1,4-Dioxane-d8	20.0	20.4	4.296E-1	4.391E-1	2.22	±30	Average RF

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Date Analyzed: 06/12/20 11:55

Continuing Calibration Verification (CCV) Summary
1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
File ID: J:\MS26\DATA\061220\0612F003.D\
Signal ID: 1

Calibration Date: 6/25/2019
Calibration ID: KC1900245
Analysis Lot: 683613
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,4-Dioxane	20.0	20.4	0.4208	0.4282	1.8	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,4-Dioxane-d8	20.0	20.9	0.405	0.4229	4.4	NA	±20	Average RF

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781
Date Analyzed: 06/16/20 14:34

Continuing Calibration Verification (CCV) Summary
1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
File ID: J:\MS26\DATA\061620\0616F012.D\
Signal ID: 1

Calibration Date: 6/16/2020
Calibration ID: KC2000298
Analysis Lot: 684128
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,4-Dioxane	20.0	20.5	0.4416	0.452	2.4	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,4-Dioxane-d8	20.0	21.5	0.4296	0.4607	7.2	NA	±20	Average RF

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2004781

Analysis Run Log
1,4-Dioxane by GC/MS

Analysis Method:

Analysis Lot: 683613
Instrument ID: K-MS-26

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS26\DATA\061220\0612F002.D\	ZZZZZZZ	ZZZZZZZ	6/12/2020	11:36:00	
J:\MS26\DATA\061220\0612F003.D\	Continuing Calibration Verification	KQ2008021-02	6/12/2020	11:55:00	
J:\MS26\DATA\061220\0612F004.D\	Method Blank	KQ2007905-04	6/12/2020	12:14:00	
J:\MS26\DATA\061220\0612F005.D\	Lab Control Sample	KQ2007905-03	6/12/2020	12:33:00	
J:\MS26\DATA\061220\0612F006.D\	FieldBlank#1-0620 MS	KQ2007905-01	6/12/2020	12:52:00	
J:\MS26\DATA\061220\0612F007.D\	FieldBlank#1-0620 DMS	KQ2007905-02	6/12/2020	13:11:00	
J:\MS26\DATA\061220\0612F008.D\	ZZZZZZZ	ZZZZZZZ	6/12/2020	13:30:00	
J:\MS26\DATA\061220\0612F009.D\	ZZZZZZZ	ZZZZZZZ	6/12/2020	13:48:00	
J:\MS26\DATA\061220\0612F010.D\	ZZZZZZZ	ZZZZZZZ	6/12/2020	14:07:00	
J:\MS26\DATA\061220\0612F011.D\	ZZZZZZZ	ZZZZZZZ	6/12/2020	14:26:00	
J:\MS26\DATA\061220\0612F012.D\	CTMW-9-0620	K2004781-003	6/12/2020	14:45:00	
J:\MS26\DATA\061220\0612F013.D\	CTMW-8-0620	K2004781-004	6/12/2020	15:04:00	
J:\MS26\DATA\061220\0612F014.D\	FieldBlank#1-0620	K2004781-007	6/12/2020	15:23:00	

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request:K2004781

Analysis Run Log
1,4-Dioxane by GC/MS

Analysis Method:

Analysis Lot:684128
Instrument ID:K-MS-26

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS26\DATA\061620\0616F011.D\	ZZZZZZZ	ZZZZZZZ	6/16/2020	14:16:00	
J:\MS26\DATA\061620\0616F012.D\	Continuing Calibration Verification	KQ2008226-02	6/16/2020	14:34:00	
J:\MS26\DATA\061620\0616F013.D\	Method Blank	KQ2008023-06	6/16/2020	14:53:00	
J:\MS26\DATA\061620\0616F014.D\	Lab Control Sample	KQ2008023-05	6/16/2020	15:12:00	
J:\MS26\DATA\061620\0616F015.D\	CTMW-7-0620 MS	KQ2008023-03	6/16/2020	15:31:00	
J:\MS26\DATA\061620\0616F016.D\	CTMW-7-0620 DMS	KQ2008023-04	6/16/2020	15:50:00	
J:\MS26\DATA\061620\0616F017.D\	CTMW-18-0620 MS	KQ2008023-01	6/16/2020	16:09:00	
J:\MS26\DATA\061620\0616F018.D\	CTMW-18-0620 DMS	KQ2008023-02	6/16/2020	16:28:00	
J:\MS26\DATA\061620\0616F019.D\	CTMW-5-0620	K2004781-009	6/16/2020	16:47:00	
J:\MS26\DATA\061620\0616F020.D\	CTMW-24-0620	K2004781-011	6/16/2020	17:06:00	
J:\MS26\DATA\061620\0616F021.D\	CTMW-24D-0620	K2004781-012	6/16/2020	17:25:00	
J:\MS26\DATA\061620\0616F022.D\	CTMW-7-0620	K2004781-013	6/16/2020	17:43:00	
J:\MS26\DATA\061620\0616F023.D\	CTMW-9-7-0620	K2004781-014	6/16/2020	18:02:00	
J:\MS26\DATA\061620\0616F024.D\	CTMW-18-0620	K2004781-015	6/16/2020	18:21:00	
J:\MS26\DATA\061620\0616F025.D\	ZZZZZZZ	ZZZZZZZ	6/16/2020	18:40:00	
J:\MS26\DATA\061620\0616F026.D\	ZZZZZZZ	ZZZZZZZ	6/16/2020	18:59:00	
J:\MS26\DATA\061620\0616F027.D\	ZZZZZZZ	ZZZZZZZ	6/16/2020	19:18:00	
J:\MS26\DATA\061620\0616F028.D\	ZZZZZZZ	ZZZZZZZ	6/16/2020	19:37:00	
J:\MS26\DATA\061620\0616F029.D\	ZZZZZZZ	ZZZZZZZ	6/16/2020	19:56:00	
J:\MS26\DATA\061620\0616F030.D\	ZZZZZZZ	ZZZZZZZ	6/16/2020	20:15:00	
J:\MS26\DATA\061620\0616F031.D\	ZZZZZZZ	ZZZZZZZ	6/16/2020	20:33:00	

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Prep Summary Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781

1,4-Dioxane by GC/MS

Prep Method: EPA 3535A
Analytical Method: 8270D SIM

Extraction Lot: 359939
Extraction Date: 06/11/20 11:55

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
CTMW-9-0620	K2004781-003	6/9/20	6/10/20	10 mL	2 mL	
CTMW-8-0620	K2004781-004	6/9/20	6/10/20	10 mL	2 mL	
FieldBlank#1-0620	K2004781-007	6/9/20	6/10/20	10 mL	2 mL	
Matrix Spike	KQ2007905-01MS	6/9/20	6/10/20	10 mL	2 mL	
Duplicate Matrix Spike	KQ2007905-02DMS	6/9/20	6/10/20	10 mL	2 mL	
Lab Control Sample	KQ2007905-03LCS	NA	NA	10 mL	2 mL	
Method Blank	KQ2007905-04MB	NA	NA	10 mL	2 mL	

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Prep Summary Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2004781

1,4-Dioxane by GC/MS

Prep Method: EPA 3535A
Analytical Method: 8270D SIM

Extraction Lot: 360068
Extraction Date: 06/15/20 10:55

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
CTMW-5-0620	K2004781-009	6/10/20	6/11/20	10 mL	2 mL	
CTMW-24-0620	K2004781-011	6/10/20	6/11/20	10 mL	2 mL	
CTMW-24D-0620	K2004781-012	6/10/20	6/11/20	10 mL	2 mL	
CTMW-7-0620	K2004781-013	6/10/20	6/11/20	10 mL	2 mL	
CTMW-9-7-0620	K2004781-014	6/10/20	6/11/20	10 mL	2 mL	
CTMW-18-0620	K2004781-015	6/10/20	6/11/20	10 mL	2 mL	
Matrix Spike	KQ2008023-01MS	6/10/20	6/11/20	10 mL	2 mL	
Duplicate Matrix Spike	KQ2008023-02DMS	6/10/20	6/11/20	10 mL	2 mL	
Matrix Spike	KQ2008023-03MS	6/10/20	6/11/20	10 mL	2 mL	
Duplicate Matrix Spike	KQ2008023-04DMS	6/10/20	6/11/20	10 mL	2 mL	
Lab Control Sample	KQ2008023-05LCS	NA	NA	10 mL	2 mL	
Method Blank	KQ2008023-06MB	NA	NA	10 mL	2 mL	



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July 13, 2020

Analytical Report for Service Request No: K2005612

Greg Fink
Stericycle Environmental Solutions
2337 North Penn Rd.
Hatfield, PA 19440

RE: Tacoma 2Q20 / 376.01

Dear Greg,

Enclosed are the results of the sample(s) submitted to our laboratory June 11, 2020
For your reference, these analyses have been assigned our service request number **K2005612**.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Mark Harris
Project Manager



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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.
- H The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- J The result is an estimated value.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
 - i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.
- Q See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimated value.
- J The result is an estimated value.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

**ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses**

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjllabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/analyte is offered by that state.



Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com



Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20
Sample Matrix: Water

Service Request: K2005612
Date Received: 06/11/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

Sample Receipt:

Two water samples were received for analysis at ALS Environmental on 06/11/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Metals:

No significant anomalies were noted with this analysis.

Approved by Noel D. O'Neil

Date 07/13/2020



Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
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CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

1317 South 13th Ave. • Kelso, WA 98626 • +1 360 577 7222 • +1 800 695 7222 • FAX +1 360 636 1068 DATE 6-10-20 PAGE 1 OF 2

PROJECT NAME <u>Tacoma 2020</u> # <u>376-01</u> PROJECT MANAGER <u>Greg Fink</u> COMPANY NAME <u>Storicycle Environmental Solutions</u> ADDRESS <u>1701 E. Alexander Ave</u> <u>Tacoma WA 98421</u> PHONE <u>(215) 768 6470</u> SAMPLERS SIGNATURE <u>[Signature]</u>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">NUMBER OF CONTAINERS</th> <th colspan="13" style="text-align: center;">ANALYSIS REQUESTED</th> <th rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">REMARKS</th> </tr> <tr> <th>VOC by 8260B</th> <th>VOC by 8260B w/lim</th> <th>2-CVE</th> <th>TPH-Gasoline by NWTPH-DX</th> <th>TPH-Diesel by 8270C w/lim</th> <th>TPH-Diesel by NWTPH-DX</th> <th>Total Metals by 602C</th> <th>Mercury by 7470A</th> <th>Reductive Precipitation</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">8</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">-</td> <td></td> </tr> <tr> <td style="text-align: center;">13</td> <td>3</td> <td>3</td> <td>3</td> <td>1</td> <td>2</td> <td>1</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">9.95</td> <td></td> </tr> <tr> <td style="text-align: center;">12</td> <td>3</td> <td>3</td> <td>3</td> <td></td> <td>2</td> <td>1</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">26.0</td> <td></td> </tr> <tr> <td style="text-align: center;">13</td> <td>3</td> <td>3</td> <td>3</td> <td>1</td> <td>2</td> <td>1</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">10.5</td> <td></td> </tr> <tr> <td style="text-align: center;">13</td> <td>3</td> <td>3</td> <td>3</td> <td>1</td> <td>2</td> <td>1</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">24.9</td> <td></td> </tr> <tr> <td style="text-align: center;">40</td> <td>9</td> <td>9</td> <td>9</td> <td>3</td> <td>6</td> <td>3</td> <td>X</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">25.0</td> <td>Extra Volume for MS, MSD</td> </tr> <tr> <td style="text-align: center;">14</td> <td>3</td> <td>3</td> <td>3</td> <td>1</td> <td>2</td> <td>1</td> <td>X</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">25.0</td> <td></td> </tr> <tr> <td style="text-align: center;">22</td> <td>3</td> <td>3</td> <td>3</td> <td>9</td> <td>1</td> <td>2</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">12.4</td> <td>Extra Volume for MS, MSD</td> </tr> <tr> <td style="text-align: center;">3</td> <td></td> <td></td> <td></td> <td>3</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">12.4</td> <td></td> </tr> </tbody> </table>	NUMBER OF CONTAINERS	ANALYSIS REQUESTED													REMARKS	VOC by 8260B	VOC by 8260B w/lim	2-CVE	TPH-Gasoline by NWTPH-DX	TPH-Diesel by 8270C w/lim	TPH-Diesel by NWTPH-DX	Total Metals by 602C	Mercury by 7470A	Reductive Precipitation								8	2	2	2	2												-		13	3	3	3	1	2	1	X									9.95		12	3	3	3		2	1	X									26.0		13	3	3	3	1	2	1	X									10.5		13	3	3	3	1	2	1	X									24.9		40	9	9	9	3	6	3	X	1								25.0	Extra Volume for MS, MSD	14	3	3	3	1	2	1	X	1								25.0		22	3	3	3	9	1	2	X									12.4	Extra Volume for MS, MSD	3				3												12.4	
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SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	ANALYSIS REQUESTED													REMARKS																	
Trip Blank #2-0620	6-10-20	0815	8	H2O	8	2	2	2	2																									-	
CTMW-5-0620		0908	9		13	3	3	3		1	2	1	X																					9.95	
CTMW-12-0620		0947	10		12	3	3	3			2	1	X																					26.0	
CTMW-24-0620		1034	11		13	3	3	3		1	2	1	X																					10.5	
CTMW-24D-0620		1109	12		13	3	3	3		1	2	1	X																					24.9	
CTMW-7-0620		1152	13		40	9	9	9		3	6	3	X	1																				25.0	Extra Volume for MS, MSD
CTMW-9-7-0620		1152	14		14	3	3	3		1	2	1	X	1																				25.0	
CTMW-18-0620		1255	19		22	3	3	3	9	1	2	1	X																					12.4	Extra Volume for MS, MSD
CTMW-9-18-0620	V	1255	10	V	3				3																									12.4	

REPORT REQUIREMENTS <input type="checkbox"/> I. Routine Report: Method Blank, Surrogate, as required <input type="checkbox"/> II. Report Dup., MS, MSD as required <input type="checkbox"/> III. CLP Like Summary (no raw data) <input checked="" type="checkbox"/> IV. Data Validation Report <input type="checkbox"/> V. EDD	INVOICE INFORMATION P.O. # <u>376-01</u> Bill To: <u>Storicycle</u> <u>Greg Fink</u>	Circle which metals are to be analyzed: Total Metals: Al <input checked="" type="checkbox"/> As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg *INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: _____ (CIRCLE ONE) SPECIAL INSTRUCTIONS/COMMENTS: <u>See pg. 2 for Lab Instructions</u> <u>custody section coolers</u> <u>Shipped via Fed Ex.</u> <u>*Note - This is the end of Tacoma 2020 GW Sampling.</u> <input type="checkbox"/> Sample Shipment contains USDA regulated soil samples (check box if applicable)
TURNAROUND REQUIREMENTS <input type="checkbox"/> 24 hr. <input type="checkbox"/> 48 hr. <input type="checkbox"/> 5 day <input checked="" type="checkbox"/> Standard (10-15 working days) <input type="checkbox"/> Provide Verbal Preliminary Results <input type="checkbox"/> Provide FAX preliminary Results Requested Report Date: _____		

RELINQUISHED BY: <u>[Signature]</u> <u>6-10-20/1500</u> Signature Date/Time Printed Name Firm	RECEIVED BY: <u>[Signature]</u> <u>6/10/20 0920</u> Signature Date/Time Printed Name Firm	RELINQUISHED BY: _____ Signature Date/Time Printed Name Firm	RECEIVED BY: _____ Signature Date/Time Printed Name Firm
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K2005612

Lab Instructions for
Stericycle Tacoma Facility
2nd Quarter 2020
Groundwater Monitoring Event

1. Analyze by Methods:

VOC by 8260B
VOC by 8260B w/SIM
2-Chloroethyl Vinyl Ether
1,4-Dioxane by 8270C w/SIM
TPH-Diesel by NWTPH-Dx with acid silica-gel cleanup
TPH-Gasoline by NWTPH-Gx
Total Metals by 6020 (including mercury by 7470A)
Reductive Precipitation

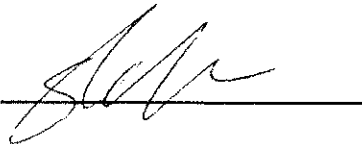
2. Total metals include:

Arsenic
Cadmium
Chromium
Copper
Nickel
Zinc
Lead
Mercury by 7470A

3. Dissolved Metals (including Dissolved Mercury)

Total metals samples with a turbidity > 5 NTU will be accompanied by field filtered samples and will be labeled as (Dissolved Metals/ Dissolved Mercury).

RELINQUISHED BY:



DATE: 6/10/20

TIME: 1500

Page 2 of 2



6/11/20 0920



Cooler Receipt and Preservation Form

PC mta
K20 0478/4/17

Client Genicycle Service Request K20
Received: 6/11/20 Opened: 6/11/20 By: BR Unloaded: 6/11/20 By: BR

- 1. Samples were received via? USPS Fed Ex UPS DHL PDX Courier Hand Delivered
- 2. Samples were received in: (circle) Cooler Box Envelope Other _____
- 3. Were custody seals on coolers? NA Y N If yes, how many and where? Front
- If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Temp Blank	Sample 1	Sample 2	Sample 3	Sample 4	IR GUN	Cooler / COC ID NA	Tracking Number NA	Filed
5.8	-	-	-	-	1201	12	393735361720	
5.4	-	-	-	-	↓	212	39373536173	

- 4. Packing material: Inserts Baggies Bubble Wrap Gel Packs Wet Ice Dry Ice Sleeves
- 5. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
- 6. Were samples received in good condition (temperature, unbroken)? Indicate in the table below. NA Y N
If applicable, tissue samples were received: Frozen Partially Thawed Thawed
- 7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
- 8. Did all sample labels and tags agree with custody papers? Indicate major discrepancies in the table on page 2. NA Y N
- 9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
- 10. Were the pH-preserved bottles (see SMO GEN SOP) received at the appropriate pH? Indicate in the table below NA Y N
- 11. Were VOA vials received without headspace? Indicate in the table below. NA Y N
- 12. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time
CTMW-9-1-06202 of 9 vial				x						
CTMW-7-06202 of 27 vial				x						
1hp blank 8 of 8 vial			x							

Notes, Discrepancies, & Resolutions:



Metals

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water
Sample Name: CTMW-7-0620
Lab Code: K2005612-001

Service Request: K2005612
Date Collected: 06/10/20 11:52
Date Received: 06/11/20 09:20
Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	0.00037 J	mg/L	0.00050	0.00009	1	07/09/20 13:16	07/08/20	
Cadmium	6020A	0.000012 J	mg/L	0.000020	0.000008	1	07/09/20 13:16	07/08/20	
Chromium	6020A	0.00408	mg/L	0.00020	0.00003	1	07/09/20 13:16	07/08/20	
Copper	6020A	0.00007 J	mg/L	0.00010	0.00005	1	07/09/20 13:16	07/08/20	
Lead	6020A	0.000036	mg/L	0.000020	0.000006	1	07/09/20 13:16	07/08/20	
Nickel	6020A	0.00242	mg/L	0.00020	0.00004	1	07/09/20 13:16	07/08/20	
Zinc	6020A	0.0019 J	mg/L	0.0020	0.0005	1	07/09/20 13:16	07/08/20	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water
Sample Name: CTMW-9-7-0620
Lab Code: K2005612-002

Service Request: K2005612
Date Collected: 06/10/20 11:52
Date Received: 06/11/20 09:20

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	0.00038 J	mg/L	0.00050	0.00009	1	07/09/20 14:05	07/08/20	
Cadmium	6020A	0.000010 J	mg/L	0.000020	0.000008	1	07/09/20 14:05	07/08/20	
Chromium	6020A	0.00438	mg/L	0.00020	0.00003	1	07/09/20 14:05	07/08/20	
Copper	6020A	0.00010	mg/L	0.00010	0.00005	1	07/09/20 14:05	07/08/20	
Lead	6020A	0.000024	mg/L	0.000020	0.000006	1	07/09/20 14:05	07/08/20	
Nickel	6020A	0.00248	mg/L	0.00020	0.00004	1	07/09/20 14:05	07/08/20	
Zinc	6020A	0.0021	mg/L	0.0020	0.0005	1	07/09/20 14:05	07/08/20	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: KQ2009057-01

Service Request: K2005612
Date Collected: NA
Date Received: NA
Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	ND U	mg/L	0.00050	0.00009	1	07/09/20 13:03	07/08/20	
Cadmium	6020A	ND U	mg/L	0.000020	0.000008	1	07/09/20 13:03	07/08/20	
Chromium	6020A	ND U	mg/L	0.00020	0.00003	1	07/09/20 13:03	07/08/20	
Copper	6020A	ND U	mg/L	0.00010	0.00005	1	07/09/20 13:03	07/08/20	
Lead	6020A	ND U	mg/L	0.000020	0.000006	1	07/09/20 13:03	07/08/20	
Nickel	6020A	ND U	mg/L	0.00020	0.00004	1	07/09/20 13:03	07/08/20	
Zinc	6020A	ND U	mg/L	0.0020	0.0005	1	07/09/20 13:03	07/08/20	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2005612
Date Collected: 06/10/20
Date Received: 06/11/20
Date Analyzed: 07/09/20

Replicate Sample Summary

Total Metals

Sample Name: CTMW-7-0620
Lab Code: K2005612-001

Units: mg/L
Basis: NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample	Average	RPD	RPD Limit
					KQ2009057-05 Result			
Arsenic	6020A	0.00050	0.00009	0.00037 J	0.00038 J	0.00038	3	20
Cadmium	6020A	0.000020	0.000008	0.000012 J	ND U	NC	NC	20
Chromium	6020A	0.00020	0.00003	0.00408	0.00414	0.00411	1	20
Copper	6020A	0.00010	0.00005	0.00007 J	0.00008 J	0.00008	13	20
Lead	6020A	0.000020	0.000006	0.000036	0.000019 J	0.000028	62 #	20
Nickel	6020A	0.00020	0.00004	0.00242	0.00250	0.00246	3	20
Zinc	6020A	0.0020	0.0005	0.0019 J	0.0016 J	0.0018	17	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2005612
Date Collected: 06/10/20
Date Received: 06/11/20
Date Analyzed: 07/9/20
Date Extracted: 07/8/20

Matrix Spike Summary
Total Metals

Sample Name: CTMW-7-0620
Lab Code: K2005612-001
Analysis Method: 6020A
Prep Method: EPA CLP ILM04.0

Units: mg/L
Basis: NA

Matrix Spike
KQ2009057-06

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Arsenic	0.00037 J	0.0488	0.0500	97	75-125
Cadmium	0.000012 J	0.0225	0.0250	90	75-125
Chromium	0.00408	0.0141	0.0100	100	75-125
Copper	0.00007 J	0.0110	0.0125	88	75-125
Lead	0.000036	0.0448	0.0500	90	75-125
Nickel	0.00242	0.0249	0.0250	90	75-125
Zinc	0.0019 J	0.0236	0.0250	87	75-125

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2005612
Date Analyzed: 07/09/20

Lab Control Sample Summary
Total Metals

Units:mg/L
Basis:NA

Lab Control Sample
KQ2009057-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Arsenic	6020A	0.0495	0.0500	99	80-120
Cadmium	6020A	0.0254	0.0250	102	80-120
Chromium	6020A	0.0101	0.0100	101	80-120
Copper	6020A	0.0124	0.0125	99	80-120
Lead	6020A	0.0500	0.0500	100	80-120
Nickel	6020A	0.0248	0.0250	99	80-120
Zinc	6020A	0.0253	0.0250	101	80-120

ALS Group USA, Corp.
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Prep Summary Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01
Sample Matrix: Water

Service Request: K2005612

Metals

Prep Method: EPA CLP ILM04.0
Analytical Method: 6020A

Extraction Lot: 361256
Extraction Date: 07/08/20 13:29

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
CTMW-7-0620	K2005612-001	6/10/20	6/11/20	10 mL	10 mL	
CTMW-9-7-0620	K2005612-002	6/10/20	6/11/20	10 mL	10 mL	
Method Blank	KQ2009057-01MB	NA	NA	10 mL	10 mL	
Lab Control Sample	KQ2009057-02LCS	NA	NA	10 mL	10.3 mL	
Duplicate	KQ2009057-05DUP	6/10/20	6/11/20	10 mL	10 mL	
Matrix Spike	KQ2009057-06MS	6/10/20	6/11/20	10 mL	10.3 mL	

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2005612

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID	Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits
ICV 07/09/20 12:44	Arsenic	6020A	686548	24.0	25.0	96	90-110
	Cadmium	6020A	686548	12.2	12.5	98	90-110
	Chromium	6020A	686548	9.73	10.0	97	90-110
	Copper	6020A	686548	11.9	12.5	95	90-110
	Lead	6020A	686548	24.6	25.0	98	90-110
	Nickel	6020A	686548	24.2	25.0	97	90-110
	Zinc	6020A	686548	25.2	25.0	101	90-110
CCV 07/09/20 12:46	Arsenic	6020A	686548	25.4	25.0	102	90-110
	Cadmium	6020A	686548	25.2	25.0	101	90-110
	Chromium	6020A	686548	24.8	25.0	99	90-110
	Copper	6020A	686548	24.7	25.0	99	90-110
	Lead	6020A	686548	25.0	25.0	100	90-110
	Nickel	6020A	686548	24.8	25.0	99	90-110
	Zinc	6020A	686548	25.4	25.0	102	90-110
CCV 07/09/20 13:22	Arsenic	6020A	686548	25.3	25.0	101	90-110
	Cadmium	6020A	686548	24.7	25.0	99	90-110
	Chromium	6020A	686548	24.9	25.0	100	90-110
	Copper	6020A	686548	24.7	25.0	99	90-110
	Lead	6020A	686548	24.4	25.0	97	90-110
	Nickel	6020A	686548	24.7	25.0	99	90-110
	Zinc	6020A	686548	24.9	25.0	100	90-110
CCV 07/09/20 14:07	Arsenic	6020A	686548	25.0	25.0	100	90-110
	Cadmium	6020A	686548	24.6	25.0	98	90-110
	Chromium	6020A	686548	24.3	25.0	97	90-110
	Copper	6020A	686548	24.2	25.0	97	90-110
	Lead	6020A	686548	23.9	25.0	96	90-110
	Nickel	6020A	686548	24.2	25.0	97	90-110
	Zinc	6020A	686548	24.4	25.0	97	90-110

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2005612

INITIAL AND CONTINUING CALIBRATION BLANKS

Concentration Units: ug/L

Sample ID	Analyte	Method	Analysis Batch:	Result	C
ICB 07/09/20 12:49	Arsenic	6020A	686548	0.09	U
	Cadmium	6020A	686548	0.008	U
	Chromium	6020A	686548	0.03	U
	Copper	6020A	686548	0.05	U
	Lead	6020A	686548	0.008	J
	Nickel	6020A	686548	0.04	U
	Zinc	6020A	686548	0.5	U
CCB 07/09/20 12:51	Arsenic	6020A	686548	0.09	U
	Cadmium	6020A	686548	0.008	U
	Chromium	6020A	686548	0.03	U
	Copper	6020A	686548	0.05	U
	Lead	6020A	686548	0.006	U
	Nickel	6020A	686548	0.04	U
	Zinc	6020A	686548	0.5	U
CCB 07/09/20 13:59	Arsenic	6020A	686548	0.09	U
	Cadmium	6020A	686548	0.008	U
	Chromium	6020A	686548	0.03	U
	Copper	6020A	686548	0.05	U
	Lead	6020A	686548	-0.00622	J
	Nickel	6020A	686548	0.04	U
	Zinc	6020A	686548	0.5	U
CCB 07/09/20 14:09	Arsenic	6020A	686548	0.09	U
	Cadmium	6020A	686548	0.008	J
	Chromium	6020A	686548	0.03	U
	Copper	6020A	686548	0.05	U
	Lead	6020A	686548	0.012	J
	Nickel	6020A	686548	0.04	U
	Zinc	6020A	686548	0.5	U

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2005612

LOW LEVEL INITIAL AND LOW LEVEL CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID	Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
LLICV								
	Arsenic	6020A	686548	0.47	0.5	93	70-130	07/09/20 12:55
	Cadmium	6020A	686548	0.017	0.02	83	70-130	07/09/20 12:55
	Chromium	6020A	686548	0.21	0.2	104	70-130	07/09/20 12:55
	Copper	6020A	686548	0.084	0.1	84	70-130	07/09/20 12:55
	Lead	6020A	686548	0.019	0.02	97	70-130	07/09/20 12:55
	Nickel	6020A	686548	0.20	0.2	98	70-130	07/09/20 12:55
	Zinc	6020A	686548	2.0	2.0	100	70-130	07/09/20 12:55
LLCCV								
	Arsenic	6020A	686548	0.55	0.5	111	70-130	07/09/20 14:11
	Cadmium	6020A	686548	0.023	0.02	116	70-130	07/09/20 14:11
	Chromium	6020A	686548	0.21	0.2	105	70-130	07/09/20 14:11
	Copper	6020A	686548	0.088	0.1	88	70-130	07/09/20 14:11
	Lead	6020A	686548	0.024	0.02	120	70-130	07/09/20 14:11
	Nickel	6020A	686548	0.21	0.2	103	70-130	07/09/20 14:11
	Zinc	6020A	686548	2.2	2.0	109	70-130	07/09/20 14:11

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2005612

ICP INTERFERENCE CHECK SAMPLE

Sample ID ICSA

Concentration Units: ug/L

Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
Arsenic	6020A	686548	0.15	-	-	-	07/09/20 12:57
Cadmium	6020A	686548	0.008	-	-	-	07/09/20 12:57
Chromium	6020A	686548	1.49	-	-	-	07/09/20 12:57
Copper	6020A	686548	1.04	-	-	-	07/09/20 12:57
Lead	6020A	686548	0.078	-	-	-	07/09/20 12:57
Nickel	6020A	686548	1.85	-	-	-	07/09/20 12:57
Zinc	6020A	686548	0.6	-	-	-	07/09/20 12:57

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2005612

ICP INTERFERENCE CHECK SAMPLE

Sample ID ICSAB

Concentration Units: ug/L

Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
Arsenic	6020A	686548	23.5	25.0	94	80-120	07/09/20 12:59
Cadmium	6020A	686548	23.2	25.0	93	80-120	07/09/20 12:59
Chromium	6020A	686548	48.5	50.0	97	80-120	07/09/20 12:59
Copper	6020A	686548	45.6	50.0	91	80-120	07/09/20 12:59
Lead	6020A	686548	0.078	-	-	-	07/09/20 12:59
Nickel	6020A	686548	47.1	50.0	94	80-120	07/09/20 12:59
Zinc	6020A	686548	23.6	25.0	94	80-120	07/09/20 12:59

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2005612

POST SPIKE SAMPLE RECOVERY

Concentration Units: ug/L

Sample ID	Analyte	Method	Analysis Batch:	Initial Sample Result	Post Spike Result	True Value	% Rec	% Rec. Limits	Analysis Date
K2005612-001A	Arsenic	6020A	686548	0.37 J	19.8	20.0	97	80-120	07/09/20 14:01
	Cadmium	6020A	686548	0.012 J	17.4	20.0	87	80-120	07/09/20 14:01
	Chromium	6020A	686548	4.08	23.3	20.0	96	80-120	07/09/20 14:01
	Copper	6020A	686548	0.07 J	17.5	20.0	87	80-120	07/09/20 14:01
	Lead	6020A	686548	0.036	17.2	20.0	86	80-120	07/09/20 14:01
	Nickel	6020A	686548	2.42	20.0	20.0	88	80-120	07/09/20 14:01
	Zinc	6020A	686548	1.9 J	19.1	20.0	86	80-120	07/09/20 14:01

Results flagged with a pound (#) indicate the control criteria is not applicable.

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2005612

ICP SERIAL DILUTIONS

Concentration Units: ug/L

Sample ID	Analyte	Method	Analysis Batch:	Initial Sample Result	Serial Dillution Result	% Diff	% Diff. Limit	Analysis Date
K2005612-001SDL	Arsenic	6020A	686548	0.4 J	0.4 U	9	10	07/09/20 13:20
	Cadmium	6020A	686548	0.01 J	0.02 U	66	10	07/09/20 13:20
	Chromium	6020A	686548	4.1	3.9	4	10	07/09/20 13:20
	Copper	6020A	686548	0.07 J	0.07 U	2	10	07/09/20 13:20
	Lead	6020A	686548	0.04	0.05 J	30	10	07/09/20 13:20
	Nickel	6020A	686548	2.4	2.7	11	10	07/09/20 13:20
	Zinc	6020A	686548	2 J	2 U	13	10	07/09/20 13:20

ALS Group USA, Corp.
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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2005612

Detection Limits

Instrument: K-ICP-MS-06

Matrix: Water

Analyte	Mass	Units	MRL	MDL	Method
Arsenic	75	ug/L	0.5	0.09	6020A
Cadmium	111	ug/L	0.02	0.008	6020A
Chromium	52	ug/L	0.2	0.03	6020A
Copper	65	ug/L	0.1	0.05	6020A
Lead	208	ug/L	0.02	0.006	6020A
Nickel	60	ug/L	0.2	0.04	6020A
Zinc	66	ug/L	2	0.5	6020A

ALS Group USA, Corp.
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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2005612

ICP Linear Range (Quarterly)

Instrument: K-ICP-MS-06

Analyte	Concentration (ug/L)	Method
Arsenic 75	4500	6020A
Cadmium 111	9000	6020A
Chromium 52	9000	6020A
Copper 65	4500	6020A
Lead 208	4500	6020A
Nickel 60	4500	6020A
Zinc 66	9000	6020A

ALS Group USA, Corp.
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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2005612

Analysis Run Log

Instrument ID: K-ICP-MS-06

Analytical BatchID: 686548

Sample	Dilution Factor	Date/Time	A	C	C	C	P	N	Z
			s	d	r	u	b	i	n
ZZZZZZ	1	07/09/20 12:41							
ZZZZZZ	1	07/09/20 12:43							
ICV	1	07/09/20 12:44	X	X	X	X	X	X	X
CCV	1	07/09/20 12:46	X	X	X	X	X	X	X
ZZZZZZ	1	07/09/20 12:48							
ICB	1	07/09/20 12:49	X	X	X	X	X	X	X
CCB	1	07/09/20 12:51	X	X	X	X	X	X	X
ZZZZZZ	1	07/09/20 12:53							
LLICVW	1	07/09/20 12:55	X	X	X	X	X	X	X
ICSA	1	07/09/20 12:57	X	X	X	X	X	X	X
ICSAB	1	07/09/20 12:59	X	X	X	X	X	X	X
ZZZZZZ	1	07/09/20 13:01							
KQ2009057-01MB	1	07/09/20 13:03	X	X	X	X	X	X	X
KQ2009057-02LCS	1	07/09/20 13:04	X	X	X	X	X	X	X
ZZZZZZ	1	07/09/20 13:06							
ZZZZZZ	1	07/09/20 13:08							
ZZZZZZ	5	07/09/20 13:10							
ZZZZZZ	1	07/09/20 13:12							
ZZZZZZ	1	07/09/20 13:14							
K2005612-001	1	07/09/20 13:16	X	X	X	X	X	X	X
K2005612-001DUP	1	07/09/20 13:18	X	X	X	X	X	X	X
K2005612-001SDL	5	07/09/20 13:20	X	X	X	X	X	X	X
CCV	1	07/09/20 13:22	X	X	X	X	X	X	X
CCB	1	07/09/20 13:59	X	X	X	X	X	X	X
K2005612-001PS	1	07/09/20 14:01	X	X	X	X	X	X	X
K2005612-001MS	1	07/09/20 14:03	X	X	X	X	X	X	X
K2005612-002	1	07/09/20 14:05	X	X	X	X	X	X	X
CCV	1	07/09/20 14:07	X	X	X	X	X	X	X
CCB	1	07/09/20 14:09	X	X	X	X	X	X	X
LLCCVW	1	07/09/20 14:11	X	X	X	X	X	X	X
ZZZZZZ	1	07/09/20 14:13							
ZZZZZZ	1	07/09/20 14:14							
ZZZZZZ	1	07/09/20 14:16							
ZZZZZZ	1	07/09/20 14:18							
ZZZZZZ	5	07/09/20 14:20							
ZZZZZZ	1	07/09/20 14:22							
ZZZZZZ	1	07/09/20 14:24							

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2005612

Analysis Run Log

Instrument ID: K-ICP-MS-06

Analytical BatchID: 686548

Sample	Dilution Factor	Date/Time	A s	C d	C r	C u	P b	N i	Z n
ZZZZZZ	1	07/09/20 14:26							
ZZZZZZ	1	07/09/20 14:28							
ZZZZZZ	1	07/09/20 14:30							
ZZZZZZ	1	07/09/20 14:31							
ZZZZZZ	1	07/09/20 14:33							
ZZZZZZ	1	07/09/20 14:36							
ZZZZZZ	1	07/09/20 14:38							
ZZZZZZ	1	07/09/20 14:40							
ZZZZZZ	1	07/09/20 14:42							
ZZZZZZ	1	07/09/20 14:44							

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QA/QC Report

Client: Stericycle Environmental Solutions, Inc.
Project: Tacoma 2Q20/376.01

Service Request: K2005612

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: K-ICP-MS-06

Analytical BatchID: 686548

Sample	Date/Time	Ge72He	In115He	Lu175He
ZZZZZZ	07/09/20 12:41			
ZZZZZZ	07/09/20 12:43			
ICV	07/09/20 12:44	100	99	99
CCV	07/09/20 12:46	99	97	99
ZZZZZZ	07/09/20 12:48			
ICB	07/09/20 12:49	99	99	100
CCB	07/09/20 12:51	100	98	99
ZZZZZZ	07/09/20 12:53			
LLICVW	07/09/20 12:55	101	100	100
ICSA	07/09/20 12:57	98	94	98
ICSAB	07/09/20 12:59	96	94	98
ZZZZZZ	07/09/20 13:01			
KQ2009057-01MB	07/09/20 13:03	97	97	98
KQ2009057-02LCS	07/09/20 13:04	98	98	99
ZZZZZZ	07/09/20 13:06			
ZZZZZZ	07/09/20 13:08			
ZZZZZZ	07/09/20 13:10			
ZZZZZZ	07/09/20 13:12			
ZZZZZZ	07/09/20 13:14			
K2005612-001	07/09/20 13:16	95	92	96
K2005612-001DUP	07/09/20 13:18	107	102	103
K2005612-001SDL	07/09/20 13:20	109	105	105
CCV	07/09/20 13:22	107	106	103
CCB	07/09/20 13:59	103	102	105
K2005612-001PS	07/09/20 14:01	103	101	105
K2005612-001MS	07/09/20 14:03	108	104	104
K2005612-002	07/09/20 14:05	109	105	103
CCV	07/09/20 14:07	115	112	110
CCB	07/09/20 14:09	113	110	109
LLCCVW	07/09/20 14:11	112	109	107
ZZZZZZ	07/09/20 14:13			
ZZZZZZ	07/09/20 14:14			
ZZZZZZ	07/09/20 14:16			
ZZZZZZ	07/09/20 14:18			
ZZZZZZ	07/09/20 14:20			
ZZZZZZ	07/09/20 14:22			
ZZZZZZ	07/09/20 14:24			



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December 02, 2020

Analytical Report for Service Request No: K2010392

Laura DellOlio
Philip Services Corporation
20245 77th Ave South
Kent, WA 98032

RE: Tacoma 2Q20 Access / 376.01

Dear Laura,

Enclosed are the results of the sample(s) submitted to our laboratory November 10, 2020
For your reference, these analyses have been assigned our service request number **K2010392**.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Mark Harris
Project Manager



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Raw Data
 Metals
 Diesel and Residual Range Organics-Silica Gel Treated
 Gasoline Range Organics
 Volatile Organic Compounds
 Volatile Organic Compounds
 1,4-Dioxane by GCMS

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.
- H The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- J The result is an estimated value.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
 - i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.
- Q See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimated value.
- J The result is an estimated value.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
 - i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

**ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses**

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjllabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/analyte is offered by that state.



Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Client: Burlington Environmental
Project: Tacoma 2Q20 Access
Sample Matrix: Water

Service Request: K2010392
Date Received: 11/10/2020

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

Sample Receipt:

Seven water samples were received for analysis at ALS Environmental on 11/10/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivolatiles by GC/MS:

Method 8270D SIM, 11/14/2020: Samples CTMW-25D-1120 and CTMW-9-25D-1120 required dilution due to the presence of elevated levels of target analyte. The reporting limits are adjusted to reflect the dilution.

Semivolatile GC:

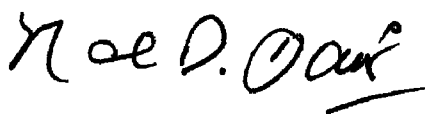
No significant anomalies were noted with this analysis.

Metals:

No significant anomalies were noted with this analysis.

Volatiles by GC/MS:

Method 8260C, 11/11/2020: The following analytes were flagged as outside the control criterion for Continuing Calibration Verification (CCV) MS13\1111F004.D: Vinyl Acetate, 2-Chloroethyl Vinyl Ether, Dichlorodifluoromethane (CFC 12), Carbon Tetrachloride, Iodomethane, Dibromochloromethane. In accordance with the EPA Method, 80% or more of the CCV analytes must have passed within 20% of the true value. The remaining analytes are allowed a 40% difference as per the ALS SOP. The CCV met these criteria except for Iodomethane. In accordance with ALS standard operating procedures, a Method Reporting Limit (MRL) check standard containing the analyte of concern was analyzed each day of analysis. The MRL check standard verified instrument sensitivity was adequate to detect the analyte at the MRL on the day of analysis. No further corrective action was required.

Approved by 

Date 12/02/2020



Chain of Custody

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CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

1317 South 13th Ave. • Kelso, WA 98626 • +1 360 577 7222 • +1 800 695 7222 • FAX +1 360 636 1068 DATE 11-9-20 PAGE 1 OF 2

PROJECT NAME <u>Tacoma 2420 Access # 376.01</u> PROJECT MANAGER <u>Laura Antonino JM Dell'olio</u> COMPANY NAME <u>Burlington Environmental</u> ADDRESS <u>1701 E. Alexander Ave.</u> <u>Tacoma, WA 98421</u> PHONE <u>(253) 246-9210</u> SAMPLERS SIGNATURE <u>J. M. Dell'olio</u>	NUMBER OF CONTAINERS	ANALYSIS REQUESTED K2010392 <div style="display: flex; justify-content: space-between; font-size: 0.8em;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">VOC by 8260B</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">VOC by 8260B w/SEM</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">2-005</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">TPH-Gassing by NW TPH-GX</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">TPH-Digest by NW TPH-DX</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">14-Dioxane by 8270C w/SEM</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Total Metals by 6020</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Total Mercury by 7470A</div> </div>
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SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	VOC by 8260B	VOC by 8260B w/SEM	2-005	TPH-Gassing by NW TPH-GX	TPH-Digest by NW TPH-DX	14-Dioxane by 8270C w/SEM	Total Metals by 6020	Total Mercury by 7470A	REMARKS
Trip Blank #1-1120	11-9-20	0545		#2-	8	2	2	2	2					-
CTMW-15-1120		0944			13	3	3	3	2	1	1			10.0
CTMW-25D-1120		1105			15	3	3	3	2	3	1			19.7 Extra Volume for MS, MSD
CTMW-9-25D-1120		1105			1					1				19.7
CTMW-20-1120		1204			45	9	9	9	9	6		3		6.60 Extra Volume for MS, MSD
CTMW-9-20-1120		1204			15	3	3	3	3	2		1		6.60
Field Blank #1-1120	✓	1236		✓	13	3	3	3	2	1	1			-

REPORT REQUIREMENTS <input type="checkbox"/> I. Routine Report: Method Blank, Surrogate, as required <input type="checkbox"/> II. Report Dup., MS, MSD as required <input type="checkbox"/> III. CLP Like Summary (no raw data) <input checked="" type="checkbox"/> IV. Data Validation Report <input type="checkbox"/> V. EDD	INVOICE INFORMATION P.O. # <u>376.01</u> Bill To: <u>Laura Antonino JM Dell'olio</u> <u>Burlington Environmental</u> <u>Clean Earth</u>	Circle which metals are to be analyzed: Total Metals: Al <input checked="" type="checkbox"/> As <input checked="" type="checkbox"/> Sb Ba Be B Ca <input checked="" type="checkbox"/> Cd Co <input checked="" type="checkbox"/> Cr <input checked="" type="checkbox"/> Cu Fe <input checked="" type="checkbox"/> Pb Mg Mn Mo <input checked="" type="checkbox"/> Ni K Ag Na Se Sr Ti Sn V <input checked="" type="checkbox"/> Zn Hg Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Ti Sn V Zn Hg *INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: _____ (CIRCLE ONE)
TURNAROUND REQUIREMENTS _____ 24 hr. _____ 48 hr. _____ 5 day <input checked="" type="checkbox"/> Standard (10-15 working days) _____ Provide Verbal Preliminary Results _____ Provide FAX preliminary Results Requested Report Date _____		SPECIAL INSTRUCTIONS/COMMENTS: <u>See pg. 2 For Lab Instructions.</u> <u>Custody seal on coolers.</u> <u>Shipped via Fed Ex.</u> <input type="checkbox"/> Sample Shipment contains USDA regulated soil samples (check box if applicable)

RELINQUISHED BY: <u>J. M. Dell'olio</u> Signature <u>11-9-20/1400</u> Date/Time <u>Jimmy Mikaholic</u> Printed Name <u>Burlington Environmental</u> Firm	RECEIVED BY: <u>Naomi Redman</u> Signature <u>11/10/20 1000</u> Date/Time <u>Naomi Redman</u> Printed Name <u>ALS</u> Firm	RELINQUISHED BY: Signature _____ Date/Time _____ Printed Name _____ Firm _____	RECEIVED BY: Signature _____ Date/Time _____ Printed Name _____ Firm _____
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Lab Instructions for
Stericycle Tacoma Facility
2nd Quarter 2020 *Access*
Groundwater Monitoring Event

1. Analyze by Methods:

- VOC by 8260B
- VOC by 8260B w/SIM
- 2-Chloroethyl Vinyl Ether
- 1,4-Dioxane by 8270C w/SIM
- TPH-Diesel by NWTPH-Dx with acid silica-gel cleanup
- TPH-Gasoline by NWTPH-Gx
- Total Metals by 6020 (including mercury by 7470A)
- Reductive Precipitation

2. Total metals include:

- Arsenic
- Cadmium
- Chromium
- Copper
- Nickel
- Zinc
- Lead
- Mercury by 7470A

3. Dissolved Metals (including Dissolved Mercury)

Total metals samples with a turbidity > 5 NTU will be accompanied by field filtered samples and will be labeled as (Dissolved Metals/ Dissolved Mercury).

RELINQUISHED BY: *JMM*

DATE: 11-9-20

TIME: 1400

Page 2 of 2

Rec'd ALS 11/10/20 1000

Cooler Receipt and Preservation Form

Client Burlington Environmental Service Request K20 10392
 Received: 11/16/20 Opened: 11/16/20 By: MP Unloaded: 11/16/20 By: MP

1. Samples were received via? USPS Fed Ex UPS DHL PDX Courier Hand Delivered
2. Samples were received in: (circle) Cooler Box Envelope Other NA
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1 Front
 If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N
4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column below:
 If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
 If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. (NA) Y N
- If applicable, tissue samples were received: Frozen Partially Thawed Thawed

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID/NA	Out of temp indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
4.0		IR01	2022	—	—	3986 3306 9229	
2.8		IR01	1022	—	—	9218	

6. Packing material: Inserts Baggies Bubble Wrap Gel Packs Wet Ice Dry Ice Sleeves
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (see SMO GEN SOP) received at the appropriate pH? Indicate in the table below NA Y (N)
13. Were VOA vials received without headspace? Indicate in the table below NA (Y) N
14. Was C12/Res negative? NA (Y) N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count	Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time
STMW-25D-1120	1	250			✓	HNO3	1/2ml	REI-54-L	MP	1430

Notes, Discrepancies, Resolutions: _____



Metals

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 09:44
Date Received: 11/10/20 10:00

Sample Name: CTMW-15-1120
Lab Code: K2010392-002

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	0.00190	mg/L	0.00050	0.00009	1	11/24/20 13:17	11/17/20	
Cadmium	6020A	ND U	mg/L	0.000020	0.000008	1	11/24/20 13:17	11/17/20	
Chromium	6020A	0.00032	mg/L	0.00020	0.00003	1	11/24/20 13:17	11/17/20	
Copper	6020A	0.00024	mg/L	0.00010	0.00005	1	11/24/20 13:17	11/17/20	
Lead	6020A	0.000016 J	mg/L	0.000020	0.000006	1	11/24/20 15:15	11/17/20	
Mercury	7470A	ND U	mg/L	0.00020	0.00002	1	11/17/20 16:57	11/17/20	
Nickel	6020A	0.00069	mg/L	0.00020	0.00004	1	11/24/20 13:17	11/17/20	
Zinc	6020A	0.0006 J	mg/L	0.0020	0.0005	1	11/24/20 13:17	11/17/20	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water
Sample Name: CTMW-25D-1120
Lab Code: K2010392-003

Service Request: K2010392
Date Collected: 11/09/20 11:05
Date Received: 11/10/20 10:00
Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	0.00215	mg/L	0.00050	0.00009	1	11/24/20 13:30	11/17/20	
Cadmium	6020A	ND U	mg/L	0.000020	0.000008	1	11/24/20 13:30	11/17/20	
Chromium	6020A	0.0152	mg/L	0.00020	0.00003	1	11/24/20 13:30	11/17/20	
Copper	6020A	0.00120	mg/L	0.00010	0.00005	1	11/24/20 13:30	11/17/20	
Lead	6020A	0.000141	mg/L	0.000020	0.000006	1	11/24/20 15:19	11/17/20	
Mercury	7470A	0.00009 J	mg/L	0.00020	0.00002	1	11/17/20 16:59	11/17/20	
Nickel	6020A	0.00652	mg/L	0.00020	0.00004	1	11/24/20 13:30	11/17/20	
Zinc	6020A	0.0010 J	mg/L	0.0020	0.0005	1	11/24/20 13:30	11/17/20	

ALS Group USA, Corp.
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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water
Sample Name: CTMW-20-1120
Lab Code: K2010392-005

Service Request: K2010392
Date Collected: 11/09/20 12:04
Date Received: 11/10/20 10:00
Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	0.00283	mg/L	0.00050	0.00009	1	11/24/20 13:32	11/17/20	
Cadmium	6020A	ND U	mg/L	0.000020	0.000008	1	11/24/20 13:32	11/17/20	
Chromium	6020A	0.00055	mg/L	0.00020	0.00003	1	11/24/20 13:32	11/17/20	
Copper	6020A	0.00065	mg/L	0.00010	0.00005	1	11/24/20 13:32	11/17/20	
Lead	6020A	ND U	mg/L	0.000020	0.000006	1	11/24/20 15:21	11/17/20	
Mercury	7470A	ND U	mg/L	0.00020	0.00002	1	11/17/20 17:00	11/17/20	
Nickel	6020A	0.00194	mg/L	0.00020	0.00004	1	11/24/20 13:32	11/17/20	
Zinc	6020A	ND U	mg/L	0.0020	0.0005	1	11/24/20 13:32	11/17/20	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water
Sample Name: CTMW-9-20-1120
Lab Code: K2010392-006

Service Request: K2010392
Date Collected: 11/09/20 12:04
Date Received: 11/10/20 10:00
Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	0.00274	mg/L	0.00050	0.00009	1	11/24/20 13:43	11/17/20	
Cadmium	6020A	0.000016 J	mg/L	0.000020	0.000008	1	11/24/20 13:43	11/17/20	
Chromium	6020A	0.00056	mg/L	0.00020	0.00003	1	11/24/20 13:43	11/17/20	
Copper	6020A	0.00060	mg/L	0.00010	0.00005	1	11/24/20 13:43	11/17/20	
Lead	6020A	0.000029	mg/L	0.000020	0.000006	1	11/24/20 15:27	11/17/20	
Mercury	7470A	ND U	mg/L	0.00020	0.00002	1	11/17/20 17:07	11/17/20	
Nickel	6020A	0.00198	mg/L	0.00020	0.00004	1	11/24/20 13:43	11/17/20	
Zinc	6020A	0.0007 J	mg/L	0.0020	0.0005	1	11/24/20 13:43	11/17/20	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 12:36
Date Received: 11/10/20 10:00

Sample Name: Field Blank #1-1120
Lab Code: K2010392-007

Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	ND U	mg/L	0.00050	0.00009	1	11/24/20 12:39	11/17/20	
Cadmium	6020A	ND U	mg/L	0.000020	0.000008	1	11/24/20 12:39	11/17/20	
Chromium	6020A	0.00040	mg/L	0.00020	0.00003	1	11/24/20 12:39	11/17/20	
Copper	6020A	0.00062	mg/L	0.00010	0.00005	1	11/24/20 12:39	11/17/20	
Lead	6020A	0.000021	mg/L	0.000020	0.000006	1	11/24/20 14:48	11/17/20	
Mercury	7470A	ND U	mg/L	0.00020	0.00002	1	11/17/20 17:08	11/17/20	
Nickel	6020A	ND U	mg/L	0.00020	0.00004	1	11/24/20 12:39	11/17/20	
Zinc	6020A	ND U	mg/L	0.0020	0.0005	1	11/24/20 12:39	11/17/20	

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dba ALS Environmental

Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: KQ2017991-01

Service Request: K2010392
Date Collected: NA
Date Received: NA
Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	ND U	mg/L	0.00050	0.00009	1	11/24/20 12:37	11/17/20	
Cadmium	6020A	ND U	mg/L	0.000020	0.000008	1	11/24/20 12:37	11/17/20	
Chromium	6020A	ND U	mg/L	0.00020	0.00003	1	11/24/20 12:37	11/17/20	
Copper	6020A	ND U	mg/L	0.00010	0.00005	1	11/24/20 12:37	11/17/20	
Lead	6020A	ND U	mg/L	0.000020	0.000006	1	11/24/20 14:47	11/17/20	
Nickel	6020A	ND U	mg/L	0.00020	0.00004	1	11/24/20 12:37	11/17/20	
Zinc	6020A	ND U	mg/L	0.0020	0.0005	1	11/24/20 12:37	11/17/20	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: KQ2017981-01

Service Request: K2010392
Date Collected: NA
Date Received: NA
Basis: NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Mercury	7470A	ND U	mg/L	0.00020	0.00002	1	11/17/20 16:23	11/17/20	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20
Date Received: 11/10/20
Date Analyzed: 11/24/20

Replicate Sample Summary

Total Metals

Sample Name: CTMW-20-1120
Lab Code: K2010392-005

Units: mg/L
Basis: NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate	Average	RPD	RPD Limit
					Sample KQ2017991-05 Result			
Arsenic	6020A	0.00050	0.00009	0.00283	0.00287	0.00285	1	20
Cadmium	6020A	0.000020	0.000008	ND U	ND U	ND	-	20
Chromium	6020A	0.00020	0.00003	0.00055	0.00057	0.00056	4	20
Copper	6020A	0.00010	0.00005	0.00065	0.00062	0.00064	5	20
Lead	6020A	0.000020	0.000006	ND U	ND U	ND	-	20
Nickel	6020A	0.00020	0.00004	0.00194	0.00204	0.00199	5	20
Zinc	6020A	0.0020	0.0005	ND U	ND U	ND	-	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20
Date Received: 11/10/20
Date Analyzed: 11/17/20

Replicate Sample Summary

Total Metals

Sample Name: CTMW-20-1120
Lab Code: K2010392-005

Units: mg/L
Basis: NA

Table with 9 columns: Analyte Name, Analysis Method, MRL, MDL, Sample Result, Duplicate Sample KQ2017981-05 Result, Average, RPD, RPD Limit. Row 1: Mercury, 7470A, 0.00020, 0.00002, ND U, ND U, ND, -, 20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20
Date Received: 11/10/20
Date Analyzed: 11/24/20
Date Extracted: 11/17/20

Matrix Spike Summary
Total Metals

Sample Name: CTMW-20-1120
Lab Code: K2010392-005
Analysis Method: 6020A
Prep Method: EPA CLP ILM04.0

Units: mg/L
Basis: NA

Matrix Spike
KQ2017991-06

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Arsenic	0.00283	0.0519	0.0500	98	75-125
Cadmium	ND U	0.0223	0.0250	89	75-125
Chromium	0.00055	0.0104	0.0100	98	75-125
Copper	0.00065	0.0114	0.0125	86	75-125
Lead	ND U	0.0463	0.0500	93	75-125
Nickel	0.00194	0.0244	0.0250	90	75-125
Zinc	ND U	0.0227	0.0250	91	75-125

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20
Date Received: 11/10/20
Date Analyzed: 11/17/20
Date Extracted: 11/17/20

Matrix Spike Summary
Total Metals

Sample Name: CTMW-20-1120
Lab Code: K2010392-005
Analysis Method: 7470A
Prep Method: Method

Units: mg/L
Basis: NA

Matrix Spike
KQ2017981-06

<u>Analyte Name</u>	<u>Sample Result</u>	<u>Result</u>	<u>Spike Amount</u>	<u>% Rec</u>	<u>% Rec Limits</u>
Mercury	ND U	0.00486	0.00500	97	75-125

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Analyzed: 11/24/20

Lab Control Sample Summary
Total Metals

Units:mg/L
Basis:NA

Lab Control Sample
KQ2017991-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Arsenic	6020A	0.0495	0.0500	99	80-120
Cadmium	6020A	0.0256	0.0250	102	80-120
Chromium	6020A	0.00993	0.0100	99	80-120
Copper	6020A	0.0123	0.0125	99	80-120
Lead	6020A	0.0510	0.0500	102	80-120
Nickel	6020A	0.0243	0.0250	97	80-120
Zinc	6020A	0.0249	0.0250	99	80-120

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Analyzed: 11/17/20

Lab Control Sample Summary
Total Metals

Units:mg/L
Basis:NA

Lab Control Sample
KQ2017981-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Mercury	7470A	0.00524	0.00500	105	80-120

ALS Group USA, Corp.
dba ALS Environmental

Prep Summary Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request:K2010392

Metals

Prep Method: EPA CLP ILM04.0
Analytical Method: 6020A

Extraction Lot: 369784
Extraction Date: 11/17/20 10:00

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
CTMW-15-1120	K2010392-002	11/9/20	11/10/20	10 mL	10 mL	
CTMW-25D-1120	K2010392-003	11/9/20	11/10/20	10 mL	10 mL	
CTMW-20-1120	K2010392-005	11/9/20	11/10/20	10 mL	10 mL	
CTMW-9-20-1120	K2010392-006	11/9/20	11/10/20	10 mL	10 mL	
Field Blank #1-1120	K2010392-007	11/9/20	11/10/20	10 mL	10 mL	
Method Blank	KQ2017991-01MB	NA	NA	10 mL	10 mL	
Lab Control Sample	KQ2017991-02LCS	NA	NA	10 mL	10.3 mL	
Duplicate	KQ2017991-05DUP	11/9/20	11/10/20	10 mL	10 mL	
Matrix Spike	KQ2017991-06MS	11/9/20	11/10/20	10 mL	10.3 mL	

ALS Group USA, Corp.
dba ALS Environmental

Prep Summary Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request:K2010392

Metals

Prep Method: Method
Analytical Method: 7470A

Extraction Lot: 369778
Extraction Date: 11/17/20 10:50

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
CTMW-15-1120	K2010392-002	11/9/20	11/10/20	10 mL	10 mL	
CTMW-25D-1120	K2010392-003	11/9/20	11/10/20	10 mL	10 mL	
CTMW-20-1120	K2010392-005	11/9/20	11/10/20	10 mL	10 mL	
CTMW-9-20-1120	K2010392-006	11/9/20	11/10/20	10 mL	10 mL	
Field Blank #1-1120	K2010392-007	11/9/20	11/10/20	10 mL	10 mL	
Method Blank	KQ2017981-01MB	NA	NA	10 mL	10 mL	
Lab Control Sample	KQ2017981-02LCS	NA	NA	10 mL	10 mL	
Duplicate	KQ2017981-05DUP	11/9/20	11/10/20	10 mL	10 mL	
Matrix Spike	KQ2017981-06MS	11/9/20	11/10/20	10 mL	10 mL	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID	Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits
ICV 11/17/20 15:18	Mercury	7470A	703850	5.29	5.00	106	90-110
CCV 11/17/20 15:23	Mercury	7470A	703850	5.14	5.00	103	90-110
CCV 11/17/20 15:42	Mercury	7470A	703850	5.13	5.00	103	90-110
CCV 11/17/20 16:11	Mercury	7470A	703850	5.31	5.00	106	90-110
CCV 11/17/20 16:31	Mercury	7470A	703850	5.28	5.00	106	90-110
CCV 11/17/20 16:51	Mercury	7470A	703850	5.31	5.00	106	90-110
CCV 11/17/20 17:10	Mercury	7470A	703850	5.24	5.00	105	90-110
ICV 11/24/20 12:18	Arsenic	6020A	704807	23.9	25.0	96	90-110
	Cadmium	6020A	704807	12.3	12.5	99	90-110
	Chromium	6020A	704807	9.65	10.0	97	90-110
	Copper	6020A	704807	11.9	12.5	95	90-110
	Nickel	6020A	704807	24.1	25.0	97	90-110
	Zinc	6020A	704807	24.2	25.0	97	90-110
CCV 11/24/20 12:20	Arsenic	6020A	704807	25.2	25.0	101	90-110
	Cadmium	6020A	704807	25.2	25.0	101	90-110
	Chromium	6020A	704807	25.0	25.0	100	90-110
	Copper	6020A	704807	24.9	25.0	100	90-110
	Nickel	6020A	704807	24.7	25.0	99	90-110
	Zinc	6020A	704807	25.1	25.0	101	90-110
CCV 11/24/20 12:56	Arsenic	6020A	704807	25.1	25.0	100	90-110
	Cadmium	6020A	704807	24.6	25.0	98	90-110
	Chromium	6020A	704807	24.6	25.0	98	90-110
	Copper	6020A	704807	24.1	25.0	96	90-110
	Nickel	6020A	704807	24.5	25.0	98	90-110
	Zinc	6020A	704807	25.5	25.0	102	90-110
CCV 11/24/20 13:26	Arsenic	6020A	704807	25.0	25.0	100	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID	Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits
CCV 11/24/20 13:26	Cadmium	6020A	704807	22.9	25.0	91	90-110
	Chromium	6020A	704807	24.3	25.0	97	90-110
	Copper	6020A	704807	22.5	25.0	90	90-110
	Nickel	6020A	704807	23.2	25.0	93	90-110
	Zinc	6020A	704807	24.5	25.0	98	90-110
CCV 11/24/20 13:45	Arsenic	6020A	704807	25.2	25.0	101	90-110
	Cadmium	6020A	704807	23.2	25.0	93	90-110
	Chromium	6020A	704807	24.3	25.0	97	90-110
	Copper	6020A	704807	23.1	25.0	92	90-110
	Nickel	6020A	704807	23.5	25.0	94	90-110
	Zinc	6020A	704807	24.1	25.0	96	90-110
ICV 11/24/20 14:36	Lead	6020A	704852	24.6	25.0	98	90-110
CCV 11/24/20 14:37	Lead	6020A	704852	25.1	25.0	100	90-110
CCV 11/24/20 15:00	Lead	6020A	704852	25.4	25.0	102	90-110
CCV 11/24/20 15:16	Lead	6020A	704852	24.0	25.0	96	90-110
CCV 11/24/20 15:29	Lead	6020A	704852	24.6	25.0	98	90-110

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

INITIAL AND CONTINUING CALIBRATION BLANKS

Concentration Units: ug/L

Sample ID	Analyte	Method	Analysis Batch:	Result	C
ICB 11/17/20 15:19	Mercury	7470A	703850	0.02	U
CCB 11/17/20 15:24	Mercury	7470A	703850	0.02	U
CCB 11/17/20 15:44	Mercury	7470A	703850	0.02	U
CCB 11/17/20 16:13	Mercury	7470A	703850	0.02	U
CCB 11/17/20 16:33	Mercury	7470A	703850	0.02	U
CCB 11/17/20 16:52	Mercury	7470A	703850	0.02	U
CCB 11/17/20 17:12	Mercury	7470A	703850	0.02	U
ICB 11/24/20 12:22	Arsenic	6020A	704807	0.09	U
	Cadmium	6020A	704807	0.016	J
	Chromium	6020A	704807	0.03	U
	Copper	6020A	704807	0.05	U
	Nickel	6020A	704807	0.04	U
	Zinc	6020A	704807	0.5	U
CCB 11/24/20 12:23	Arsenic	6020A	704807	0.09	U
	Cadmium	6020A	704807	0.008	U
	Chromium	6020A	704807	0.03	U
	Copper	6020A	704807	0.05	U
	Nickel	6020A	704807	0.04	U
	Zinc	6020A	704807	0.5	U
CCB 11/24/20 12:58	Arsenic	6020A	704807	0.09	U
	Cadmium	6020A	704807	0.013	J
	Chromium	6020A	704807	0.03	U
	Copper	6020A	704807	0.05	U
	Nickel	6020A	704807	0.04	U
	Zinc	6020A	704807	0.5	U
CCB 11/24/20 13:28	Arsenic	6020A	704807	0.09	U

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

INITIAL AND CONTINUING CALIBRATION BLANKS

Concentration Units: ug/L

Sample ID	Analyte	Method	Analysis Batch:	Result	C
CCB	11/24/20 13:28				
	Cadmium	6020A	704807	0.008	U
	Chromium	6020A	704807	0.03	U
	Copper	6020A	704807	0.05	U
	Nickel	6020A	704807	0.04	U
	Zinc	6020A	704807	0.5	U
CCB	11/24/20 13:47				
	Arsenic	6020A	704807	0.09	U
	Cadmium	6020A	704807	0.013	J
	Chromium	6020A	704807	0.03	U
	Copper	6020A	704807	0.05	U
	Nickel	6020A	704807	0.04	U
	Zinc	6020A	704807	0.5	U
ICB	11/24/20 14:40				
	Lead	6020A	704852	0.006	U
CCB	11/24/20 14:41				
	Lead	6020A	704852	0.006	U
CCB	11/24/20 15:02				
	Lead	6020A	704852	0.018	J
CCB	11/24/20 15:18				
	Lead	6020A	704852	0.006	U
CCB	11/24/20 15:30				
	Lead	6020A	704852	0.016	J

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

LOW LEVEL INITIAL AND LOW LEVEL CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID	Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
LLICV	Mercury	7470A	703850	0.24	0.2	119	50-150	11/17/20 15:21
LLICV	Arsenic	6020A	704807	0.50	0.5	100	70-130	11/24/20 12:26
	Cadmium	6020A	704807	0.018	0.02	91	70-130	11/24/20 12:26
	Chromium	6020A	704807	0.20	0.2	100	70-130	11/24/20 12:26
	Copper	6020A	704807	0.11	0.1	111	70-130	11/24/20 12:26
	Nickel	6020A	704807	0.21	0.2	104	70-130	11/24/20 12:26
	Zinc	6020A	704807	2.0	2.0	98	70-130	11/24/20 12:26
LLCCV	Arsenic	6020A	704807	0.50	0.5	101	70-130	11/24/20 14:10
	Cadmium	6020A	704807	0.014	0.02	72	70-130	11/24/20 14:10
	Chromium	6020A	704807	0.18	0.2	90	70-130	11/24/20 14:10
	Copper	6020A	704807	0.11	0.1	112	70-130	11/24/20 14:10
	Nickel	6020A	704807	0.18	0.2	90	70-130	11/24/20 14:10
	Zinc	6020A	704807	2.0	2.0	98	70-130	11/24/20 14:10
LLICV	Lead	6020A	704852	0.020	0.02	98	70-130	11/24/20 14:43
LLCCV	Lead	6020A	704852	0.025	0.02	127	70-130	11/24/20 15:31

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

ICP INTERFERENCE CHECK SAMPLE

Sample ID ICSA

Concentration Units: ug/L

Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
Arsenic	6020A	704807	0.16	-	-	-	11/24/20 12:27
Cadmium	6020A	704807	0.014	-	-	-	11/24/20 12:27
Chromium	6020A	704807	1.51	-	-	-	11/24/20 12:27
Copper	6020A	704807	1.08	-	-	-	11/24/20 12:27
Nickel	6020A	704807	1.78	-	-	-	11/24/20 12:27
Zinc	6020A	704807	0.8	-	-	-	11/24/20 12:27

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

ICP INTERFERENCE CHECK SAMPLE

Sample ID ICSAB

Concentration Units: ug/L

Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
Arsenic	6020A	704807	24.3	25.0	97	80-120	11/24/20 12:29
Cadmium	6020A	704807	23.7	25.0	95	80-120	11/24/20 12:29
Chromium	6020A	704807	50.2	50.0	100	80-120	11/24/20 12:29
Copper	6020A	704807	46.5	50.0	93	80-120	11/24/20 12:29
Nickel	6020A	704807	48.0	50.0	96	80-120	11/24/20 12:29
Zinc	6020A	704807	23.6	25.0	94	80-120	11/24/20 12:29

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

ICP INTERFERENCE CHECK SAMPLE

Sample ID ICSA

Concentration Units: ug/L

Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
Lead	6020A	704852	0.080	-	-	-	11/24/20 14:44

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

ICP INTERFERENCE CHECK SAMPLE

Sample ID ICSAB

Concentration Units: ug/L

Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
Lead	6020A	704852	0.083	-	-	-	11/24/20 14:45

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

POST SPIKE SAMPLE RECOVERY

Concentration Units: ppb

Sample ID	Analyte	Method	Analysis Batch:	Initial Sample Result	Post Spike Result	True Value	% Rec	% Rec. Limits	Analysis Date
K2010392-005A	Mercury	7470A	703850	0.02 U	5.07	5.00	101	80-120	11/17/20 17:02
K2010392-005A	Arsenic	6020A	704807	2.83	22.1	20.0	96	80-120	11/24/20 13:39
	Cadmium	6020A	704807	0.008 U	17.4	20.0	87	80-120	11/24/20 13:39
	Chromium	6020A	704807	0.55	19.5	20.0	95	80-120	11/24/20 13:39
	Copper	6020A	704807	0.65	17.7	20.0	85	80-120	11/24/20 13:39
	Nickel	6020A	704807	1.94	19.3	20.0	87	80-120	11/24/20 13:39
	Zinc	6020A	704807	0.5 U	18.9	20.0	94	80-120	11/24/20 13:39
K2010392-005A	Lead	6020A	704852	0.006 U	44.9	50.0	90	80-120	11/24/20 15:25

Results flagged with a pound (#) indicate the control criteria is not applicable.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

ICP SERIAL DILUTIONS

Concentration Units: ug/L

Sample ID	Analyte	Method	Analysis Batch:	Initial Sample Result	Serial Dillution Result	% Diff	% Diff. Limit	Analysis Date
K2010392-005SDL	Arsenic	6020A	704807	2.8	2.8	1	10	11/24/20 13:36
	Cadmium	6020A	704807	0.008 U	-0.0164 U	1808	10	11/24/20 13:36
	Chromium	6020A	704807	0.6	0.5 J	4	10	11/24/20 13:36
	Copper	6020A	704807	0.65	1.86	184	10	11/24/20 13:36
	Nickel	6020A	704807	1.9	2.0	5	10	11/24/20 13:36
	Zinc	6020A	704807	0.5 U	2 U	397	10	11/24/20 13:36
K2010392-005SDL	Lead	6020A	704852	0.006 U	0.17	3131	10	11/24/20 15:23

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

Detection Limits

Instrument: K-CVAA-02

Matrix: Water

Analyte	Wavelength (nm)	Units	MRL	MDL	Method
Mercury	253	ug/L	0.2	0.02	7470A

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

Detection Limits

Instrument: K-ICP-MS-06

Matrix: Water

Analyte	Mass	Units	MRL	MDL	Method
Arsenic	75	ug/L	0.5	0.09	6020A
Cadmium	111	ug/L	0.02	0.008	6020A
Chromium	52	ug/L	0.2	0.03	6020A
Copper	65	ug/L	0.1	0.05	6020A
Lead	208	ug/L	0.02	0.006	6020A
Nickel	60	ug/L	0.2	0.04	6020A
Zinc	66	ug/L	2	0.5	6020A

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

ICP Linear Range (Quarterly)

Instrument: K-CVAA-02

Analyte	Concentration (ug/L)	Method
Mercury	10	7470A

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

ICP Linear Range (Quarterly)

Instrument: K-ICP-MS-06

Analyte	Concentration (ug/L)	Method
Arsenic 75	4500	6020A
Cadmium 111	9000	6020A
Chromium 52	9000	6020A
Copper 65	4500	6020A
Lead 208	4500	6020A
Nickel 60	4500	6020A
Zinc 66	9000	6020A

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

Analysis Run Log

Instrument ID: K-CVAA-02

Analytical BatchID: 703850

Sample	Dilution Factor	Date/Time	H g
ZZZZZZ	1	11/17/20 15:08	
ZZZZZZ	1	11/17/20 15:09	
ZZZZZZ	1	11/17/20 15:11	
ZZZZZZ	1	11/17/20 15:13	
ZZZZZZ	1	11/17/20 15:14	
ZZZZZZ	1	11/17/20 15:16	
ICV1	1	11/17/20 15:18	X
ICB1	1	11/17/20 15:19	X
LLICV1	1	11/17/20 15:21	X
CCV1	1	11/17/20 15:23	X
CCB1	1	11/17/20 15:24	X
ZZZZZZ	1	11/17/20 15:26	
ZZZZZZ	1	11/17/20 15:27	
ZZZZZZ	1	11/17/20 15:29	
ZZZZZZ	1	11/17/20 15:31	
ZZZZZZ	1	11/17/20 15:32	
ZZZZZZ	1	11/17/20 15:34	
ZZZZZZ	1	11/17/20 15:35	
ZZZZZZ	1	11/17/20 15:37	
ZZZZZZ	1	11/17/20 15:39	
ZZZZZZ	1	11/17/20 15:40	
CCV2	1	11/17/20 15:42	X
CCB2	1	11/17/20 15:44	X
ZZZZZZ	1	11/17/20 15:45	
ZZZZZZ	1	11/17/20 15:47	
ZZZZZZ	1	11/17/20 15:49	
ZZZZZZ	1	11/17/20 15:50	
ZZZZZZ	1	11/17/20 15:52	
ZZZZZZ	1	11/17/20 15:53	
ZZZZZZ	1	11/17/20 15:55	
ZZZZZZ	1	11/17/20 15:57	
ZZZZZZ	1	11/17/20 15:58	
ZZZZZZ	1	11/17/20 16:00	
ZZZZZZ	1	11/17/20 16:02	
CCV3	1	11/17/20 16:11	X
CCB3	1	11/17/20 16:13	X
ZZZZZZ	1	11/17/20 16:15	

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

Analysis Run Log

Instrument ID: K-CVAA-02

Analytical BatchID: 703850

Sample	Dilution Factor	Date/Time	H g
ZZZZZZ	1	11/17/20 16:16	
ZZZZZZ	1	11/17/20 16:18	
ZZZZZZ	1	11/17/20 16:20	
ZZZZZZ	1	11/17/20 16:21	
KQ2017981-01MB	1	11/17/20 16:23	X
KQ2017981-02LCS	1	11/17/20 16:24	X
ZZZZZZ	1	11/17/20 16:26	
ZZZZZZ	1	11/17/20 16:28	
ZZZZZZ	1	11/17/20 16:29	
CCV4	1	11/17/20 16:31	X
CCB4	1	11/17/20 16:33	X
ZZZZZZ	1	11/17/20 16:34	
ZZZZZZ	1	11/17/20 16:36	
ZZZZZZ	1	11/17/20 16:37	
ZZZZZZ	1	11/17/20 16:39	
ZZZZZZ	1	11/17/20 16:41	
ZZZZZZ	1	11/17/20 16:42	
ZZZZZZ	1	11/17/20 16:44	
ZZZZZZ	1	11/17/20 16:46	
ZZZZZZ	1	11/17/20 16:47	
ZZZZZZ	1	11/17/20 16:49	
CCV5	1	11/17/20 16:51	X
CCB5	1	11/17/20 16:52	X
ZZZZZZ	1	11/17/20 16:54	
ZZZZZZ	1	11/17/20 16:55	
K2010392-002	1	11/17/20 16:57	X
K2010392-003	1	11/17/20 16:59	X
K2010392-005	1	11/17/20 17:00	X
K2010392-005PS	1	11/17/20 17:02	X
K2010392-005DUP	1	11/17/20 17:04	X
K2010392-005MS	1	11/17/20 17:05	X
K2010392-006	1	11/17/20 17:07	X
K2010392-007	1	11/17/20 17:08	X
CCV6	1	11/17/20 17:10	X
CCB6	1	11/17/20 17:12	X
ZZZZZZ	5	11/17/20 17:13	
ZZZZZZ	5	11/17/20 17:15	

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

Analysis Run Log

Instrument ID: K-CVAA-02

Analytical BatchID: 703850

Sample	Dilution Factor	Date/Time	H g
ZZZZZZ	1	11/17/20 17:17	
ZZZZZZ	1	11/17/20 17:18	
ZZZZZZ	1	11/17/20 17:20	
ZZZZZZ	1	11/17/20 17:21	
ZZZZZZ	1	11/17/20 17:23	
ZZZZZZ	1	11/17/20 17:25	
ZZZZZZ	1	11/17/20 17:26	
ZZZZZZ	1	11/17/20 17:28	
ZZZZZZ	1	11/17/20 17:30	
ZZZZZZ	1	11/17/20 17:31	
ZZZZZZ	1	11/17/20 17:33	
ZZZZZZ	1	11/17/20 17:35	
ZZZZZZ	1	11/17/20 17:37	
ZZZZZZ	1	11/17/20 17:39	
ZZZZZZ	1	11/17/20 17:40	
ZZZZZZ	1	11/17/20 17:42	
ZZZZZZ	1	11/17/20 17:44	
ZZZZZZ	1	11/17/20 17:45	

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

Analysis Run Log

Instrument ID: K-ICP-MS-06

Analytical BatchID: 704807

Sample	Dilution Factor	Date/Time	A	C	C	C	N	Z
			s	d	r	u	i	n
ZZZZZZ	1	11/24/20 12:14						
ZZZZZZ	1	11/24/20 12:16						
ICV	1	11/24/20 12:18	X	X	X	X	X	X
CCV	1	11/24/20 12:20	X	X	X	X	X	X
ICB	1	11/24/20 12:22	X	X	X	X	X	X
CCB	1	11/24/20 12:23	X	X	X	X	X	X
LLICVW	1	11/24/20 12:26	X	X	X	X	X	X
ICSA	1	11/24/20 12:27	X	X	X	X	X	X
ICSAB	1	11/24/20 12:29	X	X	X	X	X	X
ZZZZZZ	1	11/24/20 12:31						
KQ2017991-01MB	1	11/24/20 12:37	X	X	X	X	X	X
K2010392-007	1	11/24/20 12:39	X	X	X	X	X	X
KQ2017991-02LCS	1	11/24/20 12:41	X	X	X	X	X	X
ZZZZZZ	1	11/24/20 12:43						
ZZZZZZ	1	11/24/20 12:45						
ZZZZZZ	1	11/24/20 12:47						
ZZZZZZ	5	11/24/20 12:49						
ZZZZZZ	1	11/24/20 12:51						
ZZZZZZ	1	11/24/20 12:52						
ZZZZZZ	1	11/24/20 12:54						
CCV	1	11/24/20 12:56	X	X	X	X	X	X
CCB	1	11/24/20 12:58	X	X	X	X	X	X
ZZZZZZ	1	11/24/20 13:00						
ZZZZZZ	1	11/24/20 13:02						
ZZZZZZ	1	11/24/20 13:04						
ZZZZZZ	1	11/24/20 13:06						
ZZZZZZ	1	11/24/20 13:08						
ZZZZZZ	1	11/24/20 13:10						
ZZZZZZ	1	11/24/20 13:12						
ZZZZZZ	1	11/24/20 13:14						
ZZZZZZ	1	11/24/20 13:16						
K2010392-002	1	11/24/20 13:17	X	X	X	X	X	X
ZZZZZZ	1	11/24/20 13:19						
CCV	1	11/24/20 13:26	X	X	X	X	X	X
CCB	1	11/24/20 13:28	X	X	X	X	X	X
K2010392-003	1	11/24/20 13:30	X	X	X	X	X	X
K2010392-005	1	11/24/20 13:32	X	X	X	X	X	X

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

Analysis Run Log

Instrument ID: K-ICP-MS-06

Analytical BatchID: 704807

Sample	Dilution Factor	Date/Time	A	C	C	C	N	Z
			s	d	r	u	i	n
K2010392-005DUP	1	11/24/20 13:34	X	X	X	X	X	X
K2010392-005SDL	5	11/24/20 13:36	X	X	X	X	X	X
K2010392-005PS	1	11/24/20 13:39	X	X	X	X	X	X
K2010392-005MS	1	11/24/20 13:41	X	X	X	X	X	X
K2010392-006	1	11/24/20 13:43	X	X	X	X	X	X
CCV	1	11/24/20 13:45	X	X	X	X	X	X
CCB	1	11/24/20 13:47	X	X	X	X	X	X
ZZZZZZ	1	11/24/20 13:49						
LLCCVW	1	11/24/20 14:10	X	X	X	X	X	X

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

Analysis Run Log

Instrument ID: K-ICP-MS-06

Analytical BatchID: 704852

Sample	Dilution Factor	Date/Time	P b
ZZZZZZ	1	11/24/20 14:33	
ZZZZZZ	1	11/24/20 14:34	
ICV	1	11/24/20 14:36	X
CCV	1	11/24/20 14:37	X
ZZZZZZ	1	11/24/20 14:38	
ICB	1	11/24/20 14:40	X
CCB	1	11/24/20 14:41	X
LLICVW	1	11/24/20 14:43	X
ICSA	1	11/24/20 14:44	X
ICSAB	1	11/24/20 14:45	X
KQ2017991-01MB	1	11/24/20 14:47	X
K2010392-007	1	11/24/20 14:48	X
KQ2017991-02LCS	1	11/24/20 14:49	X
ZZZZZZ	1	11/24/20 14:51	
ZZZZZZ	1	11/24/20 14:52	
ZZZZZZ	1	11/24/20 14:53	
ZZZZZZ	5	11/24/20 14:55	
ZZZZZZ	1	11/24/20 14:56	
ZZZZZZ	1	11/24/20 14:57	
ZZZZZZ	1	11/24/20 14:59	
CCV	1	11/24/20 15:00	X
CCB	1	11/24/20 15:02	X
ZZZZZZ	1	11/24/20 15:03	
ZZZZZZ	1	11/24/20 15:04	
ZZZZZZ	1	11/24/20 15:06	
ZZZZZZ	1	11/24/20 15:07	
ZZZZZZ	1	11/24/20 15:08	
ZZZZZZ	1	11/24/20 15:10	
ZZZZZZ	1	11/24/20 15:11	
ZZZZZZ	1	11/24/20 15:12	
ZZZZZZ	1	11/24/20 15:14	
K2010392-002	1	11/24/20 15:15	X
CCV	1	11/24/20 15:16	X
CCB	1	11/24/20 15:18	X
K2010392-003	1	11/24/20 15:19	X
K2010392-005	1	11/24/20 15:21	X
K2010392-005DUP	1	11/24/20 15:22	X

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

Analysis Run Log

Instrument ID: K-ICP-MS-06

Analytical BatchID: 704852

Sample	Dilution Factor	Date/Time	P b
K2010392-005SDL	5	11/24/20 15:23	X
K2010392-005PS	1	11/24/20 15:25	X
K2010392-005MS	1	11/24/20 15:26	X
K2010392-006	1	11/24/20 15:27	X
CCV	1	11/24/20 15:29	X
CCB	1	11/24/20 15:30	X
LLCCVW	1	11/24/20 15:31	X

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: K-ICP-MS-06

Analytical BatchID: 704807

Sample	Date/Time	Ge72H2	Ge72He	In115He	Lu175He
ZZZZZZ	11/24/20 12:14				
ZZZZZZ	11/24/20 12:16				
ICV	11/24/20 12:18	96	101	99	97
CCV	11/24/20 12:20	95	98	97	97
ICB	11/24/20 12:22	95	96	97	99
CCB	11/24/20 12:23	94	98	97	96
LLICVW	11/24/20 12:26	93	97	96	96
ICSA	11/24/20 12:27	89	95	92	95
ICSAB	11/24/20 12:29	91	96	93	98
ZZZZZZ	11/24/20 12:31				
KQ2017991-01MB	11/24/20 12:37	97	100	98	97
K2010392-007	11/24/20 12:39	97	98	98	97
KQ2017991-02LCS	11/24/20 12:41	93	99	97	97
ZZZZZZ	11/24/20 12:43				
ZZZZZZ	11/24/20 12:45				
ZZZZZZ	11/24/20 12:47				
ZZZZZZ	11/24/20 12:49				
ZZZZZZ	11/24/20 12:51				
ZZZZZZ	11/24/20 12:52				
ZZZZZZ	11/24/20 12:54				
CCV	11/24/20 12:56	100	103	100	100
CCB	11/24/20 12:58	100	101	100	99
ZZZZZZ	11/24/20 13:00				
ZZZZZZ	11/24/20 13:02				
ZZZZZZ	11/24/20 13:04				
ZZZZZZ	11/24/20 13:06				
ZZZZZZ	11/24/20 13:08				
ZZZZZZ	11/24/20 13:10				
ZZZZZZ	11/24/20 13:12				
ZZZZZZ	11/24/20 13:14				
ZZZZZZ	11/24/20 13:16				
K2010392-002	11/24/20 13:17	105	107	105	102
ZZZZZZ	11/24/20 13:19				
CCV	11/24/20 13:26	107	110	110	104
CCB	11/24/20 13:28	109	112	111	104
K2010392-003	11/24/20 13:30	94	99	95	94
K2010392-005	11/24/20 13:32	104	106	103	98

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: K-ICP-MS-06

Analytical BatchID: 704807

Sample	Date/Time	Ge72H2	Ge72He	In115He	Lu175He
K2010392-005DUP	11/24/20 13:34	103	105	103	100
K2010392-005SDL	11/24/20 13:36	106	109	106	101
K2010392-005PS	11/24/20 13:39	101	105	102	99
K2010392-005MS	11/24/20 13:41	101	103	102	100
K2010392-006	11/24/20 13:43	103	104	102	98
CCV	11/24/20 13:45	107	110	108	101
CCB	11/24/20 13:47	108	109	107	99
ZZZZZZ	11/24/20 13:49				
LLCCVW	11/24/20 14:10	110	110	105	100

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: K-ICP-MS-06

Analytical BatchID: 704852

Sample	Date/Time	Ge72He	Lu175He
ZZZZZZ	11/24/20 14:33		
ZZZZZZ	11/24/20 14:34		
ICV	11/24/20 14:36	102	103
CCV	11/24/20 14:37	99	102
ZZZZZZ	11/24/20 14:38		
ICB	11/24/20 14:40	99	102
CCB	11/24/20 14:41	98	102
LLICVW	11/24/20 14:43	99	101
ICSA	11/24/20 14:44	92	98
ICSAB	11/24/20 14:45	95	101
KQ2017991-01MB	11/24/20 14:47	98	101
K2010392-007	11/24/20 14:48	98	103
KQ2017991-02LCS	11/24/20 14:49	98	103
ZZZZZZ	11/24/20 14:51		
ZZZZZZ	11/24/20 14:52		
ZZZZZZ	11/24/20 14:53		
ZZZZZZ	11/24/20 14:55		
ZZZZZZ	11/24/20 14:56		
ZZZZZZ	11/24/20 14:57		
ZZZZZZ	11/24/20 14:59		
CCV	11/24/20 15:00	94	102
CCB	11/24/20 15:02	100	105
ZZZZZZ	11/24/20 15:03		
ZZZZZZ	11/24/20 15:04		
ZZZZZZ	11/24/20 15:06		
ZZZZZZ	11/24/20 15:07		
ZZZZZZ	11/24/20 15:08		
ZZZZZZ	11/24/20 15:10		
ZZZZZZ	11/24/20 15:11		
ZZZZZZ	11/24/20 15:12		
ZZZZZZ	11/24/20 15:14		
K2010392-002	11/24/20 15:15	96	97
CCV	11/24/20 15:16	96	98
CCB	11/24/20 15:18	96	98
K2010392-003	11/24/20 15:19	86	92
K2010392-005	11/24/20 15:21	90	93
K2010392-005DUP	11/24/20 15:22	88	93

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: K-ICP-MS-06

Analytical BatchID: 704852

Sample	Date/Time	Ge72He	Lu175He
K2010392-005SDL	11/24/20 15:23	91	92
K2010392-005PS	11/24/20 15:25	87	91
K2010392-005MS	11/24/20 15:26	86	91
K2010392-006	11/24/20 15:27	89	92
CCV	11/24/20 15:29	91	92
CCB	11/24/20 15:30	93	94
LLCCVW	11/24/20 15:31	92	93



Diesel and Residual Range Organics- Silica Gel Treated

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

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dba ALS Environmental

Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 09:44
Date Received: 11/10/20 10:00

Sample Name: CTMW-15-1120
Lab Code: K2010392-002

Units: ug/L
Basis: NA

Semi-Volatile Petroleum Products, Silica Gel Treated by GC/FID

Analysis Method: NWTPH-Dx
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Diesel Range Organics (C12 - C25 DRO)	ND U	260	1	11/13/20 10:13	11/11/20	
Residual Range Organics (C25 - C36 RRO)	ND U	510	1	11/13/20 10:13	11/11/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
o-Terphenyl	122	50 - 150	11/13/20 10:13	
n-Triacontane	122	50 - 150	11/13/20 10:13	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 11:05
Date Received: 11/10/20 10:00

Sample Name: CTMW-25D-1120
Lab Code: K2010392-003

Units: ug/L
Basis: NA

Semi-Volatile Petroleum Products, Silica Gel Treated by GC/FID

Analysis Method: NWTPH-Dx
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Diesel Range Organics (C12 - C25 DRO)	ND U	250	1	11/13/20 10:36	11/11/20	
Residual Range Organics (C25 - C36 RRO)	ND U	510	1	11/13/20 10:36	11/11/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
o-Terphenyl	112	50 - 150	11/13/20 10:36	
n-Triacontane	110	50 - 150	11/13/20 10:36	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 12:04
Date Received: 11/10/20 10:00

Sample Name: CTMW-20-1120
Lab Code: K2010392-005

Units: ug/L
Basis: NA

Semi-Volatile Petroleum Products, Silica Gel Treated by GC/FID

Analysis Method: NWTPH-Dx
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Diesel Range Organics (C12 - C25 DRO)	ND U	250	1	11/13/20 10:58	11/11/20	
Residual Range Organics (C25 - C36 RRO)	ND U	500	1	11/13/20 10:58	11/11/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
o-Terphenyl	121	50 - 150	11/13/20 10:58	
n-Triacontane	116	50 - 150	11/13/20 10:58	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 12:04
Date Received: 11/10/20 10:00

Sample Name: CTMW-9-20-1120
Lab Code: K2010392-006

Units: ug/L
Basis: NA

Semi-Volatile Petroleum Products, Silica Gel Treated by GC/FID

Analysis Method: NWTPH-Dx
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Diesel Range Organics (C12 - C25 DRO)	ND U	250	1	11/13/20 11:43	11/11/20	
Residual Range Organics (C25 - C36 RRO)	ND U	510	1	11/13/20 11:43	11/11/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
o-Terphenyl	106	50 - 150	11/13/20 11:43	
n-Triacontane	103	50 - 150	11/13/20 11:43	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 12:36
Date Received: 11/10/20 10:00

Sample Name: Field Blank #1-1120
Lab Code: K2010392-007

Units: ug/L
Basis: NA

Semi-Volatile Petroleum Products, Silica Gel Treated by GC/FID

Analysis Method: NWTPH-Dx
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Diesel Range Organics (C12 - C25 DRO)	ND U	260	1	11/13/20 12:06	11/11/20	
Residual Range Organics (C25 - C36 RRO)	ND U	510	1	11/13/20 12:06	11/11/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
o-Terphenyl	120	50 - 150	11/13/20 12:06	
n-Triacontane	121	50 - 150	11/13/20 12:06	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: KQ2017713-03

Units: ug/L
Basis: NA

Semi-Volatile Petroleum Products, Silica Gel Treated by GC/FID

Analysis Method: NWTPH-Dx
Prep Method: EPA 3510C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Diesel Range Organics (C12 - C25 DRO)	ND U	250	1	11/13/20 09:51	11/11/20	
Residual Range Organics (C25 - C36 RRO)	ND U	500	1	11/13/20 09:51	11/11/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
o-Terphenyl	125	50 - 150	11/13/20 09:51	
n-Triacontane	123	50 - 150	11/13/20 09:51	

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392

SURROGATE RECOVERY SUMMARY
Semi-Volatile Petroleum Products, Silica Gel Treated by GC/FID

Analysis Method: NWTPH-Dx
Extraction Method: EPA 3510C

Sample Name	Lab Code	o-Terphenyl	n-Triacontane
		50-150	50-150
CTMW-15-1120	K2010392-002	122	122
CTMW-25D-1120	K2010392-003	112	110
CTMW-20-1120	K2010392-005	121	116
CTMW-9-20-1120	K2010392-006	106	103
Field Blank #1-1120	K2010392-007	120	121
CTMW-20-1120	KQ2017713-01	129	132
Method Blank	KQ2017713-03	125	123
Lab Control Sample	KQ2017713-02	113	112

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20
Date Received: 11/10/20
Date Analyzed: 11/13/20

Replicate Sample Summary
Semi-Volatile Petroleum Products, Silica Gel Treated by GC/FID

Sample Name: CTMW-20-1120
Lab Code: K2010392-005

Units: ug/L
Basis: NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate	Average	RPD	RPD Limit
				Sample KQ2017713-01 Result			
Diesel Range Organics (C12 - C25 DRO)	NWTPH-Dx	250	ND U	ND U	NC	NC	30
Residual Range Organics (C25 - C36 RRO)	NWTPH-Dx	510	ND U	ND U	NC	NC	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Analyzed: 11/13/20
Date Extracted: 11/11/20

Lab Control Sample Summary
Semi-Volatile Petroleum Products, Silica Gel Treated by GC/FID

Analysis Method: NWTPH-Dx
Prep Method: EPA 3510C

Units: ug/L
Basis: NA
Analysis Lot: 703522

Lab Control Sample
KQ2017713-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Diesel Range Organics (C12 - C25 DRO)	3150	3200	99	46-140
Residual Range Organics (C25 - C36 RRO)	1660	1600	104	45-159

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Analyzed: 11/13/20 09:51
Date Extracted: 11/11/20

Method Blank Summary
Semi-Volatile Petroleum Products, Silica Gel Treated by GC/FID

Sample Name: Method Blank
Lab Code: KQ2017713-03
Analysis Method: NWTPH-Dx
Prep Method: EPA 3510C
Instrument ID: K-GC-21
File ID: J:\GC21\DATA\111320F\1113F107.D\
Analysis Lot: 703522
Extraction Lot: 369566

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ2017713-02	J:\GC21\DATA\111320F\1113F106.D\	11/13/20 09:28
CTMW-15-1120	K2010392-002	J:\GC21\DATA\111320F\1113F108.D\	11/13/20 10:13
CTMW-25D-1120	K2010392-003	J:\GC21\DATA\111320F\1113F109.D\	11/13/20 10:36
CTMW-20-1120	K2010392-005	J:\GC21\DATA\111320F\1113F110.D\	11/13/20 10:58
CTMW-20-1120DUP	KQ2017713-01	J:\GC21\DATA\111320F\1113F111.D\	11/13/20 11:21
CTMW-9-20-1120	K2010392-006	J:\GC21\DATA\111320F\1113F112.D\	11/13/20 11:43
Field Blank #1-1120	K2010392-007	J:\GC21\DATA\111320F\1113F113.D\	11/13/20 12:06

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Analyzed: 11/13/20 09:28
Date Extracted: 11/11/20

Lab Control Sample Summary
Semi-Volatile Petroleum Products, Silica Gel Treated by GC/FID

Sample Name: Lab Control Sample **Instrument ID:** K-GC-21
Lab Code: KQ2017713-02 **File ID:** J:\GC21\DATA\111320F\1113F106.D\
Analysis Method: NWTPH-Dx **Analysis Lot:** 703522
Prep Method: EPA 3510C **Extraction Lot:** 369566

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ2017713-03	J:\GC21\DATA\111320F\1113F107.D\	11/13/20 09:51
CTMW-15-1120	K2010392-002	J:\GC21\DATA\111320F\1113F108.D\	11/13/20 10:13
CTMW-25D-1120	K2010392-003	J:\GC21\DATA\111320F\1113F109.D\	11/13/20 10:36
CTMW-20-1120	K2010392-005	J:\GC21\DATA\111320F\1113F110.D\	11/13/20 10:58
CTMW-20-1120DUP	KQ2017713-01	J:\GC21\DATA\111320F\1113F111.D\	11/13/20 11:21
CTMW-9-20-1120	K2010392-006	J:\GC21\DATA\111320F\1113F112.D\	11/13/20 11:43
Field Blank #1-1120	K2010392-007	J:\GC21\DATA\111320F\1113F113.D\	11/13/20 12:06

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 8/26/2020

Initial Calibration Summary
Semi-Volatile Petroleum Products, Silica Gel Treated by GC/FID

Calibration ID: KC2000445
Instrument ID: K-GC-21

Signal ID: ZB-1

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC2000445-01	DRO SVF03-2A 200/10	J:\GC21\DATA\082620F\0826F106.D	08/26/2020 16:30
02	KC2000445-02	DRO SVF03-1L 500/25	J:\GC21\DATA\082620F\0826F107.D	08/26/2020 16:52
03	KC2000445-03	DRO SVF03-1K 2000/100	J:\GC21\DATA\082620F\0826F108.D	08/26/2020 17:15
04	KC2000445-04	DRO SVF03-1J 5000/250	J:\GC21\DATA\082620F\0826F109.D	08/26/2020 17:37
05	KC2000445-05	RRO SVF02-100K 50	J:\GC21\DATA\082620F\0826F118.D	08/26/2020 20:59
06	KC2000445-06	RRO SVF02-100J 200	J:\GC21\DATA\082620F\0826F119.D	08/26/2020 21:22
07	KC2000445-07	RRO SVF02-100I 500	J:\GC21\DATA\082620F\0826F120.D	08/26/2020 21:44
08	KC2000445-08	RRO SVF02-100H 2000	J:\GC21\DATA\082620F\0826F121.D	08/26/2020 22:06
09	KC2000445-09	RRO SVF02-100G 5000	J:\GC21\DATA\082620F\0826F122.D	08/26/2020 22:29
10	KC2000445-10	AK103 SVF03-1F 50	J:\GC21\DATA\082620F\0826F129.D	08/27/2020 01:06
11	KC2000445-11	AK103 SVF03-1E 200	J:\GC21\DATA\082620F\0826F130.D	08/27/2020 01:28
12	KC2000445-12	AK103 SVF03-1D 500	J:\GC21\DATA\082620F\0826F131.D	08/27/2020 01:51
13	KC2000445-13	AK103 SVF03-1C 2000	J:\GC21\DATA\082620F\0826F132.D	08/27/2020 02:13
14	KC2000445-14	AK103 SVF03-1B 5000	J:\GC21\DATA\082620F\0826F133.D	08/27/2020 02:35
16	KC2000445-16	DRO SVF03-2C 20/1.0	J:\GC21\DATA\082620F\0826F146.D	08/27/2020 07:26
17	KC2000445-17	DRO SVF03-2B 50/2.5	J:\GC21\DATA\082620F\0826F147.D	08/27/2020 07:49
18	KC2000445-18	DRO SVF03-1I 20K	J:\GC21\DATA\082620F\0826F153.D	08/27/2020 10:04
19	KC2000445-19	DRO SVF03-1H 50K	J:\GC21\DATA\082620F\0826F154.D	08/27/2020 10:26

Analyte

Diesel Range Organics (C12 - C25 DRO)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
16	20.000	1.421E3	17	50.000	1.415E3	01	200.000	1.358E3	02	500.000	1.337E3
03	2000.000	1.31E3	04	5000.000	1.226E3	18	20000.000	1.13E3	19	50000.000	1.172E3

Residual Range Organics (C25 - C36 RRO)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
05	50.000	1.064E3	06	200.000	969.6	07	500.000	922.9	08	2000.000	852.3
09	5000.000	832.3									

n-Triacontane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
16	1.000	1.374E3	17	2.500	1.46E3	01	10.000	1.415E3	02	25.000	1.471E3
03	100.000	1.383E3	04	250.000	1.34E3						

o-Terphenyl

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
16	1.000	1.806E3	17	2.500	1.878E3	01	10.000	1.746E3	02	25.000	1.789E3
03	100.000	1.665E3	04	250.000	1.609E3						

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 8/26/2020

Initial Calibration Summary
Semi-Volatile Petroleum Products, Silica Gel Treated by GC/FID

Calibration ID: KC2000445
Instrument ID: K-GC-21

Signal ID: ZB-1

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Diesel Range Organics (C12 - C25 DRO)	TRG	Average RF	% RSD	8.4	20	1.296E3	
Residual Range Organics (C25 - C36 RRO)	TRG	Average RF	% RSD	10.1	20	928.1	
n-Triacontane	SURR	Average RF	% RSD	3.6	20	1.407E3	
o-Terphenyl	SURR	Average RF	% RSD	5.6	20	1.749E3	

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 8/26/2020

Initial Calibration Verification Summary
Semi-Volatile Petroleum Products, Silica Gel Treated by GC/FID

Calibration ID: KC2000445
Instrument ID: K-GC-21

Signal ID: ZB-1

#	Lab Code	Sample Name	File Location	Acquisition Date
15	KC2000445-15	AK103 SVF03-1G ICV@1000	J:\GC21\DATA\082620F\0826F136.D	08/27/2020 03:42
21	KC2000445-21	DRO SVF03-2D ICV@1000	J:\GC21\DATA\082620F\0826F157.D	08/27/2020 11:34
20	KC2000445-20	RRO SVF03-02E ICV@1000	J:\GC21\DATA\082620F\0826F161.D	08/27/2020 13:04

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Diesel Range Organics (C12 - C25 DRO)	1000	985	1.296E3	1.276E3	-1.522	±15	Average RF
Residual Range Organics (C25 - C36 RRO)	1000	870	9.281E2	8.071E2	-13.040	±15	Average RF

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392
Date Analyzed: 11/13/20 08:21

Continuing Calibration Verification (CCV) Summary
Semi-Volatile Petroleum Products, Silica Gel Treated by GC/FID

Analysis Method: NWTPH-Dx
File ID: J:\GC21\DATA\111320F\1113F103.D\
Signal ID: ZB-1

Calibration Date: 8/26/2020
Calibration ID: KC2000445
Analysis Lot: 703522
Units: ppm

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Diesel Range Organics (C12 - C25 DRO)	1000	999	1.296E3	1.295E3	-0.1	NA	±15	Average RF
Residual Range Organics (C25 - C36 RRO)	1000	1000	928.1187	931.748	0.4	NA	±15	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
o-Terphenyl	50.0	51.6	1.749E3	1.806E3	3.3	NA	±15	Average RF
n-Triacontane	50.0	50.7	1.407E3	1.426E3	1.3	NA	±15	Average RF

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392
Date Analyzed: 11/13/20 12:28

Continuing Calibration Verification (CCV) Summary
Semi-Volatile Petroleum Products, Silica Gel Treated by GC/FID

Analysis Method: NWTPH-Dx
File ID: J:\GC21\DATA\111320F\1113F114.D\
Signal ID: ZB-1

Calibration Date: 8/26/2020
Calibration ID: KC2000445
Analysis Lot: 703522
Units: ppm

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Diesel Range Organics (C12 - C25 DRO)	1000	1060	1.296E3	1.377E3	6.2	NA	±15	Average RF
Residual Range Organics (C25 - C36 RRO)	1000	1020	928.1187	944.065	1.7	NA	±15	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
o-Terphenyl	50.0	55.0	1.749E3	1.922E3	9.9	NA	±15	Average RF
n-Triacontane	50.0	55.0	1.407E3	1.548E3	10.0	NA	±15	Average RF

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request:K2010392

Analysis Run Log
Semi-Volatile Petroleum Products, Silica Gel Treated by GC/FID

Analysis Method: NWTPH-Dx

Analysis Lot:703522
Instrument ID:K-GC-21

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC21\DATA\111320F\1113F103.D\	Continuing Calibration Verification	KQ2018034-01	11/13/2020	08:21:00	
J:\GC21\DATA\111320F\1113F104.D\	Continuing Calibration Verification	KQ2018034-01	11/13/2020	08:43:00	
J:\GC21\DATA\111320F\1113F105.D\	Continuing Calibration Blank	KQ2018034-03	11/13/2020	09:06:00	
J:\GC21\DATA\111320F\1113F106.D\	Lab Control Sample	KQ2017713-02	11/13/2020	09:28:00	
J:\GC21\DATA\111320F\1113F107.D\	Method Blank	KQ2017713-03	11/13/2020	09:51:00	
J:\GC21\DATA\111320F\1113F108.D\	CTMW-15-1120	K2010392-002	11/13/2020	10:13:00	
J:\GC21\DATA\111320F\1113F109.D\	CTMW-25D-1120	K2010392-003	11/13/2020	10:36:00	
J:\GC21\DATA\111320F\1113F110.D\	CTMW-20-1120	K2010392-005	11/13/2020	10:58:00	
J:\GC21\DATA\111320F\1113F111.D\	CTMW-20-1120 DUP	KQ2017713-01	11/13/2020	11:21:00	
J:\GC21\DATA\111320F\1113F112.D\	CTMW-9-20-1120	K2010392-006	11/13/2020	11:43:00	
J:\GC21\DATA\111320F\1113F113.D\	Field Blank #1-1120	K2010392-007	11/13/2020	12:06:00	
J:\GC21\DATA\111320F\1113F114.D\	Continuing Calibration Verification	KQ2018034-02	11/13/2020	12:28:00	
J:\GC21\DATA\111320F\1113F115.D\	Continuing Calibration Verification	KQ2018034-02	11/13/2020	12:51:00	
J:\GC21\DATA\111320F\1113F116.D\	Continuing Calibration Blank	KQ2018034-04	11/13/2020	13:13:00	

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Prep Summary Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request:K2010392

Semi-Volatile Petroleum Products, Silica Gel Treated by GC/FID

Prep Method: EPA 3510C
Analytical Method: NWTPH-Dx

Extraction Lot: 369566
Extraction Date: 11/11/20 10:55

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
CTMW-15-1120	K2010392-002	11/9/20	11/10/20	490.0000 mL	1 mL	
CTMW-25D-1120	K2010392-003	11/9/20	11/10/20	495.0000 mL	1 mL	
CTMW-20-1120	K2010392-005	11/9/20	11/10/20	500.0000 mL	1 mL	
CTMW-9-20-1120	K2010392-006	11/9/20	11/10/20	495.0000 mL	1 mL	
Field Blank #1-1120	K2010392-007	11/9/20	11/10/20	490.0000 mL	1 mL	
Duplicate	KQ2017713-01DUP	11/9/20	11/10/20	495.0000 mL	1 mL	
Lab Control Sample	KQ2017713-02LCS	NA	NA	500 mL	1 mL	
Method Blank	KQ2017713-03MB	NA	NA	500 mL	1 mL	



Gasoline Range Organics

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 08:45
Date Received: 11/10/20 10:00

Sample Name: Trip Blank #1-1120
Lab Code: K2010392-001

Units: ug/L
Basis: NA

Volatile Petroleum Products by GC/FID

Analysis Method: NWTPH-Gx
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Gasoline Range Organics (Toluene-Naphthalene GRO)	ND U	250	1	11/17/20 21:11	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Difluorobenzene	101	50 - 150	11/17/20 21:11	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 12:04
Date Received: 11/10/20 10:00

Sample Name: CTMW-20-1120
Lab Code: K2010392-005

Units: ug/L
Basis: NA

Volatile Petroleum Products by GC/FID

Analysis Method: NWTPH-Gx
Prep Method: None

<u>Analyte Name</u>	<u>Result</u>	<u>MRL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Q</u>
Gasoline Range Organics (Toluene-Naphthalene GRO)	ND U	250	1	11/18/20 00:20	

<u>Surrogate Name</u>	<u>% Rec</u>	<u>Control Limits</u>	<u>Date Analyzed</u>	<u>Q</u>
1,4-Difluorobenzene	98	50 - 150	11/18/20 00:20	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 12:04
Date Received: 11/10/20 10:00

Sample Name: CTMW-9-20-1120
Lab Code: K2010392-006

Units: ug/L
Basis: NA

Volatile Petroleum Products by GC/FID

Analysis Method: NWTPH-Gx
Prep Method: None

<u>Analyte Name</u>	<u>Result</u>	<u>MRL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Q</u>
Gasoline Range Organics (Toluene-Naphthalene GRO)	ND U	250	1	11/17/20 23:56	

<u>Surrogate Name</u>	<u>% Rec</u>	<u>Control Limits</u>	<u>Date Analyzed</u>	<u>Q</u>
1,4-Difluorobenzene	98	50 - 150	11/17/20 23:56	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: KQ2018216-09

Units: ug/L
Basis: NA

Volatile Petroleum Products by GC/FID

Analysis Method: NWTPH-Gx
Prep Method: None

Analyte Name	Result	MRL	Dil.	Date Analyzed	Q
Gasoline Range Organics (Toluene-Naphthalene GRO)	ND U	250	1	11/17/20 19:36	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Difluorobenzene	104	50 - 150	11/17/20 19:36	

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392

SURROGATE RECOVERY SUMMARY
Volatile Petroleum Products by GC/FID

Analysis Method: NWTPH-Gx
Extraction Method: None

Sample Name	Lab Code	1,4-Difluorobenzene
		50-150
Trip Blank #1-1120	K2010392-001	101
CTMW-20-1120	K2010392-005	98
CTMW-9-20-1120	K2010392-006	98
Method Blank	KQ2018216-09	104
Lab Control Sample	KQ2018216-01	104
Duplicate Lab Control Sample	KQ2018216-02	105
CTMW-20-1120	KQ2018216-03	100
CTMW-20-1120	KQ2018216-04	99

ALS Group USA, Corp.
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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20
Date Received: 11/10/20
Date Analyzed: 11/18/20
Date Extracted: NA

Duplicate Matrix Spike Summary
Volatile Petroleum Products by GC/FID

Sample Name: CTMW-20-1120
Lab Code: K2010392-005
Analysis Method: NWTPH-Gx
Prep Method: None

Units: ug/L
Basis: NA

Analyte Name	Sample Result	Matrix Spike KQ2018216-03			Duplicate Matrix Spike KQ2018216-04			% Rec Limits	RPD	RPD Limit
		Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
Gasoline Range Organics (Toluene-Naphthalene GRO)	ND U	443	500	89	489	500	98	80-119	10	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Analyzed: 11/17/20
Date Extracted: NA

Duplicate Lab Control Sample Summary
Volatile Petroleum Products by GC/FID

Analysis Method: NWTPH-Gx
Prep Method: None

Units: ug/L
Basis: NA
Analysis Lot: 703895

Lab Control Sample
KQ2018216-01

Duplicate Lab Control Sample
KQ2018216-02

Analyte Name	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Gasoline Range Organics (Toluene-Naphthalene GRO)	453	500	91	447	500	89	80-119	1	30

ALS Group USA, Corp.
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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Analyzed: 11/17/20 19:36
Date Extracted:

Method Blank Summary
Volatile Petroleum Products by GC/FID

Sample Name: Method Blank
Lab Code: KQ2018216-09
Analysis Method: NWTPH-Gx
Prep Method: None

Instrument ID: K-GC-39
File ID: J:\GC39\DATA\111720\1117F006.D\
Analysis Lot: 703895

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ2018216-01	J:\GC39\DATA\111720\1117F007.D\	11/17/20 19:59
Duplicate Lab Control Sample	KQ2018216-02	J:\GC39\DATA\111720\1117F008.D\	11/17/20 20:23
Trip Blank #1-1120	K2010392-001	J:\GC39\DATA\111720\1117F010.D\	11/17/20 21:11
CTMW-9-20-1120	K2010392-006	J:\GC39\DATA\111720\1117F017.D\	11/17/20 23:56
CTMW-20-1120	K2010392-005	J:\GC39\DATA\111720\1117F018.D\	11/18/20 00:20
CTMW-20-1120MS	KQ2018216-03	J:\GC39\DATA\111720\1117F019.D\	11/18/20 00:43
CTMW-20-1120DMS	KQ2018216-04	J:\GC39\DATA\111720\1117F020.D\	11/18/20 01:07

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Analyzed: 11/17/20 19:59
Date Extracted:

Lab Control Sample Summary
Volatile Petroleum Products by GC/FID

Sample Name: Lab Control Sample
Lab Code: KQ2018216-01
Analysis Method: NWTPH-Gx
Prep Method: None

Instrument ID: K-GC-39
File ID: J:\GC39\DATA\111720\1117F007.D\
Analysis Lot: 703895

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ2018216-09	J:\GC39\DATA\111720\1117F006.D\	11/17/20 19:36
Duplicate Lab Control Sample	KQ2018216-02	J:\GC39\DATA\111720\1117F008.D\	11/17/20 20:23
Trip Blank #1-1120	K2010392-001	J:\GC39\DATA\111720\1117F010.D\	11/17/20 21:11
CTMW-9-20-1120	K2010392-006	J:\GC39\DATA\111720\1117F017.D\	11/17/20 23:56
CTMW-20-1120	K2010392-005	J:\GC39\DATA\111720\1117F018.D\	11/18/20 00:20
CTMW-20-1120MS	KQ2018216-03	J:\GC39\DATA\111720\1117F019.D\	11/18/20 00:43
CTMW-20-1120DMS	KQ2018216-04	J:\GC39\DATA\111720\1117F020.D\	11/18/20 01:07

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 7/7/2020

Initial Calibration Summary
Volatile Petroleum Products by GC/FID

Calibration ID: KC2000336
Instrument ID: K-GC-39

Signal ID: DB-624

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC2000336-01	ICAL 50/20	J:\GC39\DATA\070720\0707F006.D	07/07/2020 09:15
02	KC2000336-02	ICAL 100/25	J:\GC39\DATA\070720\0707F007.D	07/07/2020 09:39
03	KC2000336-03	ICAL 200/50	J:\GC39\DATA\070720\0707F008.D	07/07/2020 10:02
04	KC2000336-04	ICAL 500/100	J:\GC39\DATA\070720\0707F009.D	07/07/2020 10:26
05	KC2000336-05	ICAL 1000/150	J:\GC39\DATA\070720\0707F010.D	07/07/2020 10:50
06	KC2000336-06	ICAL 5000	J:\GC39\DATA\070720\0707F011.D	07/07/2020 11:14
07	KC2000336-07	ICAL 10000	J:\GC39\DATA\070720\0707F012.D	07/07/2020 11:37

Analyte

1,4-Difluorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20.000	1.567E5	02	25.000	1.606E5	03	50.000	1.446E5	04	100.000	1.441E5
05	150.000	1.515E5									

Gasoline Range Organics (Toluene-Naphthalene GRO)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	50.000	5.979E4	02	100.000	5.324E4	03	200.000	5.272E4	04	500.000	5.111E4
05	1000.000	5.396E4	06	5000.000	5.397E4	07	10000.000	5.898E4			

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 7/7/2020

Initial Calibration Summary
Volatile Petroleum Products by GC/FID

Calibration ID: KC2000336
Instrument ID: K-GC-39

Signal ID: DB-624

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
1,4-Difluorobenzene	SURR	Average RF	% RSD	4.8	20	1.515E5	
Gasoline Range Organics (Toluene-Naphthalene GRO)	TRG	Average RF	% RSD	6.0	20	5.482E4	

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 7/7/2020

**Initial Calibration Verification Summary
Volatile Petroleum Products by GC/FID**

Calibration ID: KC2000336
Instrument ID: K-GC-39

Signal ID: DB-624

#	Lab Code	Sample Name	File Location	Acquisition Date
08	KC2000336-08	ICV	J:\GC39\DATA\070720\0707F015.D	07/07/2020 12:48

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Gasoline Range Organics (Toluene-Naphthalene GRO)	500	422	5.482E4	4.632E4	-15.512	±20	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
1,4-Difluorobenzene	100	95.8	1.515E5	1.451E5	-4.232	±20	Average RF

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392
Date Analyzed: 11/17/20 18:48

**Continuing Calibration Verification (CCV) Summary
Volatile Petroleum Products by GC/FID**

Analysis Method: NWTPH-Gx
File ID: J:\GC39\DATA\111720\1117F004.D\
Signal ID: DB-624

Calibration Date: 7/7/2020
Calibration ID: KC2000336
Analysis Lot: 703895
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Gasoline Range Organics (Toluene-Naphthalene GRO)	500	459	5.482E4	5.033E4	-8.2	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,4-Difluorobenzene	100	104	1.515E5	1.577E5	4.1	NA	±20	Average RF

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392
Date Analyzed: 11/18/20 01:31

Continuing Calibration Verification (CCV) Summary
Volatile Petroleum Products by GC/FID

Analysis Method: NWTPH-Gx
File ID: J:\GC39\DATA\111720\1117F021.D\
Signal ID: DB-624

Calibration Date: 7/7/2020
Calibration ID: KC2000336
Analysis Lot: 703895
Units: ug/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Gasoline Range Organics (Toluene-Naphthalene GRO)	500	406	5.482E4	4.452E4	-18.8	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,4-Difluorobenzene	100	98.7	1.515E5	1.495E5	-1.3	NA	±20	Average RF

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request:K2010392

Analysis Run Log
Volatile Petroleum Products by GC/FID

Analysis Method: NWTPH-Gx

Analysis Lot:703895
Instrument ID:K-GC-39

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\GC39\DATA\111720\1117F004.D\	Continuing Calibration Verification	KQ2018216-05	11/17/2020	18:48:00	
J:\GC39\DATA\111720\1117F005.D\	Continuing Calibration Blank	KQ2018216-07	11/17/2020	19:12:00	
J:\GC39\DATA\111720\1117F006.D\	Method Blank	KQ2018216-09	11/17/2020	19:36:00	
J:\GC39\DATA\111720\1117F007.D\	Lab Control Sample	KQ2018216-01	11/17/2020	19:59:00	
J:\GC39\DATA\111720\1117F008.D\	Duplicate Lab Control Sample	KQ2018216-02	11/17/2020	20:23:00	
J:\GC39\DATA\111720\1117F010.D\	Trip Blank #1-1120	K2010392-001	11/17/2020	21:11:00	
J:\GC39\DATA\111720\1117F011.D\	ZZZZZZZ	ZZZZZZZ	11/17/2020	21:34:00	
J:\GC39\DATA\111720\1117F012.D\	ZZZZZZZ	ZZZZZZZ	11/17/2020	21:58:00	
J:\GC39\DATA\111720\1117F013.D\	ZZZZZZZ	ZZZZZZZ	11/17/2020	22:21:00	
J:\GC39\DATA\111720\1117F014.D\	ZZZZZZZ	ZZZZZZZ	11/17/2020	22:45:00	
J:\GC39\DATA\111720\1117F015.D\	ZZZZZZZ	ZZZZZZZ	11/17/2020	23:09:00	
J:\GC39\DATA\111720\1117F016.D\	ZZZZZZZ	ZZZZZZZ	11/17/2020	23:32:00	
J:\GC39\DATA\111720\1117F017.D\	CTMW-9-20-1120	K2010392-006	11/17/2020	23:56:00	
J:\GC39\DATA\111720\1117F018.D\	CTMW-20-1120	K2010392-005	11/18/2020	00:20:00	
J:\GC39\DATA\111720\1117F019.D\	CTMW-20-1120 MS	KQ2018216-03	11/18/2020	00:43:00	
J:\GC39\DATA\111720\1117F020.D\	CTMW-20-1120 DMS	KQ2018216-04	11/18/2020	01:07:00	
J:\GC39\DATA\111720\1117F021.D\	Continuing Calibration Verification	KQ2018216-06	11/18/2020	01:31:00	
J:\GC39\DATA\111720\1117F022.D\	Continuing Calibration Blank	KQ2018216-08	11/18/2020	01:54:00	



Volatile Organic Compounds

ALS Environmental—Kelso Laboratory
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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 08:45
Date Received: 11/10/20 10:00

Sample Name: Trip Blank #1-1120
Lab Code: K2010392-001

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	11/11/20 15:02	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	11/11/20 15:02	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	11/11/20 15:02	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	11/11/20 15:02	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	11/11/20 15:02	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	11/11/20 15:02	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	11/11/20 15:02	
1,2-Dichloroethane	ND U	0.50	0.080	1	11/11/20 15:02	
1,2-Dichloropropane	ND U	0.50	0.095	1	11/11/20 15:02	
2-Butanone (MEK)	ND U	20	1.9	1	11/11/20 15:02	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	11/11/20 15:02	*
2-Hexanone	ND U	20	2.7	1	11/11/20 15:02	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	11/11/20 15:02	
3-Chloro-1-propene	ND U	5.0	0.094	1	11/11/20 15:02	
4-Methyl-2-pentanone	ND U	20	2.6	1	11/11/20 15:02	
Acetone	ND U	20	3.3	1	11/11/20 15:02	
Acetonitrile	ND U	50	13	1	11/11/20 15:02	
Acrolein	ND U	20	1.2	1	11/11/20 15:02	
Acrylonitrile	ND U	5.0	0.53	1	11/11/20 15:02	
Benzene	ND U	0.50	0.062	1	11/11/20 15:02	
Bromodichloromethane	ND U	0.50	0.091	1	11/11/20 15:02	
Bromoform	ND U	0.50	0.16	1	11/11/20 15:02	
Bromomethane	ND U	0.50	0.16	1	11/11/20 15:02	
Carbon Disulfide	ND U	0.50	0.069	1	11/11/20 15:02	
Carbon Tetrachloride	ND U	0.50	0.096	1	11/11/20 15:02	*
Chlorobenzene	ND U	0.50	0.11	1	11/11/20 15:02	
Chloroethane	ND U	0.50	0.16	1	11/11/20 15:02	
Chloroform	ND U	0.50	0.072	1	11/11/20 15:02	
Chloromethane	ND U	0.50	0.068	1	11/11/20 15:02	
Dibromochloromethane	ND U	0.50	0.14	1	11/11/20 15:02	*
Dibromomethane	ND U	0.50	0.15	1	11/11/20 15:02	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	11/11/20 15:02	*
Dichloromethane	0.10 J	2.0	0.10	1	11/11/20 15:02	
Ethyl Methacrylate	ND U	5.0	0.15	1	11/11/20 15:02	
Ethylbenzene	ND U	0.50	0.050	1	11/11/20 15:02	
Iodomethane	ND U	5.0	0.12	1	11/11/20 15:02	*
Methacrylonitrile	ND U	5.0	0.35	1	11/11/20 15:02	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	11/11/20 15:02	
Toluene	ND U	0.50	0.054	1	11/11/20 15:02	
Trichloroethene (TCE)	ND U	0.50	0.10	1	11/11/20 15:02	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	11/11/20 15:02	
Vinyl Acetate	ND U	5.0	0.43	1	11/11/20 15:02	*
Vinyl Chloride	ND U	0.50	0.075	1	11/11/20 15:02	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 08:45
Date Received: 11/10/20 10:00

Sample Name: Trip Blank #1-1120
Lab Code: K2010392-001

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	11/11/20 15:02	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	11/11/20 15:02	
m,p-Xylenes	ND U	0.50	0.11	1	11/11/20 15:02	
o-Xylene	ND U	0.50	0.074	1	11/11/20 15:02	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	11/11/20 15:02	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	11/11/20 15:02	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	11/11/20 15:02	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	89	68 - 117	11/11/20 15:02	
Dibromofluoromethane	98	73 - 122	11/11/20 15:02	
Toluene-d8	97	65 - 144	11/11/20 15:02	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 09:44
Date Received: 11/10/20 10:00

Sample Name: CTMW-15-1120
Lab Code: K2010392-002

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	11/11/20 15:55	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	11/11/20 15:55	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	11/11/20 15:55	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	11/11/20 15:55	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	11/11/20 15:55	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	11/11/20 15:55	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	11/11/20 15:55	
1,2-Dichloroethane	ND U	0.50	0.080	1	11/11/20 15:55	
1,2-Dichloropropane	ND U	0.50	0.095	1	11/11/20 15:55	
2-Butanone (MEK)	ND U	20	1.9	1	11/11/20 15:55	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	11/11/20 15:55	*
2-Hexanone	ND U	20	2.7	1	11/11/20 15:55	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	11/11/20 15:55	
3-Chloro-1-propene	ND U	5.0	0.094	1	11/11/20 15:55	
4-Methyl-2-pentanone	ND U	20	2.6	1	11/11/20 15:55	
Acetone	ND U	20	3.3	1	11/11/20 15:55	
Acetonitrile	ND U	50	13	1	11/11/20 15:55	
Acrolein	ND U	20	1.2	1	11/11/20 15:55	
Acrylonitrile	ND U	5.0	0.53	1	11/11/20 15:55	
Benzene	ND U	0.50	0.062	1	11/11/20 15:55	
Bromodichloromethane	ND U	0.50	0.091	1	11/11/20 15:55	
Bromoform	ND U	0.50	0.16	1	11/11/20 15:55	
Bromomethane	ND U	0.50	0.16	1	11/11/20 15:55	
Carbon Disulfide	ND U	0.50	0.069	1	11/11/20 15:55	
Carbon Tetrachloride	ND U	0.50	0.096	1	11/11/20 15:55	*
Chlorobenzene	ND U	0.50	0.11	1	11/11/20 15:55	
Chloroethane	ND U	0.50	0.16	1	11/11/20 15:55	
Chloroform	ND U	0.50	0.072	1	11/11/20 15:55	
Chloromethane	ND U	0.50	0.068	1	11/11/20 15:55	
Dibromochloromethane	ND U	0.50	0.14	1	11/11/20 15:55	*
Dibromomethane	ND U	0.50	0.15	1	11/11/20 15:55	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	11/11/20 15:55	*
Dichloromethane	ND U	2.0	0.10	1	11/11/20 15:55	
Ethyl Methacrylate	ND U	5.0	0.15	1	11/11/20 15:55	
Ethylbenzene	ND U	0.50	0.050	1	11/11/20 15:55	
Iodomethane	ND U	5.0	0.12	1	11/11/20 15:55	*
Methacrylonitrile	ND U	5.0	0.35	1	11/11/20 15:55	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	11/11/20 15:55	
Toluene	ND U	0.50	0.054	1	11/11/20 15:55	
Trichloroethene (TCE)	ND U	0.50	0.10	1	11/11/20 15:55	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	11/11/20 15:55	
Vinyl Acetate	ND U	5.0	0.43	1	11/11/20 15:55	*
Vinyl Chloride	ND U	0.50	0.075	1	11/11/20 15:55	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 09:44
Date Received: 11/10/20 10:00

Sample Name: CTMW-15-1120
Lab Code: K2010392-002

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	11/11/20 15:55	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	11/11/20 15:55	
m,p-Xylenes	ND U	0.50	0.11	1	11/11/20 15:55	
o-Xylene	ND U	0.50	0.074	1	11/11/20 15:55	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	11/11/20 15:55	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	11/11/20 15:55	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	11/11/20 15:55	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	87	68 - 117	11/11/20 15:55	
Dibromofluoromethane	98	73 - 122	11/11/20 15:55	
Toluene-d8	99	65 - 144	11/11/20 15:55	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 11:05
Date Received: 11/10/20 10:00

Sample Name: CTMW-25D-1120
Lab Code: K2010392-003

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	11/11/20 16:22	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	11/11/20 16:22	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	11/11/20 16:22	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	11/11/20 16:22	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	11/11/20 16:22	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	11/11/20 16:22	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	11/11/20 16:22	
1,2-Dichloroethane	ND U	0.50	0.080	1	11/11/20 16:22	
1,2-Dichloropropane	ND U	0.50	0.095	1	11/11/20 16:22	
2-Butanone (MEK)	ND U	20	1.9	1	11/11/20 16:22	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	11/11/20 16:22	*
2-Hexanone	ND U	20	2.7	1	11/11/20 16:22	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	11/11/20 16:22	
3-Chloro-1-propene	ND U	5.0	0.094	1	11/11/20 16:22	
4-Methyl-2-pentanone	ND U	20	2.6	1	11/11/20 16:22	
Acetone	ND U	20	3.3	1	11/11/20 16:22	
Acetonitrile	ND U	50	13	1	11/11/20 16:22	
Acrolein	ND U	20	1.2	1	11/11/20 16:22	
Acrylonitrile	ND U	5.0	0.53	1	11/11/20 16:22	
Benzene	ND U	0.50	0.062	1	11/11/20 16:22	
Bromodichloromethane	ND U	0.50	0.091	1	11/11/20 16:22	
Bromoform	ND U	0.50	0.16	1	11/11/20 16:22	
Bromomethane	ND U	0.50	0.16	1	11/11/20 16:22	
Carbon Disulfide	ND U	0.50	0.069	1	11/11/20 16:22	
Carbon Tetrachloride	ND U	0.50	0.096	1	11/11/20 16:22	*
Chlorobenzene	ND U	0.50	0.11	1	11/11/20 16:22	
Chloroethane	ND U	0.50	0.16	1	11/11/20 16:22	
Chloroform	ND U	0.50	0.072	1	11/11/20 16:22	
Chloromethane	ND U	0.50	0.068	1	11/11/20 16:22	
Dibromochloromethane	ND U	0.50	0.14	1	11/11/20 16:22	*
Dibromomethane	ND U	0.50	0.15	1	11/11/20 16:22	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	11/11/20 16:22	*
Dichloromethane	ND U	2.0	0.10	1	11/11/20 16:22	
Ethyl Methacrylate	ND U	5.0	0.15	1	11/11/20 16:22	
Ethylbenzene	ND U	0.50	0.050	1	11/11/20 16:22	
Iodomethane	ND U	5.0	0.12	1	11/11/20 16:22	*
Methacrylonitrile	ND U	5.0	0.35	1	11/11/20 16:22	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	11/11/20 16:22	
Toluene	ND U	0.50	0.054	1	11/11/20 16:22	
Trichloroethene (TCE)	ND U	0.50	0.10	1	11/11/20 16:22	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	11/11/20 16:22	
Vinyl Acetate	ND U	5.0	0.43	1	11/11/20 16:22	*
Vinyl Chloride	ND U	0.50	0.075	1	11/11/20 16:22	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 11:05
Date Received: 11/10/20 10:00

Sample Name: CTMW-25D-1120
Lab Code: K2010392-003

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	0.070 J	0.50	0.067	1	11/11/20 16:22	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	11/11/20 16:22	
m,p-Xylenes	ND U	0.50	0.11	1	11/11/20 16:22	
o-Xylene	ND U	0.50	0.074	1	11/11/20 16:22	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	11/11/20 16:22	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	11/11/20 16:22	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	11/11/20 16:22	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	68 - 117	11/11/20 16:22	
Dibromofluoromethane	97	73 - 122	11/11/20 16:22	
Toluene-d8	98	65 - 144	11/11/20 16:22	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 12:04
Date Received: 11/10/20 10:00

Sample Name: CTMW-20-1120
Lab Code: K2010392-005

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	11/11/20 16:48	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	11/11/20 16:48	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	11/11/20 16:48	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	11/11/20 16:48	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	11/11/20 16:48	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	11/11/20 16:48	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	11/11/20 16:48	
1,2-Dichloroethane	ND U	0.50	0.080	1	11/11/20 16:48	
1,2-Dichloropropane	ND U	0.50	0.095	1	11/11/20 16:48	
2-Butanone (MEK)	ND U	20	1.9	1	11/11/20 16:48	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	11/11/20 16:48	*
2-Hexanone	ND U	20	2.7	1	11/11/20 16:48	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	11/11/20 16:48	
3-Chloro-1-propene	ND U	5.0	0.094	1	11/11/20 16:48	
4-Methyl-2-pentanone	ND U	20	2.6	1	11/11/20 16:48	
Acetone	ND U	20	3.3	1	11/11/20 16:48	
Acetonitrile	ND U	50	13	1	11/11/20 16:48	
Acrolein	ND U	20	1.2	1	11/11/20 16:48	
Acrylonitrile	ND U	5.0	0.53	1	11/11/20 16:48	
Benzene	ND U	0.50	0.062	1	11/11/20 16:48	
Bromodichloromethane	ND U	0.50	0.091	1	11/11/20 16:48	
Bromoform	ND U	0.50	0.16	1	11/11/20 16:48	
Bromomethane	ND U	0.50	0.16	1	11/11/20 16:48	
Carbon Disulfide	ND U	0.50	0.069	1	11/11/20 16:48	
Carbon Tetrachloride	ND U	0.50	0.096	1	11/11/20 16:48	*
Chlorobenzene	0.22 J	0.50	0.11	1	11/11/20 16:48	
Chloroethane	0.21 J	0.50	0.16	1	11/11/20 16:48	
Chloroform	ND U	0.50	0.072	1	11/11/20 16:48	
Chloromethane	ND U	0.50	0.068	1	11/11/20 16:48	
Dibromochloromethane	ND U	0.50	0.14	1	11/11/20 16:48	*
Dibromomethane	ND U	0.50	0.15	1	11/11/20 16:48	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	11/11/20 16:48	*
Dichloromethane	ND U	2.0	0.10	1	11/11/20 16:48	
Ethyl Methacrylate	ND U	5.0	0.15	1	11/11/20 16:48	
Ethylbenzene	ND U	0.50	0.050	1	11/11/20 16:48	
Iodomethane	ND U	5.0	0.12	1	11/11/20 16:48	*
Methacrylonitrile	ND U	5.0	0.35	1	11/11/20 16:48	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	11/11/20 16:48	
Toluene	ND U	0.50	0.054	1	11/11/20 16:48	
Trichloroethene (TCE)	ND U	0.50	0.10	1	11/11/20 16:48	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	11/11/20 16:48	
Vinyl Acetate	ND U	5.0	0.43	1	11/11/20 16:48	*
Vinyl Chloride	ND U	0.50	0.075	1	11/11/20 16:48	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 12:04
Date Received: 11/10/20 10:00

Sample Name: CTMW-20-1120
Lab Code: K2010392-005

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	11/11/20 16:48	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	11/11/20 16:48	
m,p-Xylenes	ND U	0.50	0.11	1	11/11/20 16:48	
o-Xylene	ND U	0.50	0.074	1	11/11/20 16:48	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	11/11/20 16:48	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	11/11/20 16:48	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	11/11/20 16:48	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	92	68 - 117	11/11/20 16:48	
Dibromofluoromethane	95	73 - 122	11/11/20 16:48	
Toluene-d8	98	65 - 144	11/11/20 16:48	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 12:04
Date Received: 11/10/20 10:00

Sample Name: CTMW-9-20-1120
Lab Code: K2010392-006

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	11/11/20 18:34	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	11/11/20 18:34	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	11/11/20 18:34	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	11/11/20 18:34	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	11/11/20 18:34	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	11/11/20 18:34	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	11/11/20 18:34	
1,2-Dichloroethane	ND U	0.50	0.080	1	11/11/20 18:34	
1,2-Dichloropropane	ND U	0.50	0.095	1	11/11/20 18:34	
2-Butanone (MEK)	ND U	20	1.9	1	11/11/20 18:34	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	11/11/20 18:34	*
2-Hexanone	ND U	20	2.7	1	11/11/20 18:34	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	11/11/20 18:34	
3-Chloro-1-propene	ND U	5.0	0.094	1	11/11/20 18:34	
4-Methyl-2-pentanone	ND U	20	2.6	1	11/11/20 18:34	
Acetone	ND U	20	3.3	1	11/11/20 18:34	
Acetonitrile	ND U	50	13	1	11/11/20 18:34	
Acrolein	ND U	20	1.2	1	11/11/20 18:34	
Acrylonitrile	ND U	5.0	0.53	1	11/11/20 18:34	
Benzene	ND U	0.50	0.062	1	11/11/20 18:34	
Bromodichloromethane	ND U	0.50	0.091	1	11/11/20 18:34	
Bromoform	ND U	0.50	0.16	1	11/11/20 18:34	
Bromomethane	ND U	0.50	0.16	1	11/11/20 18:34	
Carbon Disulfide	0.14 J	0.50	0.069	1	11/11/20 18:34	
Carbon Tetrachloride	ND U	0.50	0.096	1	11/11/20 18:34	*
Chlorobenzene	0.22 J	0.50	0.11	1	11/11/20 18:34	
Chloroethane	0.20 J	0.50	0.16	1	11/11/20 18:34	
Chloroform	ND U	0.50	0.072	1	11/11/20 18:34	
Chloromethane	ND U	0.50	0.068	1	11/11/20 18:34	
Dibromochloromethane	ND U	0.50	0.14	1	11/11/20 18:34	*
Dibromomethane	ND U	0.50	0.15	1	11/11/20 18:34	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	11/11/20 18:34	*
Dichloromethane	ND U	2.0	0.10	1	11/11/20 18:34	
Ethyl Methacrylate	ND U	5.0	0.15	1	11/11/20 18:34	
Ethylbenzene	ND U	0.50	0.050	1	11/11/20 18:34	
Iodomethane	0.25 J	5.0	0.12	1	11/11/20 18:34	*
Methacrylonitrile	ND U	5.0	0.35	1	11/11/20 18:34	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	11/11/20 18:34	
Toluene	0.060 J	0.50	0.054	1	11/11/20 18:34	
Trichloroethene (TCE)	ND U	0.50	0.10	1	11/11/20 18:34	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	11/11/20 18:34	
Vinyl Acetate	ND U	5.0	0.43	1	11/11/20 18:34	*
Vinyl Chloride	ND U	0.50	0.075	1	11/11/20 18:34	

ALS Group USA, Corp.
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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 12:04
Date Received: 11/10/20 10:00

Sample Name: CTMW-9-20-1120
Lab Code: K2010392-006

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	11/11/20 18:34	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	11/11/20 18:34	
m,p-Xylenes	ND U	0.50	0.11	1	11/11/20 18:34	
o-Xylene	ND U	0.50	0.074	1	11/11/20 18:34	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	11/11/20 18:34	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	11/11/20 18:34	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	11/11/20 18:34	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	92	68 - 117	11/11/20 18:34	
Dibromofluoromethane	95	73 - 122	11/11/20 18:34	
Toluene-d8	98	65 - 144	11/11/20 18:34	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 12:36
Date Received: 11/10/20 10:00

Sample Name: Field Blank #1-1120
Lab Code: K2010392-007

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	11/11/20 15:29	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	11/11/20 15:29	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	11/11/20 15:29	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	11/11/20 15:29	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	11/11/20 15:29	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	11/11/20 15:29	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	11/11/20 15:29	
1,2-Dichloroethane	ND U	0.50	0.080	1	11/11/20 15:29	
1,2-Dichloropropane	ND U	0.50	0.095	1	11/11/20 15:29	
2-Butanone (MEK)	ND U	20	1.9	1	11/11/20 15:29	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	11/11/20 15:29	*
2-Hexanone	ND U	20	2.7	1	11/11/20 15:29	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	11/11/20 15:29	
3-Chloro-1-propene	ND U	5.0	0.094	1	11/11/20 15:29	
4-Methyl-2-pentanone	ND U	20	2.6	1	11/11/20 15:29	
Acetone	ND U	20	3.3	1	11/11/20 15:29	
Acetonitrile	ND U	50	13	1	11/11/20 15:29	
Acrolein	ND U	20	1.2	1	11/11/20 15:29	
Acrylonitrile	ND U	5.0	0.53	1	11/11/20 15:29	
Benzene	ND U	0.50	0.062	1	11/11/20 15:29	
Bromodichloromethane	ND U	0.50	0.091	1	11/11/20 15:29	
Bromoform	ND U	0.50	0.16	1	11/11/20 15:29	
Bromomethane	ND U	0.50	0.16	1	11/11/20 15:29	
Carbon Disulfide	ND U	0.50	0.069	1	11/11/20 15:29	
Carbon Tetrachloride	ND U	0.50	0.096	1	11/11/20 15:29	*
Chlorobenzene	ND U	0.50	0.11	1	11/11/20 15:29	
Chloroethane	ND U	0.50	0.16	1	11/11/20 15:29	
Chloroform	ND U	0.50	0.072	1	11/11/20 15:29	
Chloromethane	ND U	0.50	0.068	1	11/11/20 15:29	
Dibromochloromethane	ND U	0.50	0.14	1	11/11/20 15:29	*
Dibromomethane	ND U	0.50	0.15	1	11/11/20 15:29	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	11/11/20 15:29	*
Dichloromethane	0.14 J	2.0	0.10	1	11/11/20 15:29	
Ethyl Methacrylate	ND U	5.0	0.15	1	11/11/20 15:29	
Ethylbenzene	ND U	0.50	0.050	1	11/11/20 15:29	
Iodomethane	ND U	5.0	0.12	1	11/11/20 15:29	*
Methacrylonitrile	ND U	5.0	0.35	1	11/11/20 15:29	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	11/11/20 15:29	
Toluene	ND U	0.50	0.054	1	11/11/20 15:29	
Trichloroethene (TCE)	ND U	0.50	0.10	1	11/11/20 15:29	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	11/11/20 15:29	
Vinyl Acetate	ND U	5.0	0.43	1	11/11/20 15:29	*
Vinyl Chloride	ND U	0.50	0.075	1	11/11/20 15:29	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 12:36
Date Received: 11/10/20 10:00

Sample Name: Field Blank #1-1120
Lab Code: K2010392-007

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	11/11/20 15:29	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	11/11/20 15:29	
m,p-Xylenes	ND U	0.50	0.11	1	11/11/20 15:29	
o-Xylene	ND U	0.50	0.074	1	11/11/20 15:29	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	11/11/20 15:29	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	11/11/20 15:29	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	11/11/20 15:29	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	92	68 - 117	11/11/20 15:29	
Dibromofluoromethane	95	73 - 122	11/11/20 15:29	
Toluene-d8	99	65 - 144	11/11/20 15:29	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: KQ2017754-07

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1,2-Tetrachloroethane	ND U	0.50	0.11	1	11/11/20 13:16	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.075	1	11/11/20 13:16	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.16	1	11/11/20 13:16	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	11/11/20 13:16	
1,1-Dichloroethane (1,1-DCA)	ND U	0.50	0.077	1	11/11/20 13:16	
1,1-Dichloroethene (1,1-DCE)	ND U	0.50	0.080	1	11/11/20 13:16	
1,2,3-Trichloropropane	ND U	0.50	0.20	1	11/11/20 13:16	
1,2-Dichloroethane	ND U	0.50	0.080	1	11/11/20 13:16	
1,2-Dichloropropane	ND U	0.50	0.095	1	11/11/20 13:16	
2-Butanone (MEK)	2.6 J	20	1.9	1	11/11/20 13:16	
2-Chloroethyl Vinyl Ether	ND U	5.0	0.16	1	11/11/20 13:16	
2-Hexanone	ND U	20	2.7	1	11/11/20 13:16	
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	100	6.9	1	11/11/20 13:16	
3-Chloro-1-propene	ND U	5.0	0.094	1	11/11/20 13:16	
4-Methyl-2-pentanone	ND U	20	2.6	1	11/11/20 13:16	
Acetone	ND U	20	3.3	1	11/11/20 13:16	
Acetonitrile	ND U	50	13	1	11/11/20 13:16	
Acrolein	ND U	20	1.2	1	11/11/20 13:16	
Acrylonitrile	ND U	5.0	0.53	1	11/11/20 13:16	
Benzene	ND U	0.50	0.062	1	11/11/20 13:16	
Bromodichloromethane	ND U	0.50	0.091	1	11/11/20 13:16	
Bromoform	ND U	0.50	0.16	1	11/11/20 13:16	
Bromomethane	ND U	0.50	0.16	1	11/11/20 13:16	
Carbon Disulfide	0.080 J	0.50	0.069	1	11/11/20 13:16	
Carbon Tetrachloride	ND U	0.50	0.096	1	11/11/20 13:16	
Chlorobenzene	ND U	0.50	0.11	1	11/11/20 13:16	
Chloroethane	ND U	0.50	0.16	1	11/11/20 13:16	
Chloroform	ND U	0.50	0.072	1	11/11/20 13:16	
Chloromethane	ND U	0.50	0.068	1	11/11/20 13:16	
Dibromochloromethane	ND U	0.50	0.14	1	11/11/20 13:16	
Dibromomethane	ND U	0.50	0.15	1	11/11/20 13:16	
Dichlorodifluoromethane (CFC 12)	ND U	0.50	0.13	1	11/11/20 13:16	
Dichloromethane	0.11 J	2.0	0.10	1	11/11/20 13:16	
Ethyl Methacrylate	ND U	5.0	0.15	1	11/11/20 13:16	
Ethylbenzene	ND U	0.50	0.050	1	11/11/20 13:16	
Iodomethane	0.14 J	5.0	0.12	1	11/11/20 13:16	
Methacrylonitrile	ND U	5.0	0.35	1	11/11/20 13:16	
Tetrachloroethene (PCE)	ND U	0.50	0.099	1	11/11/20 13:16	
Toluene	ND U	0.50	0.054	1	11/11/20 13:16	
Trichloroethene (TCE)	ND U	0.50	0.10	1	11/11/20 13:16	
Trichlorofluoromethane (CFC 11)	ND U	0.50	0.12	1	11/11/20 13:16	
Vinyl Acetate	ND U	5.0	0.43	1	11/11/20 13:16	
Vinyl Chloride	ND U	0.50	0.075	1	11/11/20 13:16	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: KQ2017754-07

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
cis-1,2-Dichloroethene	ND U	0.50	0.067	1	11/11/20 13:16	
cis-1,3-Dichloropropene	ND U	0.50	0.18	1	11/11/20 13:16	
m,p-Xylenes	ND U	0.50	0.11	1	11/11/20 13:16	
o-Xylene	ND U	0.50	0.074	1	11/11/20 13:16	
trans-1,2-Dichloroethene	ND U	0.50	0.072	1	11/11/20 13:16	
trans-1,3-Dichloropropene	ND U	0.50	0.068	1	11/11/20 13:16	
trans-1,4-Dichloro-2-butene	ND U	10	0.35	1	11/11/20 13:16	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	68 - 117	11/11/20 13:16	
Dibromofluoromethane	94	73 - 122	11/11/20 13:16	
Toluene-d8	97	65 - 144	11/11/20 13:16	

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392

SURROGATE RECOVERY SUMMARY
Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Extraction Method: None

Sample Name	Lab Code	4-Bromofluorobenzene	Dibromofluoromethane	Toluene-d8
		68-117	73-122	65-144
Trip Blank #1-1120	K2010392-001	89	98	97
CTMW-15-1120	K2010392-002	87	98	99
CTMW-25D-1120	K2010392-003	90	97	98
CTMW-20-1120	K2010392-005	92	95	98
CTMW-9-20-1120	K2010392-006	92	95	98
Field Blank #1-1120	K2010392-007	92	95	99
Method Blank	KQ2017754-07	90	94	97
Lab Control Sample	KQ2017754-05	95	98	99
Duplicate Lab Control Sample	KQ2017754-06	93	96	97
CTMW-20-1120	KQ2017754-01	93	98	96
CTMW-20-1120	KQ2017754-02	96	100	99

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392
Date Analyzed: 11/11/20 11:04

Internal Standard Area and RT SUMMARY
Volatile Organic Compounds by GC/MS, Unpreserved

File ID: I:\MS13\DATA\111120\1111F004.D\
Instrument ID: K-MS-13
Analysis Method: 8260C

Lab Code: KQ2017754-04
Analysis Lot: 703049
Signal ID: 1

	1,4-Dichlorobenzene-d4		Chlorobenzene-d5		Fluorobenzene	
	Area	RT	Area	RT	Area	RT
Result ==>	87,725	11.96	113,328	9.36	308,087	5.32
Upper Limit ==>	175,450	12.46	226,656	9.86	616,174	5.82
Lower Limit ==>	43,863	11.46	56,664	8.86	154,044	4.82

Associated Analyses

Sample Name	ID	Area	RT	Area	RT	Area	RT
Lab Control Sample	KQ2017754-05	88869	11.95	114378	9.36	300005	5.32
Duplicate Lab Control Sample	KQ2017754-06	88949	11.96	115312	9.36	307573	5.32
Method Blank	KQ2017754-07	86570	11.96	111951	9.36	293395	5.32
Lab Control Sample	KQ2017754-05	87671	11.96	116590	9.36	304568	5.32
Duplicate Lab Control Sample	KQ2017754-06	83328	11.96	111154	9.36	293347	5.33
Trip Blank #1-1120	K2010392-001	83516	11.96	110080	9.36	283575	5.32
Field Blank #1-1120	K2010392-007	83081	11.96	111141	9.36	286281	5.32
CTMW-15-1120	K2010392-002	85478	11.96	114645	9.36	289099	5.33
CTMW-25D-1120	K2010392-003	89120	11.95	117659	9.36	296862	5.32
CTMW-20-1120	K2010392-005	87415	11.96	114519	9.36	296383	5.32
CTMW-20-1120MS	KQ2017754-01	90352	11.96	120579	9.36	311242	5.32
CTMW-20-1120DMS	KQ2017754-02	89608	11.96	119250	9.36	309656	5.32
CTMW-9-20-1120	K2010392-006	87234	11.96	114491	9.36	289124	5.32

ALS Group USA, Corp.
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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20
Date Received: 11/10/20
Date Analyzed: 11/11/20
Date Extracted: NA

Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: CTMW-20-1120
Lab Code: K2010392-005
Analysis Method: 8260C
Prep Method: None

Units: ug/L
Basis: NA

Analyte Name	Sample Result	Matrix Spike KQ2017754-01			Duplicate Matrix Spike KQ2017754-02			% Rec Limits	RPD	RPD Limit
		Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
1,1,1,2-Tetrachloroethane	ND U	10.4	10.0	104	10.5	10.0	105	67-127	1	30
1,1,1-Trichloroethane (TCA)	ND U	11.1	10.0	111	11.9	10.0	119	57-151	6	30
1,1,2,2-Tetrachloroethane	ND U	9.33	10.0	93	9.58	10.0	96	72-129	3	30
1,1,2-Trichloroethane	ND U	9.14	10.0	91	9.38	10.0	94	74-124	3	30
1,1-Dichloroethane (1,1-DCA)	ND U	9.94	10.0	99	10.1	10.0	101	69-141	2	30
1,1-Dichloroethene (1,1-DCE)	ND U	9.19	10.0	92	9.42	10.0	94	59-171	2	30
1,2,3-Trichloropropane	ND U	10.6	10.0	106	10.4	10.0	104	71-127	2	30
1,2-Dichloroethane	ND U	10.4	10.0	104	11.0	10.0	110	56-141	5	30
1,2-Dichloropropane	ND U	9.46	10.0	95	9.69	10.0	97	63-131	2	30
2-Butanone (MEK)	ND U	50.4	50.0	101	51.3	50.0	103	65-147	2	30
2-Chloroethyl Vinyl Ether	ND U	5.94	10.0	59	6.66	10.0	67	10-150	11	30
2-Hexanone	ND U	46.2	50.0	92	52.2	50.0	104	53-132	12	30
2-Methyl-1-propanol (Isobutyl Alcohol)	ND U	247	300	82	278	300	93	27-182	12	30
3-Chloro-1-propene	ND U	34.7	30.0	116	36.4	30.0	121	70-151	5	30
4-Methyl-2-pentanone	ND U	47.4	50.0	95	50.7	50.0	101	64-139	7	30
Acetone	ND U	52.3	50.0	105	52.3	50.0	105	68-134	<1	30
Acetonitrile	ND U	329	300	110	317	300	106	77-127	4	30
Acrolein	ND U	73.9	100	74	75.9	100	76	14-180	3	30
Acrylonitrile	ND U	38.6	40.0	96	40.1	40.0	100	73-131	4	30
Benzene	ND U	10.3	10.0	103	10.4	10.0	104	63-144	1	30
Bromodichloromethane	ND U	10.9	10.0	109	11.4	10.0	114	61-134	4	30
Bromoform	ND U	10.6	10.0	106	10.9	10.0	109	54-140	3	30
Bromomethane	ND U	8.01	10.0	80	8.82	10.0	88	36-127	10	30
Carbon Disulfide	ND U	20.7	20.0	104	21.3	20.0	107	52-156	3	30
Carbon Tetrachloride	ND U	12.6	10.0	126	13.2	10.0	132	53-161	5	30
Chlorobenzene	0.22 J	9.94	10.0	97	10.4	10.0	101	69-126	4	30
Chloroethane	0.21 J	10.8	10.0	106	11.0	10.0	107	56-147	2	30
Chloroform	ND U	10.8	10.0	108	11.1	10.0	111	64-133	3	30
Chloromethane	ND U	10.2	10.0	102	10.2	10.0	102	49-127	<1	30
Dibromochloromethane	ND U	11.4	10.0	114	11.8	10.0	118	68-125	4	30
Dibromomethane	ND U	9.30	10.0	93	9.85	10.0	99	68-132	6	30
Dichlorodifluoromethane (CFC 12)	ND U	13.3	10.0	133	13.6	10.0	136 *	29-133	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20
Date Received: 11/10/20
Date Analyzed: 11/11/20
Date Extracted: NA

Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: CTMW-20-1120
Lab Code: K2010392-005
Analysis Method: 8260C
Prep Method: None

Units: ug/L
Basis: NA

Analyte Name	Sample Result	Matrix Spike KQ2017754-01			Duplicate Matrix Spike KQ2017754-02			% Rec Limits	RPD	RPD Limit
		Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
Dichloromethane	ND U	9.86	10.0	99	9.77	10.0	98	70-133	<1	30
Ethyl Methacrylate	ND U	28.0	30.0	93	30.1	30.0	100	63-134	7	30
Ethylbenzene	ND U	9.80	10.0	98	10.1	10.0	101	66-136	3	30
Iodomethane	ND U	29.7	30.0	99	33.7	30.0	112	65-155	13	30
Methacrylonitrile	ND U	29.6	30.0	99	30.9	30.0	103	68-129	4	30
Tetrachloroethene (PCE)	ND U	10.7	10.0	107	11.3	10.0	113	61-131	5	30
Toluene	ND U	10.8	10.0	108	11.0	10.0	110	71-136	2	30
Trichloroethene (TCE)	ND U	10.5	10.0	105	11.0	10.0	110	53-139	5	30
Trichlorofluoromethane (CFC 11)	ND U	10.9	10.0	109	11.2	10.0	112	45-124	3	30
Vinyl Acetate	ND U	43.9	50.0	88	45.4	50.0	91	69-148	3	30
Vinyl Chloride	ND U	11.1	10.0	111	11.1	10.0	111	49-136	<1	30
cis-1,2-Dichloroethene	ND U	10.1	10.0	101	10.4	10.0	104	61-139	3	30
cis-1,3-Dichloropropene	ND U	9.90	10.0	99	10.2	10.0	102	66-134	3	30
o-Xylene	ND U	10.0	10.0	100	10.1	10.0	101	67-127	1	30
trans-1,2-Dichloroethene	ND U	9.84	10.0	98	10.2	10.0	102	65-143	4	30
trans-1,3-Dichloropropene	ND U	8.70	10.0	87	9.32	10.0	93	56-127	7	30
trans-1,4-Dichloro-2-butene	ND U	29.5	30.0	98	31.4	30.0	105	63-157	6	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Analyzed: 11/11/20
Date Extracted: NA

Duplicate Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Units: ug/L
Basis: NA
Analysis Lot: 703049

Analyte Name	Lab Control Sample KQ2017754-05			Duplicate Lab Control Sample KQ2017754-06			% Rec Limits	RPD	RPD Limit
	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
1,1,1,2-Tetrachloroethane	10.5	10.0	105	10.1	10.0	101	66-124	4	30
1,1,1-Trichloroethane (TCA)	9.89	10.0	99	10.5	10.0	105	59-136	6	30
1,1,2,2-Tetrachloroethane	9.20	10.0	92	9.51	10.0	95	70-127	3	30
1,1,2-Trichloroethane	8.75	10.0	88	8.86	10.0	89	74-118	1	30
1,1-Dichloroethane (1,1-DCA)	9.23	10.0	92	9.43	10.0	94	68-132	2	30
1,1-Dichloroethene (1,1-DCE)	8.08	10.0	81	8.28	10.0	83	66-129	2	30
1,2,3-Trichloropropane	9.91	10.0	99	10.7	10.0	107	69-123	8	30
1,2-Dichloroethane	9.86	10.0	99	10.2	10.0	102	56-142	4	30
1,2-Dichloropropane	8.64	10.0	86	9.05	10.0	91	67-126	5	30
2-Butanone (MEK)	54.6	50.0	109	53.3	50.0	107	71-149	2	30
2-Chloroethyl Vinyl Ether	6.44	10.0	64	6.12	10.0	61	61-126	5	30
2-Hexanone	49.3	50.0	99	49.2	50.0	98	59-131	<1	30
2-Methyl-1-propanol (Isobutyl Alcohol)	273	300	91	279	300	93	36-142	2	30
3-Chloro-1-propene	32.8	30.0	109	32.4	30.0	108	42-147	1	30
4-Methyl-2-pentanone	49.0	50.0	98	48.8	50.0	98	64-134	<1	30
Acetone	56.3	50.0	113	55.4	50.0	111	68-135	2	30
Acetonitrile	314	300	105	316	300	105	69-132	<1	30
Acrylonitrile	39.4	40.0	99	39.1	40.0	98	65-129	<1	30
Benzene	9.45	10.0	95	9.45	10.0	95	69-124	<1	30
Bromodichloromethane	10.6	10.0	106	10.5	10.0	105	63-129	<1	30
Bromoform	10.9	10.0	109	11.4	10.0	114	52-144	5	30
Bromomethane	8.73	10.0	87	8.38	10.0	84	35-113	4	30
Carbon Disulfide	18.3	20.0	91	18.3	20.0	91	46-144	<1	30
Carbon Tetrachloride	11.4	10.0	114	12.1	10.0	121	55-140	5	30
Chlorobenzene	9.49	10.0	95	9.52	10.0	95	72-116	<1	30
Chloroethane	9.43	10.0	94	9.70	10.0	97	58-134	3	30
Chloroform	10.2	10.0	102	10.3	10.0	103	70-129	<1	30
Chloromethane	8.85	10.0	89	9.08	10.0	91	34-130	3	30
cis-1,2-Dichloroethene	9.60	10.0	96	9.56	10.0	96	71-118	<1	30
cis-1,3-Dichloropropene	9.25	10.0	93	9.50	10.0	95	62-132	3	30
Dibromochloromethane	11.6	10.0	116	11.7	10.0	117	67-126	<1	30
Dibromomethane	9.24	10.0	92	9.29	10.0	93	69-128	<1	30
Dichlorodifluoromethane (CFC 12)	11.4	10.0	114	11.6	10.0	116	32-124	1	30
Dichloromethane	9.36	10.0	94	9.34	10.0	93	71-122	<1	30
Ethyl Methacrylate	28.9	30.0	96	28.4	30.0	95	48-143	2	30
Ethylbenzene	9.21	10.0	92	9.32	10.0	93	67-121	1	30
Iodomethane	28.4	30.0	95	29.7	30.0	99	51-164	4	30
m,p-Xylenes	18.3	20.0	92	18.5	20.0	93	69-121	<1	30
Methacrylonitrile	29.3	30.0	98	30.0	30.0	100	47-136	2	30
o-Xylene	9.31	10.0	93	9.48	10.0	95	71-119	2	30
Tetrachloroethene (PCE)	10.0	10.0	100	9.63	10.0	96	62-126	4	30

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Analyzed: 11/11/20
Date Extracted: NA

Duplicate Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Units: ug/L
Basis: NA
Analysis Lot: 703049

Analyte Name	Lab Control Sample KQ2017754-05			Duplicate Lab Control Sample KQ2017754-06			% Rec Limits	RPD	RPD Limit
	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
Toluene	9.78	10.0	98	9.79	10.0	98	69-124	<1	30
trans-1,2-Dichloroethene	8.88	10.0	89	9.14	10.0	91	67-125	3	30
trans-1,3-Dichloropropene	8.71	10.0	87	8.97	10.0	90	59-125	3	30
trans-1,4-Dichloro-2-butene	29.1	30.0	97	29.6	30.0	99	46-170	2	30
Trichloroethene (TCE)	10.0	10.0	100	9.89	10.0	99	67-128	1	30
Trichlorofluoromethane (CFC 11)	9.61	10.0	96	9.80	10.0	98	52-141	2	30
Vinyl Acetate	42.7	50.0	85	43.2	50.0	86	44-156	1	30
Vinyl Chloride	9.64	10.0	96	9.60	10.0	96	55-123	<1	30

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Analyzed: 11/11/20
Date Extracted: NA

Duplicate Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
Prep Method: None

Units: ug/L
Basis: NA
Analysis Lot: 703049

Analyte Name	Lab Control Sample KQ2017754-05			Duplicate Lab Control Sample KQ2017754-06			% Rec Limits	RPD	RPD Limit
	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
Acrolein	75.9	100	76	80.4	100	80	42-118	6	30

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Analyzed: 11/11/20 13:16
Date Extracted:

Method Blank Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: Method Blank **Instrument ID:** K-MS-13
Lab Code: KQ2017754-07 **File ID:** I:\MS13\DATA\111120\1111F009.D\
Analysis Method: 8260C **Analysis Lot:** 703049
Prep Method: None

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ2017754-05	I:\MS13\DATA\111120\1111F005.D\	11/11/20 11:30
Duplicate Lab Control Sample	KQ2017754-06	I:\MS13\DATA\111120\1111F006.D\	11/11/20 11:57
Lab Control Sample	KQ2017754-05	I:\MS13\DATA\111120\1111F010.D\	11/11/20 13:43
Duplicate Lab Control Sample	KQ2017754-06	I:\MS13\DATA\111120\1111F011.D\	11/11/20 14:09
Trip Blank #1-1120	K2010392-001	I:\MS13\DATA\111120\1111F013.D\	11/11/20 15:02
Field Blank #1-1120	K2010392-007	I:\MS13\DATA\111120\1111F014.D\	11/11/20 15:29
CTMW-15-1120	K2010392-002	I:\MS13\DATA\111120\1111F015.D\	11/11/20 15:55
CTMW-25D-1120	K2010392-003	I:\MS13\DATA\111120\1111F016.D\	11/11/20 16:22
CTMW-20-1120	K2010392-005	I:\MS13\DATA\111120\1111F017.D\	11/11/20 16:48
CTMW-20-1120MS	KQ2017754-01	I:\MS13\DATA\111120\1111F018.D\	11/11/20 17:15
CTMW-20-1120DMS	KQ2017754-02	I:\MS13\DATA\111120\1111F019.D\	11/11/20 17:41
CTMW-9-20-1120	K2010392-006	I:\MS13\DATA\111120\1111F021.D\	11/11/20 18:34

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Analyzed: 11/11/20 11:30
Date Extracted:

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Sample Name: Lab Control Sample **Instrument ID:** K-MS-13
Lab Code: KQ2017754-05 **File ID:** I:\MS13\DATA\111120\1111F005.D\
Analysis Method: 8260C **Analysis Lot:** 703049
Prep Method: None

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Duplicate Lab Control Sample	KQ2017754-06	I:\MS13\DATA\111120\1111F006.D\	11/11/20 11:57
Method Blank	KQ2017754-07	I:\MS13\DATA\111120\1111F009.D\	11/11/20 13:16
Duplicate Lab Control Sample	KQ2017754-06	I:\MS13\DATA\111120\1111F011.D\	11/11/20 14:09
Trip Blank #1-1120	K2010392-001	I:\MS13\DATA\111120\1111F013.D\	11/11/20 15:02
Field Blank #1-1120	K2010392-007	I:\MS13\DATA\111120\1111F014.D\	11/11/20 15:29
CTMW-15-1120	K2010392-002	I:\MS13\DATA\111120\1111F015.D\	11/11/20 15:55
CTMW-25D-1120	K2010392-003	I:\MS13\DATA\111120\1111F016.D\	11/11/20 16:22
CTMW-20-1120	K2010392-005	I:\MS13\DATA\111120\1111F017.D\	11/11/20 16:48
CTMW-20-1120MS	KQ2017754-01	I:\MS13\DATA\111120\1111F018.D\	11/11/20 17:15
CTMW-20-1120DMS	KQ2017754-02	I:\MS13\DATA\111120\1111F019.D\	11/11/20 17:41
CTMW-9-20-1120	K2010392-006	I:\MS13\DATA\111120\1111F021.D\	11/11/20 18:34

ALS Group USA, Corp.
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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 7/25/2019

Initial Calibration Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Calibration ID: KC1900305
Instrument ID: K-MS-13

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1900305-01	CAL 0.1 PPB	I:\MS13\DATA\072519\0725F006.D	07/25/2019 09:26
02	KC1900305-02	CAL 0.2 PPB	I:\MS13\DATA\072519\0725F007.D	07/25/2019 09:52
03	KC1900305-03	CAL 0.5 PPB	I:\MS13\DATA\072519\0725F008.D	07/25/2019 10:19
04	KC1900305-04	CAL 1.0 PPB	I:\MS13\DATA\072519\0725F009.D	07/25/2019 10:45
05	KC1900305-05	CAL 2.0 PPB	I:\MS13\DATA\072519\0725F010.D	07/25/2019 11:12
06	KC1900305-06	CAL 5.0 PPB	I:\MS13\DATA\072519\0725F011.D	07/25/2019 11:38
07	KC1900305-07	CAL 10 PPB	I:\MS13\DATA\072519\0725F012.D	07/25/2019 12:04
08	KC1900305-08	CAL 40 PPB	I:\MS13\DATA\072519\0725F014.D	07/25/2019 12:57
09	KC1900305-09	CAL 60 PPB	I:\MS13\DATA\072519\0725F015.D	07/25/2019 13:24
10	KC1900305-10	CAL 80 PPB	I:\MS13\DATA\072519\0725F016.D	07/25/2019 13:50
11	KC1900305-11	CAL 20 PPB	I:\MS13\DATA\072519\0725F020.D	07/25/2019 15:37

Analyte

1,1,1,2-Tetrachloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.5788	02	0.200	0.6941	03	0.500	0.5621	04	1.000	0.5542
05	2.000	0.5394	06	5.000	0.5919	07	10.000	0.6521	11	20.000	0.644
08	40.000	0.7323	09	60.000	0.7387	10	80.000	0.739			

1,1,1-Trichloroethane (TCA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.3816	02	0.200	0.4249	03	0.500	0.4148	04	1.000	0.3927
05	2.000	0.4022	06	5.000	0.4448	07	10.000	0.4676	11	20.000	0.4636
08	40.000	0.514	09	60.000	0.4972	10	80.000	0.4986			

1,1,2,2-Tetrachloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.200	0.7116	03	0.500	0.5801	04	1.000	0.5425	05	2.000	0.5169
06	5.000	0.6034	07	10.000	0.6106	11	20.000	0.5497	08	40.000	0.5855
09	60.000	0.5597	10	80.000	0.5462						

1,1,2-Trichloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.200	0.4182	03	0.500	0.4633	04	1.000	0.3869	05	2.000	0.3943
06	5.000	0.4317	07	10.000	0.4491	11	20.000	0.4233	08	40.000	0.4606
09	60.000	0.4547	10	80.000	0.436						

1,1-Dichloroethane (1,1-DCA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.5704	02	0.200	0.4919	03	0.500	0.5431	04	1.000	0.5019
05	2.000	0.4932	06	5.000	0.5297	07	10.000	0.5519	11	20.000	0.5356
08	40.000	0.57	09	60.000	0.5556	10	80.000	0.5521			

ALS Group USA, Corp.
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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 7/25/2019

Initial Calibration Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Calibration ID: KC1900305
Instrument ID: K-MS-13

Signal ID: 1

Analyte

1,1-Dichloroethene (1,1-DCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.1884	02	0.200	0.2911	03	0.500	0.298	04	1.000	0.2666
05	2.000	0.2712	06	5.000	0.2865	07	10.000	0.2847	11	20.000	0.2813
08	40.000	0.2955	09	60.000	0.2903	10	80.000	0.2995			

1,2,3-Trichloropropane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	0.500	0.1308	04	1.000	0.1763	05	2.000	0.1661	06	5.000	0.1891
07	10.000	0.1916	11	20.000	0.1698	08	40.000	0.1829	09	60.000	0.1732
10	80.000	0.1665									

1,2-Dichloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.4218	02	0.200	0.3337	03	0.500	0.369	04	1.000	0.3553
05	2.000	0.3236	06	5.000	0.3645	07	10.000	0.3599	11	20.000	0.3456
08	40.000	0.3694	09	60.000	0.3602	10	80.000	0.348			

1,2-Dichloropropane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.200	0.289	03	0.500	0.3274	04	1.000	0.2719	05	2.000	0.2777
06	5.000	0.3098	07	10.000	0.3084	11	20.000	0.2942	08	40.000	0.3207
09	60.000	0.3073	10	80.000	0.3029						

2-Butanone (MEK)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	5.000	0.01305	04	10.000	0.01435	05	20.000	0.01168	06	50.000	0.01303
07	100.000	0.01298	11	200.000	0.01257	08	400.000	0.0134	09	600.000	0.01373
10	800.000	0.0133									

2-Chloroethyl Vinyl Ether

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.200	0.1376	03	0.500	0.1172	04	1.000	0.1143	05	2.000	0.1113
06	5.000	0.1237	07	10.000	0.1249	11	20.000	0.1175	08	40.000	0.126
09	60.000	0.1241	10	80.000	0.1189						

2-Hexanone

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	2.000	0.05024	03	5.000	0.05074	04	10.000	0.04076	05	20.000	0.03945
06	50.000	0.04269	07	100.000	0.04572	11	200.000	0.04227	08	400.000	0.04553
09	600.000	0.04454	10	800.000	0.04264						

2-Methyl-1-propanol (Isobutyl Alcohol)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	20.000	0.004995	04	40.000	0.00478	05	80.000	0.003898	06	200.000	0.004128
07	400.000	0.004002	11	800.000	0.003583	08	1600.000	0.004142	09	2400.000	0.004366
10	3200.000	0.004349									

ALS Group USA, Corp.
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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 7/25/2019

Initial Calibration Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Calibration ID: KC1900305
Instrument ID: K-MS-13

Signal ID: 1

Analyte

3-Chloro-1-propene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.200	0.1428	03	0.500	0.1437	04	1.000	0.1282	05	2.000	0.1387
06	5.000	0.1524	07	10.000	0.1486	11	20.000	0.1445	08	40.000	0.1522
09	60.000	0.1536	10	80.000	0.1559						

4-Bromofluorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
04	4.000	0.7102	05	6.000	0.7459	06	8.000	0.8099	07	10.000	0.884
11	12.000	0.8483	08	14.000	0.9184	09	16.000	0.9014	10	20.000	0.8605

4-Methyl-2-pentanone

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.05302	02	2.000	0.05357	03	5.000	0.04948	04	10.000	0.05126
05	20.000	0.04625	06	50.000	0.05152	07	100.000	0.05107	11	200.000	0.04847
08	400.000	0.05155	09	600.000	0.04994	10	800.000	0.04838			

Acetone

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
04	10.000	0.0404	05	20.000	0.03496	06	50.000	0.03664	07	100.000	0.03708
11	200.000	0.03555	08	400.000	0.03723	09	600.000	0.03767	10	800.000	0.03669

Acetonitrile

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	20.000	0.008059	04	40.000	0.008374	05	80.000	0.007746	06	200.000	0.008952
07	400.000	0.008648	11	800.000	0.007605	08	1600.000	0.008628	09	2400.000	0.008402
10	3200.000	0.008356									

Acrolein

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	2.000	0.04123	02	4.000	0.02994	03	10.000	0.03026	04	20.000	0.02835
05	40.000	0.02551	06	100.000	0.02783	07	200.000	0.02826	11	400.000	0.02502
08	800.000	0.0281	09	1200.000	0.02798	10	1600.000	0.02718			

Acrylonitrile

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.800	0.0539	03	2.000	0.05336	04	4.000	0.05045	05	8.000	0.04629
06	20.000	0.05199	07	40.000	0.05088	11	80.000	0.04758	08	160.000	0.05076
09	240.000	0.04964	10	320.000	0.04885						

Benzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	1.319	02	0.200	1.194	03	0.500	1.255	04	1.000	1.159
05	2.000	1.15	06	5.000	1.243	07	10.000	1.258	11	20.000	1.196
08	40.000	1.281	09	60.000	1.245	10	80.000	1.231			

Bromodichloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.3065	02	0.200	0.2624	03	0.500	0.3047	04	1.000	0.2996

ALS Group USA, Corp.
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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 7/25/2019

Initial Calibration Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Calibration ID: KC1900305
Instrument ID: K-MS-13

Signal ID: 1

Analyte

Bromodichloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
05	2.000	0.291	06	5.000	0.3235	07	10.000	0.3242	11	20.000	0.3283
08	40.000	0.3639	09	60.000	0.3616	10	80.000	0.3528			

Bromoform

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.200	0.1963	03	0.500	0.15	04	1.000	0.1875	05	2.000	0.1847
06	5.000	0.2236	07	10.000	0.2444	11	20.000	0.2524	08	40.000	0.3063
09	60.000	0.324	10	80.000	0.326						

Bromomethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	0.500	0.237	04	1.000	0.2285	05	2.000	0.2252	06	5.000	0.2248
07	10.000	0.222	11	20.000	0.2132	08	40.000	0.2204	09	60.000	0.2165
10	80.000	0.2154									

Carbon Disulfide

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	0.500	0.8432	04	1.000	0.7338	05	2.000	0.7209	06	5.000	0.7501
07	10.000	0.7744	11	20.000	0.7339	08	40.000	0.7895	09	60.000	0.7685
10	80.000	0.7747									

Carbon Tetrachloride

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.324	02	0.200	0.3124	03	0.500	0.3236	04	1.000	0.334
05	2.000	0.3241	06	5.000	0.3497	07	10.000	0.3693	11	20.000	0.3879
08	40.000	0.4306	09	60.000	0.4261	10	80.000	0.4285			

Chlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	2.246	02	0.200	1.866	03	0.500	2.061	04	1.000	1.925
05	2.000	1.868	06	5.000	2.044	07	10.000	2.074	11	20.000	2.046
08	40.000	2.229	09	60.000	2.164	10	80.000	2.139			

Chloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.1997	02	0.200	0.1939	03	0.500	0.219	04	1.000	0.2321
05	2.000	0.2275	06	5.000	0.2215	07	10.000	0.223	11	20.000	0.2149
08	40.000	0.2204	09	60.000	0.2084	10	80.000	0.2087			

Chloroform

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.5621	02	0.200	0.5065	03	0.500	0.459	04	1.000	0.4473
05	2.000	0.4629	06	5.000	0.4965	07	10.000	0.5054	11	20.000	0.4953
08	40.000	0.5347	09	60.000	0.5265	10	80.000	0.5203			

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 7/25/2019

Initial Calibration Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Calibration ID: KC1900305
Instrument ID: K-MS-13

Signal ID: 1

Analyte

Chloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.4571	02	0.200	0.4193	03	0.500	0.4088	04	1.000	0.3958
05	2.000	0.4047	06	5.000	0.393	07	10.000	0.3868	11	20.000	0.3604
08	40.000	0.3743	09	60.000	0.3616	10	80.000	0.3672			

Dibromochloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.200	0.4931	03	0.500	0.417	04	1.000	0.3988	05	2.000	0.4255
06	5.000	0.493	07	10.000	0.5249	11	20.000	0.55			

Dibromofluoromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
04	4.000	0.1918	05	6.000	0.1983	06	8.000	0.2236	07	10.000	0.2269
11	12.000	0.2303	08	14.000	0.2471	09	16.000	0.2509	10	20.000	0.2449

Dibromomethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.200	0.1515	03	0.500	0.1362	04	1.000	0.1293	05	2.000	0.1255
06	5.000	0.1294	07	10.000	0.1369	11	20.000	0.1291	08	40.000	0.1378
09	60.000	0.1366	10	80.000	0.1334						

Dichlorodifluoromethane (CFC 12)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.3439	02	0.200	0.318	03	0.500	0.3588	04	1.000	0.3068
05	2.000	0.3243	06	5.000	0.3463	07	10.000	0.3272	11	20.000	0.3321
08	40.000	0.3243	09	60.000	0.315	10	80.000	0.3261			

Dichloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	0.500	0.3351	04	1.000	0.3152	05	2.000	0.2873	06	5.000	0.2921
07	10.000	0.2797	11	20.000	0.2674	08	40.000	0.2736	09	60.000	0.2724
10	80.000	0.2689									

Ethyl Methacrylate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.200	0.6941	03	0.500	0.5996	04	1.000	0.544	05	2.000	0.5124
06	5.000	0.5919	07	10.000	0.613	11	20.000	0.5814	08	40.000	0.6467
09	60.000	0.6303	10	80.000	0.6102						

Ethylbenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	1.174	02	0.200	1.134	03	0.500	1.184	04	1.000	1.083
05	2.000	1.11	06	5.000	1.179	07	10.000	1.209	11	20.000	1.173
08	40.000	1.313	09	60.000	1.263	10	80.000	1.25			

Iodomethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.400	0.3269	02	0.800	0.2898	03	2.000	0.2784	04	4.000	0.26

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 7/25/2019

Initial Calibration Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Calibration ID: KC1900305
Instrument ID: K-MS-13

Signal ID: 1

Analyte

Iodomethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
05	8.000	0.2641	06	20.000	0.2921	07	40.000	0.3069	11	80.000	0.2984
08	160.000	0.319	09	240.000	0.3249	10	320.000	0.3395			

Methacrylonitrile

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.400	0.06632	02	0.800	0.04749	03	2.000	0.05833	04	4.000	0.05575
05	8.000	0.05708	06	20.000	0.06074	07	40.000	0.06288	11	80.000	0.06045
08	160.000	0.06569	09	240.000	0.06558	10	320.000	0.06246			

Tetrachloroethene (PCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.6296	02	0.200	0.601	03	0.500	0.6478	04	1.000	0.5824
05	2.000	0.6031	06	5.000	0.6351	07	10.000	0.6643	11	20.000	0.6581
08	40.000	0.7325	09	60.000	0.7023	10	80.000	0.7056			

Toluene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.6486	02	0.200	0.6778	03	0.500	0.7077	04	1.000	0.7018
05	2.000	0.7108	06	5.000	0.7494	07	10.000	0.7641	11	20.000	0.7271
08	40.000	0.7865	09	60.000	0.7678	10	80.000	0.7562			

Toluene-d8

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
04	4.000	0.871	05	6.000	0.8991	06	8.000	0.9763	07	10.000	1.003
11	12.000	0.9751	08	14.000	1.012	09	16.000	1.016	10	20.000	1.007

Trichloroethene (TCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.3058	02	0.200	0.2936	03	0.500	0.3093	04	1.000	0.2745
05	2.000	0.2848	06	5.000	0.296	07	10.000	0.3042	11	20.000	0.2976
08	40.000	0.3205	09	60.000	0.3134	10	80.000	0.3095			

Trichlorofluoromethane (CFC 11)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.5357	02	0.200	0.5284	03	0.500	0.5256	04	1.000	0.5098
05	2.000	0.5165	06	5.000	0.5601	07	10.000	0.5632	11	20.000	0.5532
08	40.000	0.5738	09	60.000	0.5427	10	80.000	0.5567			

Vinyl Acetate

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	1.000	0.0389	04	2.000	0.03832	05	4.000	0.03414	06	10.000	0.03722
07	20.000	0.03946	11	40.000	0.04047	08	80.000	0.04254	09	120.000	0.04238
10	160.000	0.04323									

Vinyl Chloride

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.3391	02	0.200	0.3474	03	0.500	0.3835	04	1.000	0.3532

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 7/25/2019

Initial Calibration Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Calibration ID: KC1900305
Instrument ID: K-MS-13

Signal ID: 1

Analyte

Vinyl Chloride

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
05	2.000	0.3737	06	5.000	0.3938	07	10.000	0.3856	11	20.000	0.3722
08	40.000	0.3827	09	60.000	0.3661	10	80.000	0.3706			

cis-1,2-Dichloroethene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.2567	02	0.200	0.3138	03	0.500	0.3259	04	1.000	0.2778
05	2.000	0.2594	06	5.000	0.3063	07	10.000	0.3064	11	20.000	0.307
08	40.000	0.3268	09	60.000	0.3251	10	80.000	0.3207			

cis-1,3-Dichloropropene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.3909	02	0.200	0.3733	03	0.500	0.338	04	1.000	0.3478
05	2.000	0.3496	06	5.000	0.3878	07	10.000	0.4196	11	20.000	0.4105
08	40.000	0.4434	09	60.000	0.442	10	80.000	0.4322			

m,p-Xylenes

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.200	1.346	02	0.400	1.392	03	1.000	1.338	04	2.000	1.331
05	4.000	1.275	06	10.000	1.409	07	20.000	1.443	11	40.000	1.413
08	80.000	1.555	09	120.000	1.532	10	160.000	1.492			

o-Xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	1.315	02	0.200	1.113	03	0.500	1.251	04	1.000	1.24
05	2.000	1.219	06	5.000	1.34	07	10.000	1.334	11	20.000	1.332
08	40.000	1.461	09	60.000	1.421	10	80.000	1.379			

trans-1,2-Dichloroethene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.2876	02	0.200	0.2125	03	0.500	0.2664	04	1.000	0.2467
05	2.000	0.2484	06	5.000	0.2684	07	10.000	0.2749	11	20.000	0.2733
08	40.000	0.2998	09	60.000	0.2949	10	80.000	0.3004			

trans-1,3-Dichloropropene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.100	0.9585	02	0.200	0.8987	03	0.500	0.8123	04	1.000	0.7296
05	2.000	0.7481	06	5.000	0.8529	07	10.000	0.9029	11	20.000	0.9004
08	40.000	0.99	09	60.000	0.9984	10	80.000	0.9652			

trans-1,4-Dichloro-2-butene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	0.500	0.2185	04	1.000	0.1687	05	2.000	0.1795	06	5.000	0.1963
07	10.000	0.1928	11	20.000	0.1727	08	40.000	0.1873	09	60.000	0.1822
10	80.000	0.1631									

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 7/25/2019

Initial Calibration Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Calibration ID: KC1900305
Instrument ID: K-MS-13

Signal ID: 1

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
1,1,1,2-Tetrachloroethane	TRG	Average RF	% RSD	12.2	20	0.6388	0.01
1,1,1-Trichloroethane (TCA)	TRG	Average RF	% RSD	10.3	20	0.4456	0.100
1,1,2,2-Tetrachloroethane	TRG	Average RF	% RSD	9.4	20	0.5806	0.300
1,1,2-Trichloroethane	TRG	Average RF	% RSD	6.1	20	0.4318	0.100
1,1-Dichloroethane (1,1-DCA)	TRG	Average RF	% RSD	5.4	20	0.5359	0.200
1,1-Dichloroethene (1,1-DCE)	TRG	Average RF	% RSD	11.3	20	0.2775	0.100
1,2,3-Trichloropropane	TRG	Average RF	% RSD	10.5	20	0.1718	0.01
1,2-Dichloroethane	TRG	Average RF	% RSD	7.0	20	0.3592	0.100
1,2-Dichloropropane	TRG	Average RF	% RSD	5.9	20	0.3009	0.100
2-Butanone (MEK)	TRG	Average RF	% RSD	5.7	20	0.01312	0.010
2-Chloroethyl Vinyl Ether	TRG	Average RF	% RSD	6.1	20	0.1216	0.01
2-Hexanone	TRG	Average RF	% RSD	8.4	20	0.04446	0.015
2-Methyl-1-propanol (Isobutyl Alcohol)	TRG	Average RF	% RSD	10.3	20	0.004249	0.01
3-Chloro-1-propene	TRG	Average RF	% RSD	5.7	20	0.146	0.01
4-Bromofluorobenzene	SURR	Average RF	% RSD	8.9	20	0.8348	0.01
4-Methyl-2-pentanone	TRG	Average RF	% RSD	4.3	20	0.05041	0.010
Acetone	TRG	Average RF	% RSD	4.4	20	0.03703	0.010
Acetonitrile	TRG	Average RF	% RSD	5.2	20	0.008308	0.01
Acrolein	TRG	Average RF	% RSD	14.9	20	0.02906	0.01
Acrylonitrile	TRG	Average RF	% RSD	4.8	20	0.05037	0.01
Benzene	TRG	Average RF	% RSD	4.2	20	1.23	0.500
Bromodichloromethane	TRG	Average RF	% RSD	9.8	20	0.3198	0.200
Bromoform	TRG	Quadratic (0,0)	COD	0.9977	0.990	0.2395	0.100
Bromomethane	TRG	Average RF	% RSD	3.3	20	0.2225	0.100
Carbon Disulfide	TRG	Average RF	% RSD	4.8	20	0.7654	0.100
Carbon Tetrachloride	TRG	Average RF	% RSD	12.8	20	0.3646	0.100
Chlorobenzene	TRG	Average RF	% RSD	6.4	20	2.06	0.500
Chloroethane	TRG	Average RF	% RSD	5.4	20	0.2154	0.100
Chloroform	TRG	Average RF	% RSD	6.9	20	0.5015	0.200
Chloromethane	TRG	Average RF	% RSD	7.3	20	0.3935	0.100
Dibromochloromethane	TRG	Average RF	% RSD	12.3	20	0.4717	0.100
Dibromofluoromethane	SURR	Average RF	% RSD	9.7	20	0.2267	0.01
Dibromomethane	TRG	Average RF	% RSD	5.4	20	0.1346	0.01
Dichlorodifluoromethane (CFC 12)	TRG	Average RF	% RSD	4.6	20	0.3293	0.100

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 7/25/2019

Initial Calibration Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Calibration ID: KC1900305
Instrument ID: K-MS-13

Signal ID: 1

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Dichloromethane	TRG	Average RF	% RSD	8.0	20	0.288	0.100
Ethyl Methacrylate	TRG	Average RF	% RSD	8.5	20	0.6024	0.01
Ethylbenzene	TRG	Average RF	% RSD	5.7	20	1.188	0.100
Iodomethane	TRG	Average RF	% RSD	8.7	20	0.3	0.01
Methacrylonitrile	TRG	Average RF	% RSD	9.1	20	0.06025	0.01
Tetrachloroethene (PCE)	TRG	Average RF	% RSD	7.3	20	0.6511	0.200
Toluene	TRG	Average RF	% RSD	5.8	20	0.7271	0.400
Toluene-d8	SURR	Average RF	% RSD	5.7	20	0.97	0.01
Trichloroethene (TCE)	TRG	Average RF	% RSD	4.4	20	0.3008	0.200
Trichlorofluoromethane (CFC 11)	TRG	Average RF	% RSD	3.8	20	0.5423	0.100
Vinyl Acetate	TRG	Average RF	% RSD	7.4	20	0.03963	0.01
Vinyl Chloride	TRG	Average RF	% RSD	4.6	20	0.3698	0.100
cis-1,2-Dichloroethene	TRG	Average RF	% RSD	8.6	20	0.3024	0.100
cis-1,3-Dichloropropene	TRG	Average RF	% RSD	9.8	20	0.3941	0.200
m,p-Xylenes	TRG	Average RF	% RSD	6.3	20	1.411	0.100
o-Xylene	TRG	Average RF	% RSD	7.5	20	1.309	0.300
trans-1,2-Dichloroethene	TRG	Average RF	% RSD	9.9	20	0.2703	0.100
trans-1,3-Dichloropropene	TRG	Average RF	% RSD	10.4	20	0.887	0.100
trans-1,4-Dichloro-2-butene	TRG	Average RF	% RSD	9.1	20	0.1846	0.01

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 7/25/2019

Initial Calibration Verification Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Calibration ID: KC1900305
Instrument ID: K-MS-13

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
12	KC1900305-12	ICV	I:\MS13\DATA\072519\0725F023.D	07/25/2019 16:56

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	10.0	9.20	6.388E-1	5.878E-1	-7.980	±30	Average RF
1,1,1-Trichloroethane (TCA)	10.0	9.20	4.456E-1	4.1E-1	-7.996	±30	Average RF
1,1,2,2-Tetrachloroethane	10.0	8.93	5.806E-1	5.186E-1	-10.676	±30	Average RF
1,1,2-Trichloroethane	10.0	9.31	4.318E-1	4.022E-1	-6.868	±30	Average RF
1,1-Dichloroethane (1,1-DCA)	10.0	9.43	5.359E-1	5.055E-1	-5.670	±30	Average RF
1,1-Dichloroethene (1,1-DCE)	10.0	9.09	2.775E-1	2.523E-1	-9.099	±30	Average RF
1,2,3-Trichloropropane	10.0	9.37	1.718E-1	1.609E-1	-6.337	±30	Average RF
1,2-Dichloroethane	10.0	9.03	3.592E-1	3.244E-1	-9.672	±30	Average RF
1,2-Dichloropropane	10.0	8.88	3.009E-1	2.673E-1	-11.166	±30	Average RF
2-Butanone (MEK)	50.0	53.3	1.312E-2	1.399E-2	6.62	±30	Average RF
2-Chloroethyl Vinyl Ether	10.0	9.76	1.216E-1	1.186E-1	-2.435	±30	Average RF
2-Hexanone	50.0	51.5	4.446E-2	4.577E-2	2.96	±30	Average RF
2-Methyl-1-propanol (Isobutyl Alcohol)	300	250	4.249E-3	3.537E-3	-16.756	±30	Average RF
3-Chloro-1-propene	30.0	31.8	1.46E-1	1.546E-1	5.86	±30	Average RF
4-Methyl-2-pentanone	50.0	50.9	5.041E-2	5.129E-2	1.74	±30	Average RF
Acetone	50.0	54.7	3.703E-2	4.053E-2	9.46	±30	Average RF
Acetonitrile	300	287	8.308E-3	7.936E-3	-4.472	±30	Average RF
Acrolein	100	95.4	2.906E-2	2.772E-2	-4.597	±30	Average RF
Acrylonitrile	40.0	38.9	5.037E-2	4.895E-2	-2.816	±30	Average RF
Benzene	10.0	9.15	1.23E0	1.126E0	-8.489	±30	Average RF
Bromodichloromethane	10.0	8.87	3.198E-1	2.837E-1	-11.312	±30	Average RF
Bromoform	10.0	8.71	2.395E-1	2.177E-1	-12.879	±30	Quadratic (0,0)
Bromomethane	10.0	9.36	2.225E-1	2.083E-1	-6.387	±30	Average RF
Carbon Disulfide	20.0	18.9	7.654E-1	7.219E-1	-5.694	±30	Average RF
Carbon Tetrachloride	10.0	9.46	3.646E-1	3.45E-1	-5.353	±30	Average RF
Chlorobenzene	10.0	9.42	2.06E0	1.94E0	-5.824	±30	Average RF
Chloroethane	10.0	10.1	2.154E-1	2.177E-1	1.09	±30	Average RF
Chloroform	10.0	9.17	5.015E-1	4.596E-1	-8.349	±30	Average RF
Chloromethane	10.0	8.82	3.935E-1	3.471E-1	-11.802	±30	Average RF
Dibromochloromethane	10.0	10.0	4.717E-1	4.722E-1	0.104	±30	Average RF
Dibromomethane	10.0	8.80	1.346E-1	1.184E-1	-12.048	±30	Average RF
Dichlorodifluoromethane (CFC 12)	10.0	8.81	3.293E-1	2.903E-1	-11.852	±30	Average RF
Dichloromethane	10.0	8.84	2.88E-1	2.544E-1	-11.648	±30	Average RF

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 7/25/2019

**Initial Calibration Verification Summary
Volatile Organic Compounds by GC/MS, Unpreserved**

Calibration ID: KC1900305
Instrument ID: K-MS-13

Signal ID: 1

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Ethyl Methacrylate	30.0	31.5	6.024E-1	6.325E-1	5.00	±30	Average RF
Ethylbenzene	10.0	9.51	1.188E0	1.13E0	-4.917	±30	Average RF
Iodomethane	30.0	33.6	3.0E-1	3.361E-1	12.02	±30	Average RF
Methacrylonitrile	30.0	30.6	6.025E-2	6.145E-2	1.99	±30	Average RF
Tetrachloroethene (PCE)	10.0	9.59	6.511E-1	6.243E-1	-4.109	±30	Average RF
Toluene	10.0	9.37	7.271E-1	6.815E-1	-6.263	±30	Average RF
Trichloroethene (TCE)	10.0	8.95	3.008E-1	2.692E-1	-10.524	±30	Average RF
Trichlorofluoromethane (CFC 11)	10.0	8.35	5.423E-1	4.528E-1	-16.509	±30	Average RF
Vinyl Acetate	50.0	45.6	3.963E-2	3.617E-2	-8.731	±30	Average RF
Vinyl Chloride	10.0	9.52	3.698E-1	3.519E-1	-4.849	±30	Average RF
cis-1,2-Dichloroethene	10.0	9.28	3.024E-1	2.806E-1	-7.202	±30	Average RF
cis-1,3-Dichloropropene	10.0	9.20	3.941E-1	3.627E-1	-7.963	±30	Average RF
m,p-Xylenes	20.0	18.8	1.411E0	1.33E0	-5.759	±30	Average RF
o-Xylene	10.0	9.46	1.309E0	1.238E0	-5.412	±30	Average RF
trans-1,2-Dichloroethene	10.0	9.13	2.703E-1	2.469E-1	-8.659	±30	Average RF
trans-1,3-Dichloropropene	10.0	9.30	8.87E-1	8.249E-1	-6.999	±30	Average RF
trans-1,4-Dichloro-2-butene	30.0	25.6	1.846E-1	1.576E-1	-14.586	±30	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
4-Bromofluorobenzene	10.0	9.42	8.348E-1	7.864E-1	-5.803	±30	Average RF
Dibromofluoromethane	10.0	9.59	2.267E-1	2.175E-1	-4.065	±30	Average RF
Toluene-d8	10.0	10.0	9.7E-1	9.723E-1	0.230	±30	Average RF

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392
Date Analyzed: 11/11/20 11:04

Continuing Calibration Verification (CCV) Summary
Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method: 8260C
File ID: I:\MS13\DATA\111120\1111F004.D\
Signal ID: 1

Calibration Date: 7/25/2019
Calibration ID: KC1900305
Analysis Lot: 703049
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	10.0	10.6	0.6388	0.6745	5.6	NA	±20	Average RF
1,1,1-Trichloroethane (TCA)	10.0	11.0	0.4456	0.4902	10.0	NA	±20	Average RF
1,1,2,2-Tetrachloroethane	10.0	9.35	0.5806	0.5428	-6.5	NA	±20	Average RF
1,1,2-Trichloroethane	10.0	9.30	0.4318	0.4016	-7.0	NA	±20	Average RF
1,1-Dichloroethane (1,1-DCA)	10.0	10.1	0.5359	0.5401	0.8	NA	±20	Average RF
1,1-Dichloroethene (1,1-DCE)	10.0	9.06	0.2775	0.2514	-9.4	NA	±20	Average RF
1,2,3-Trichloropropane	10.0	11.5	0.1718	0.1979	15.2	NA	±20	Average RF
1,2-Dichloroethane	10.0	10.5	0.3592	0.3756	4.6	NA	±20	Average RF
1,2-Dichloropropane	10.0	9.39	0.3009	0.2825	-6.1	NA	±20	Average RF
2-Butanone (MEK)	100	107	0.0131	0.0141	7.3	NA	±20	Average RF
2-Chloroethyl Vinyl Ether	10.0	6.23	0.1216	0.0757	-37.7*	NA	±20	Average RF
2-Hexanone	100	94.0	0.0445	0.0418	-6.0	NA	±20	Average RF
2-Methyl-1-propanol (Isobutyl Alcohol)	400	348	0.0042	0.0037	-12.9	NA	±20	Average RF
3-Chloro-1-propene	10.0	9.94	0.146	0.1451	-0.6	NA	±20	Average RF
4-Methyl-2-pentanone	100	95.4	0.0504	0.0481	-4.6	NA	±20	Average RF
Acetone	100	116	0.037	0.0428	15.5	NA	±20	Average RF
Acetonitrile	400	421	0.0083	0.0087	5.3	NA	±20	Average RF
Acrolein	200	166	0.0291	0.0242	-16.8	NA	±20	Average RF
Acrylonitrile	40.0	38.6	0.0504	0.0486	-3.6	NA	±20	Average RF
Benzene	10.0	9.71	1.23	1.194	-2.9	NA	±20	Average RF
Bromodichloromethane	10.0	10.9	0.3198	0.3498	9.4	NA	±20	Average RF
Bromoform	10.0	11.7	0.2395	0.2975	NA	17.3	±20	Quadratic (0,0)
Bromomethane	10.0	8.03	0.2225	0.1788	-19.7	NA	±20	Average RF
Carbon Disulfide	10.0	9.56	0.7654	0.7317	-4.4	NA	±20	Average RF
Carbon Tetrachloride	10.0	12.3	0.3646	0.4468	22.6*	NA	±20	Average RF
Chlorobenzene	10.0	9.88	2.06	2.0346	-1.2	NA	±20	Average RF
Chloroethane	10.0	10.2	0.2154	0.2187	1.6	NA	±20	Average RF
Chloroform	10.0	10.3	0.5015	0.5166	3.0	NA	±20	Average RF
Chloromethane	10.0	9.46	0.3935	0.3724	-5.4	NA	±20	Average RF
Dibromochloromethane	10.0	12.4	0.4717	0.5861	24.2*	NA	±20	Average RF
Dibromomethane	10.0	9.64	0.1346	0.1297	-3.6	NA	±20	Average RF
Dichlorodifluoromethane (CFC 12)	10.0	13.4	0.3293	0.442	34.2*	NA	±20	Average RF
Dichloromethane	10.0	10.1	0.288	0.2898	0.6	NA	±20	Average RF
Ethyl Methacrylate	10.0	8.97	0.6024	0.5405	-10.3	NA	±20	Average RF
Ethylbenzene	10.0	9.62	1.1883	1.1426	-3.8	NA	±20	Average RF
Iodomethane	40.0	14.6	0.3	0.1096	-63.5*	NA	±20	Average RF
Methacrylonitrile	40.0	38.8	0.0603	0.0584	-3.0	NA	±20	Average RF
Tetrachloroethene (PCE)	10.0	10.5	0.6511	0.6804	4.5	NA	±20	Average RF
Toluene	10.0	10.2	0.7271	0.7439	2.3	NA	±20	Average RF

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392
Date Analyzed: 11/11/20 11:04

**Continuing Calibration Verification (CCV) Summary
Volatile Organic Compounds by GC/MS, Unpreserved**

Analysis Method: 8260C
File ID: I:\MS13\DATA\111120\1111F004.D\
Signal ID: 1

Calibration Date: 7/25/2019
Calibration ID: KC1900305
Analysis Lot: 703049
Units: ppb

Trichloroethene (TCE)	10.0	10.1	0.3008	0.3045	1.2	NA	±20	Average RF
Trichlorofluoromethane (CFC 11)	10.0	10.8	0.5423	0.583	7.5	NA	±20	Average RF
Vinyl Acetate	20.0	15.2	0.0396	0.03	-24.3*	NA	±20	Average RF
Vinyl Chloride	10.0	10.1	0.3698	0.3742	1.2	NA	±20	Average RF
cis-1,2-Dichloroethene	10.0	9.93	0.3024	0.3004	-0.7	NA	±20	Average RF
cis-1,3-Dichloropropene	10.0	9.68	0.3941	0.3815	-3.2	NA	±20	Average RF
m,p-Xylenes	20.0	19.4	1.4114	1.3722	-2.8	NA	±20	Average RF
o-Xylene	10.0	10.1	1.3093	1.3202	0.8	NA	±20	Average RF
trans-1,2-Dichloroethene	10.0	10.1	0.2703	0.273	1.0	NA	±20	Average RF
trans-1,3-Dichloropropene	10.0	9.62	0.887	0.8529	-3.8	NA	±20	Average RF
trans-1,4-Dichloro-2-butene	10.0	9.99	0.1846	0.1844	-0.1	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
4-Bromofluorobenzene	10.0	9.51	0.8348	0.7938	-4.9	NA	±20	Average RF
Dibromofluoromethane	10.0	9.95	0.2267	0.2255	-0.5	NA	±20	Average RF
Toluene-d8	10.0	9.59	0.97	0.93	-4.1	NA	±20	Average RF

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request:K2010392

Analysis Run Log
Volatile Organic Compounds by GC/MS, Unpreserved

Analysis Method:

Analysis Lot:703049
Instrument ID:K-MS-13

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
I:\MS13\DATA\111120\1111F003.D\	ZZZZZZZ	ZZZZZZZ	11/11/2020	10:28:00	
I:\MS13\DATA\111120\1111F004.D\	Continuing Calibration Verification	KQ2017754-04	11/11/2020	11:04:00	
I:\MS13\DATA\111120\1111F005.D\	Lab Control Sample	KQ2017754-05	11/11/2020	11:30:00	
I:\MS13\DATA\111120\1111F006.D\	Duplicate Lab Control Sample	KQ2017754-06	11/11/2020	11:57:00	
I:\MS13\DATA\111120\1111F009.D\	Method Blank	KQ2017754-07	11/11/2020	13:16:00	
I:\MS13\DATA\111120\1111F010.D\	Lab Control Sample	KQ2017754-05	11/11/2020	13:43:00	
I:\MS13\DATA\111120\1111F011.D\	Duplicate Lab Control Sample	KQ2017754-06	11/11/2020	14:09:00	
I:\MS13\DATA\111120\1111F013.D\	Trip Blank #1-1120	K2010392-001	11/11/2020	15:02:00	
I:\MS13\DATA\111120\1111F014.D\	Field Blank #1-1120	K2010392-007	11/11/2020	15:29:00	
I:\MS13\DATA\111120\1111F015.D\	CTMW-15-1120	K2010392-002	11/11/2020	15:55:00	
I:\MS13\DATA\111120\1111F016.D\	CTMW-25D-1120	K2010392-003	11/11/2020	16:22:00	
I:\MS13\DATA\111120\1111F017.D\	CTMW-20-1120	K2010392-005	11/11/2020	16:48:00	
I:\MS13\DATA\111120\1111F018.D\	CTMW-20-1120 MS	KQ2017754-01	11/11/2020	17:15:00	
I:\MS13\DATA\111120\1111F019.D\	CTMW-20-1120 DMS	KQ2017754-02	11/11/2020	17:41:00	
I:\MS13\DATA\111120\1111F021.D\	CTMW-9-20-1120	K2010392-006	11/11/2020	18:34:00	
I:\MS13\DATA\111120\1111F022.D\	ZZZZZZZ	ZZZZZZZ	11/11/2020	19:01:00	
I:\MS13\DATA\111120\1111F023.D\	ZZZZZZZ	ZZZZZZZ	11/11/2020	19:27:00	
I:\MS13\DATA\111120\1111F024.D\	ZZZZZZZ	ZZZZZZZ	11/11/2020	19:54:00	
I:\MS13\DATA\111120\1111F025.D\	ZZZZZZZ	ZZZZZZZ	11/11/2020	20:20:00	
I:\MS13\DATA\111120\1111F026.D\	ZZZZZZZ	ZZZZZZZ	11/11/2020	20:47:00	
I:\MS13\DATA\111120\1111F027.D\	ZZZZZZZ	ZZZZZZZ	11/11/2020	21:13:00	
I:\MS13\DATA\111120\1111F028.D\	ZZZZZZZ	ZZZZZZZ	11/11/2020	21:40:00	
I:\MS13\DATA\111120\1111F029.D\	ZZZZZZZ	ZZZZZZZ	11/11/2020	22:06:00	



Volatile Organic Compounds

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 08:45
Date Received: 11/10/20 10:00

Sample Name: Trip Blank #1-1120
Lab Code: K2010392-001

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	11/19/20 18:23	
1,2-Dichloroethane	ND U	20	5.8	1	11/19/20 18:23	
1,1-Dichloroethene	ND U	20	5.9	1	11/19/20 18:23	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	11/19/20 18:23	
Vinyl Chloride	ND U	20	4.6	1	11/19/20 18:23	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	74	46 - 118	11/19/20 18:23	
Dibromofluoromethane	99	77 - 123	11/19/20 18:23	
Toluene-d8	86	74 - 112	11/19/20 18:23	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 09:44
Date Received: 11/10/20 10:00

Sample Name: CTMW-15-1120
Lab Code: K2010392-002

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	11/19/20 18:48	
1,2-Dichloroethane	ND U	20	5.8	1	11/19/20 18:48	
1,1-Dichloroethene	ND U	20	5.9	1	11/19/20 18:48	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	11/19/20 18:48	
Vinyl Chloride	ND U	20	4.6	1	11/19/20 18:48	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	75	46 - 118	11/19/20 18:48	
Dibromofluoromethane	104	77 - 123	11/19/20 18:48	
Toluene-d8	86	74 - 112	11/19/20 18:48	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 11:05
Date Received: 11/10/20 10:00

Sample Name: CTMW-25D-1120
Lab Code: K2010392-003

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	11/19/20 19:14	
1,2-Dichloroethane	ND U	20	5.8	1	11/19/20 19:14	
1,1-Dichloroethene	ND U	20	5.9	1	11/19/20 19:14	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	11/19/20 19:14	
Vinyl Chloride	4.8 J	20	4.6	1	11/19/20 19:14	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	75	46 - 118	11/19/20 19:14	
Dibromofluoromethane	102	77 - 123	11/19/20 19:14	
Toluene-d8	86	74 - 112	11/19/20 19:14	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 12:04
Date Received: 11/10/20 10:00

Sample Name: CTMW-20-1120
Lab Code: K2010392-005

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	11/19/20 19:39	
1,2-Dichloroethane	15 J	20	5.8	1	11/19/20 19:39	
1,1-Dichloroethene	ND U	20	5.9	1	11/19/20 19:39	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	11/19/20 19:39	
Vinyl Chloride	ND U	20	4.6	1	11/19/20 19:39	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	81	46 - 118	11/19/20 19:39	
Dibromofluoromethane	103	77 - 123	11/19/20 19:39	
Toluene-d8	85	74 - 112	11/19/20 19:39	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 12:04
Date Received: 11/10/20 10:00

Sample Name: CTMW-9-20-1120
Lab Code: K2010392-006

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	11/19/20 20:05	
1,2-Dichloroethane	15 J	20	5.8	1	11/19/20 20:05	
1,1-Dichloroethene	ND U	20	5.9	1	11/19/20 20:05	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	11/19/20 20:05	
Vinyl Chloride	13 J	20	4.6	1	11/19/20 20:05	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	80	46 - 118	11/19/20 20:05	
Dibromofluoromethane	102	77 - 123	11/19/20 20:05	
Toluene-d8	85	74 - 112	11/19/20 20:05	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 12:36
Date Received: 11/10/20 10:00

Sample Name: Field Blank #1-1120
Lab Code: K2010392-007

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	11/19/20 20:30	
1,2-Dichloroethane	ND U	20	5.8	1	11/19/20 20:30	
1,1-Dichloroethene	ND U	20	5.9	1	11/19/20 20:30	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	11/19/20 20:30	
Vinyl Chloride	ND U	20	4.6	1	11/19/20 20:30	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	74	46 - 118	11/19/20 20:30	
Dibromofluoromethane	100	77 - 123	11/19/20 20:30	
Toluene-d8	86	74 - 112	11/19/20 20:30	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: KQ2018365-07

Units: ng/L
Basis: NA

Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
Carbon Tetrachloride	ND U	20	7.2	1	11/19/20 17:57	
1,2-Dichloroethane	ND U	20	5.8	1	11/19/20 17:57	
1,1-Dichloroethene	ND U	20	5.9	1	11/19/20 17:57	
1,1,2,2-Tetrachloroethane	ND U	20	8.7	1	11/19/20 17:57	
Vinyl Chloride	ND U	20	4.6	1	11/19/20 17:57	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	74	46 - 118	11/19/20 17:57	
Dibromofluoromethane	94	77 - 123	11/19/20 17:57	
Toluene-d8	86	74 - 112	11/19/20 17:57	

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392

SURROGATE RECOVERY SUMMARY
Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Extraction Method: None

Sample Name	Lab Code	4-Bromofluorobenzene	Dibromofluoromethane	Toluene-d8
		46-118	77-123	74-112
Trip Blank #1-1120	K2010392-001	74	99	86
CTMW-15-1120	K2010392-002	75	104	86
CTMW-25D-1120	K2010392-003	75	102	86
CTMW-20-1120	K2010392-005	81	103	85
CTMW-9-20-1120	K2010392-006	80	102	85
Field Blank #1-1120	K2010392-007	74	100	86
Method Blank	KQ2018365-07	74	94	86
Lab Control Sample	KQ2018365-04	81	90	86
Duplicate Lab Control Sample	KQ2018365-05	82	95	87
CTMW-20-1120	KQ2018365-01	86	98	86
CTMW-20-1120	KQ2018365-02	87	95	88

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392
Date Analyzed: 11/19/20 15:04

Internal Standard Area and RT SUMMARY
Volatile Organic Compounds by GC/MS SIM

File ID: J:\MS30\DATA\111920_SIM\111920F004.D\
Instrument ID: K-MS-30
Analysis Method: 8260C

Lab Code: KQ2018365-03
Analysis Lot: 704211
Signal ID: 1

	Chlorobenzene-d5		1,4-Dichlorobenzene-d4		Fluorobenzene	
	Area	RT	Area	RT	Area	RT
Result ==>	40,122	9.67	22,112	12.00	53,112	6.51
Upper Limit ==>	80,244	10.17	44,224	12.50	106,224	7.01
Lower Limit ==>	20,061	9.17	11,056	11.50	26,556	6.01

Associated Analyses

Sample Name	ID	Area	RT	Area	RT	Area	RT
Lab Control Sample	KQ2018365-04	40543	9.67	21090	12.00	53841	6.51
Duplicate Lab Control Sample	KQ2018365-05	41153	9.67	21585	12.00	54166	6.51
Method Blank	KQ2018365-07	35750	9.67	15429	12.00	49449	6.51
Trip Blank #1-1120	K2010392-001	35507	9.67	15007	12.00	49090	6.51
CTMW-15-1120	K2010392-002	34011	9.67	14757	12.00	47428	6.51
CTMW-25D-1120	K2010392-003	34514	9.67	14785	12.00	48143	6.51
CTMW-20-1120	K2010392-005	34794	9.67	15725	12.00	49019	6.51
CTMW-9-20-1120	K2010392-006	35823	9.67	16145	12.00	50201	6.51
Field Blank #1-1120	K2010392-007	36383	9.67	15427	12.00	50839	6.51
CTMW-20-1120MS	KQ2018365-01	39919	9.67	21751	12.00	54075	6.51
CTMW-20-1120DMS	KQ2018365-02	40960	9.67	22093	12.00	54832	6.51

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20
Date Received: 11/10/20
Date Analyzed: 11/19/20
Date Extracted: NA

Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS SIM

Sample Name: CTMW-20-1120
Lab Code: K2010392-005
Analysis Method: 8260C
Prep Method: None

Units: ng/L
Basis: NA

Analyte Name	Sample Result	Matrix Spike KQ2018365-01			Duplicate Matrix Spike KQ2018365-02			% Rec Limits	RPD	RPD Limit
		Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
Carbon Tetrachloride	ND U	2000	2000	100	2090	2000	104	70-130	4	30
1,2-Dichloroethane	15 J	1910	2000	95	1990	2000	99	70-130	4	30
1,1-Dichloroethene	ND U	1940	2000	97	2060	2000	103	70-130	6	30
1,1,2,2-Tetrachloroethane	ND U	2060	2000	103	2100	2000	105	70-130	2	30
Vinyl Chloride	ND U	2210	2000	111	2330	2000	116	70-130	5	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Analyzed: 11/19/20
Date Extracted: NA

Duplicate Lab Control Sample Summary
Volatile Organic Compounds by GC/MS SIM

Analysis Method: 8260C
Prep Method: None

Units: ng/L
Basis: NA
Analysis Lot: 704211

Lab Control Sample
KQ2018365-04

Duplicate Lab Control Sample
KQ2018365-05

Analyte Name	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
1,1,2,2-Tetrachloroethane	1690	2000	85	1950	2000	98	70-128	14	30
1,1-Dichloroethene	1960	2000	98	1970	2000	98	75-133	<1	30
1,2-Dichloroethane	1780	2000	89	1880	2000	94	75-124	6	30
Carbon Tetrachloride	2040	2000	102	2020	2000	101	71-141	1	30
Vinyl Chloride	2280	2000	114	2230	2000	112	70-136	2	30

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dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Analyzed: 11/19/20 17:57
Date Extracted:

Method Blank Summary
Volatile Organic Compounds by GC/MS SIM

Sample Name: Method Blank
Lab Code: KQ2018365-07
Analysis Method: 8260C
Prep Method: None

Instrument ID: K-MS-30
File ID: J:\MS30\DATA\111920_SIM\111920F009.D\
Analysis Lot: 704211

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ2018365-04	J:\MS30\DATA\111920_SIM\111920F005.D\	11/19/20 16:15
Duplicate Lab Control Sample	KQ2018365-05	J:\MS30\DATA\111920_SIM\111920F006.D\	11/19/20 16:41
Trip Blank #1-1120	K2010392-001	J:\MS30\DATA\111920_SIM\111920F010.D\	11/19/20 18:23
CTMW-15-1120	K2010392-002	J:\MS30\DATA\111920_SIM\111920F011.D\	11/19/20 18:48
CTMW-25D-1120	K2010392-003	J:\MS30\DATA\111920_SIM\111920F012.D\	11/19/20 19:14
CTMW-20-1120	K2010392-005	J:\MS30\DATA\111920_SIM\111920F013.D\	11/19/20 19:39
CTMW-9-20-1120	K2010392-006	J:\MS30\DATA\111920_SIM\111920F014.D\	11/19/20 20:05
Field Blank #1-1120	K2010392-007	J:\MS30\DATA\111920_SIM\111920F015.D\	11/19/20 20:30
CTMW-20-1120MS	KQ2018365-01	J:\MS30\DATA\111920_SIM\111920F016.D\	11/19/20 20:56
CTMW-20-1120DMS	KQ2018365-02	J:\MS30\DATA\111920_SIM\111920F017.D\	11/19/20 21:22

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Analyzed: 11/19/20 16:15
Date Extracted:

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS SIM

Sample Name: Lab Control Sample
Lab Code: KQ2018365-04
Analysis Method: 8260C
Prep Method: None

Instrument ID: K-MS-30
File ID: J:\MS30\DATA\111920_SIM\111920F005.D\
Analysis Lot: 704211

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Duplicate Lab Control Sample	KQ2018365-05	J:\MS30\DATA\111920_SIM\111920F006.D\	11/19/20 16:41
Method Blank	KQ2018365-07	J:\MS30\DATA\111920_SIM\111920F009.D\	11/19/20 17:57
Trip Blank #1-1120	K2010392-001	J:\MS30\DATA\111920_SIM\111920F010.D\	11/19/20 18:23
CTMW-15-1120	K2010392-002	J:\MS30\DATA\111920_SIM\111920F011.D\	11/19/20 18:48
CTMW-25D-1120	K2010392-003	J:\MS30\DATA\111920_SIM\111920F012.D\	11/19/20 19:14
CTMW-20-1120	K2010392-005	J:\MS30\DATA\111920_SIM\111920F013.D\	11/19/20 19:39
CTMW-9-20-1120	K2010392-006	J:\MS30\DATA\111920_SIM\111920F014.D\	11/19/20 20:05
Field Blank #1-1120	K2010392-007	J:\MS30\DATA\111920_SIM\111920F015.D\	11/19/20 20:30
CTMW-20-1120MS	KQ2018365-01	J:\MS30\DATA\111920_SIM\111920F016.D\	11/19/20 20:56
CTMW-20-1120DMS	KQ2018365-02	J:\MS30\DATA\111920_SIM\111920F017.D\	11/19/20 21:22

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392
Date Analyzed: 11/19/20 14:01

Tune Summary
Volatile Organic Compounds by GC/MS SIM

File ID: J:\MS30\DATA\111920_SIM\111920F002.D\
Instrument ID: K-MS-30

Analytical Method: 8260C
Analysis Lot: 704211

Target Mass	Relative to Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	17.01	3371	Pass
75	95	30	60	48.12	9537	Pass
95	95	100	100	100.00	19821	Pass
96	95	5	9	7.05	1397	Pass
173	174	0	2	0.98	198	Pass
174	95	50	120	102.07	20231	Pass
175	174	5	9	7.30	1476	Pass
176	174	95	101	95.51	19322	Pass
177	176	5	9	6.33	1224	Pass

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ2018365-03	J:\MS30\DATA\111920_SIM\111920F004.D\	11/19/20 15:04	
Lab Control Sample	KQ2018365-04	J:\MS30\DATA\111920_SIM\111920F005.D\	11/19/20 16:15	
Duplicate Lab Control Sample	KQ2018365-05	J:\MS30\DATA\111920_SIM\111920F006.D\	11/19/20 16:41	
Method Blank	KQ2018365-07	J:\MS30\DATA\111920_SIM\111920F009.D\	11/19/20 17:57	
Trip Blank #1-1120	K2010392-001	J:\MS30\DATA\111920_SIM\111920F010.D\	11/19/20 18:23	
CTMW-15-1120	K2010392-002	J:\MS30\DATA\111920_SIM\111920F011.D\	11/19/20 18:48	
CTMW-25D-1120	K2010392-003	J:\MS30\DATA\111920_SIM\111920F012.D\	11/19/20 19:14	
CTMW-20-1120	K2010392-005	J:\MS30\DATA\111920_SIM\111920F013.D\	11/19/20 19:39	
CTMW-9-20-1120	K2010392-006	J:\MS30\DATA\111920_SIM\111920F014.D\	11/19/20 20:05	
Field Blank #1-1120	K2010392-007	J:\MS30\DATA\111920_SIM\111920F015.D\	11/19/20 20:30	
CTMW-20-1120	KQ2018365-01	J:\MS30\DATA\111920_SIM\111920F016.D\	11/19/20 20:56	
CTMW-20-1120	KQ2018365-02	J:\MS30\DATA\111920_SIM\111920F017.D\	11/19/20 21:22	

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 9/6/2020

Initial Calibration Summary
Volatile Organic Compounds by GC/MS SIM

Calibration ID: KC2000511
Instrument ID: K-MS-30

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC2000511-01	SIM ICAL 0.005	J:\MS30\DATA\090620_SIM\0906F009.D	09/06/2020 14:52
02	KC2000511-02	SIM ICAL 0.01	J:\MS30\DATA\090620_SIM\0906F010.D	09/06/2020 15:18
03	KC2000511-03	SIM ICAL 0.02	J:\MS30\DATA\090620_SIM\0906F011.D	09/06/2020 15:44
04	KC2000511-04	SIM ICAL 0.05	J:\MS30\DATA\090620_SIM\0906F012.D	09/06/2020 16:09
05	KC2000511-05	SIM ICAL 0.1	J:\MS30\DATA\090620_SIM\0906F013.D	09/06/2020 16:35
07	KC2000511-07	SIM ICAL 1.0	J:\MS30\DATA\090620_SIM\0906F016.D	09/06/2020 17:51
08	KC2000511-08	SIM ICAL 2.0	J:\MS30\DATA\090620_SIM\0906F017.D	09/06/2020 18:17
09	KC2000511-09	SIM ICAL 5.0	J:\MS30\DATA\090620_SIM\0906F018.D	09/06/2020 18:42
10	KC2000511-10	SIM ICAL 7.0	J:\MS30\DATA\090620_SIM\0906F019.D	09/06/2020 19:08
11	KC2000511-11	SIM ICAL 10.0	J:\MS30\DATA\090620_SIM\0906F021.D	09/06/2020 19:59
06	KC2000511-06	SIM ICAL 0.5	J:\MS30\DATA\090720_SIM\0907F008.D	09/07/2020 14:29

Analyte

1,1,2,2-Tetrachloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	10.000	0.4264	03	20.000	0.4801	04	50.000	0.448	05	100.000	0.4506
06	500.000	0.4727	07	1000.000	0.4636	08	2000.000	0.4772	09	5000.000	0.4644
10	7000.000	0.4391	11	10000.000	0.4079						

1,1-Dichloroethene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	20.000	0.3783	04	50.000	0.35	05	100.000	0.3336	06	500.000	0.3532
07	1000.000	0.3429	08	2000.000	0.3351	09	5000.000	0.3196	10	7000.000	0.3045
11	10000.000	0.2861									

1,2-Dichloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5.000	0.6026	02	10.000	0.4673	03	20.000	0.4769	04	50.000	0.4573
05	100.000	0.4487	06	500.000	0.4711	07	1000.000	0.4621	08	2000.000	0.4519
09	5000.000	0.4401	10	7000.000	0.4166	11	10000.000	0.3919			

4-Bromofluorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
06	600.000	0.4159	07	800.000	0.3958	08	1000.000	0.4522	09	2000.000	0.4775
10	2400.000	0.4985	11	4000.000	0.4743						

Carbon Tetrachloride

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	20.000	0.5745	04	50.000	0.5392	05	100.000	0.5226	06	500.000	0.5534
07	1000.000	0.5482	08	2000.000	0.5319	09	5000.000	0.5096	10	7000.000	0.4818
11	10000.000	0.4471									

Dibromofluoromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
05	400.000	0.3532	06	600.000	0.3591	07	800.000	0.3468	08	1000.000	0.3485

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 9/6/2020

Initial Calibration Summary
Volatile Organic Compounds by GC/MS SIM

Calibration ID: KC2000511
Instrument ID: K-MS-30

Signal ID: 1

Analyte

Dibromofluoromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
09	2000.000	0.3428									

Toluene-d8

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
06	600.000	0.9547	07	800.000	0.9064	08	1000.000	0.943	09	2000.000	0.9613
10	2400.000	0.9849									

Vinyl Chloride

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5.000	0.5008	02	10.000	0.4972	03	20.000	0.5176	04	50.000	0.4821
05	100.000	0.4642	06	500.000	0.512	07	1000.000	0.4993	08	2000.000	0.4816
09	5000.000	0.451	10	7000.000	0.4335	11	10000.000	0.3992			

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 9/6/2020

Initial Calibration Summary
Volatile Organic Compounds by GC/MS SIM

Calibration ID: KC2000511
Instrument ID: K-MS-30

Signal ID: 1

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
1,1,2,2-Tetrachloroethane	TRG	Average RF	% RSD	5.2	20	0.453	0.3
1,1-Dichloroethene	TRG	Average RF	% RSD	8.2	20	0.3337	0.1
1,2-Dichloroethane	TRG	Average RF	% RSD	11.4	20	0.4624	0.1
4-Bromofluorobenzene	SURR	Average RF	% RSD	8.7	20	0.4524	0.01
Carbon Tetrachloride	TRG	Average RF	% RSD	7.5	20	0.5231	0.1
Dibromofluoromethane	SURR	Average RF	% RSD	1.8	20	0.3501	0.01
Toluene-d8	SURR	Average RF	% RSD	3.0	20	0.9501	0.01
Vinyl Chloride	TRG	Average RF	% RSD	7.6	20	0.4762	0.1

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 9/6/2020

**Initial Calibration Verification Summary
Volatile Organic Compounds by GC/MS SIM**

Calibration ID: KC2000511
Instrument ID: K-MS-30

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
12	KC2000511-12	ICV 1	J:\MS30\DATA\090720_SIM\0907F009.D	09/07/2020 15:17
13	KC2000511-13	ICV2	J:\MS30\DATA\090720_SIM\0907F010.D	09/07/2020 15:42

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
Carbon Tetrachloride	2000	1760	5.231E-1	4.598E-1	-12.104	±30	Average RF
1,2-Dichloroethane	2000	1630	4.624E-1	3.773E-1	-18.406	±30	Average RF
1,1-Dichloroethene	2000	1630	3.337E-1	2.711E-1	-18.746	±30	Average RF
1,1,2,2-Tetrachloroethane	2000	1540	4.53E-1	3.492E-1	-22.907	±30	Average RF
Vinyl Chloride	2000	1680	4.762E-1	3.988E-1	-16.250	±30	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
4-Bromofluorobenzene	1000	841	4.524E-1	3.804E-1	-15.903	±30	Average RF
Dibromofluoromethane	1000	903	3.501E-1	3.161E-1	-9.706	±30	Average RF
Toluene-d8	1000	923	9.501E-1	8.774E-1	-7.650	±30	Average RF

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392
Date Analyzed: 11/19/20 15:04

**Continuing Calibration Verification (CCV) Summary
Volatile Organic Compounds by GC/MS SIM**

Analysis Method: 8260C
File ID: J:\MS30\DATA\111920_SIM\111920F004.D\
Signal ID: 1

Calibration Date: 9/6/2020
Calibration ID: KC2000511
Analysis Lot: 704211
Units: ng/L

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
Carbon Tetrachloride	2000	2000	0.5231	0.5238	0.1	NA	±30	Average RF
1,2-Dichloroethane	2000	1860	0.4624	0.4302	-7.0	NA	±30	Average RF
1,1-Dichloroethene	2000	1920	0.3337	0.32	-4.1	NA	±30	Average RF
1,1,2,2-Tetrachloroethane	2000	1910	0.453	0.4334	-4.3	NA	±30	Average RF
Vinyl Chloride	2000	2230	0.4762	0.5304	11.4	NA	±30	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
4-Bromofluorobenzene	1000	830	0.4524	0.3754	83.0	NA	±30	Average RF
Dibromofluoromethane	1000	949	0.3501	0.3323	94.9	NA	±30	Average RF
Toluene-d8	1000	854	0.9501	0.8116	85.4	NA	±30	Average RF

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request:K2010392

Analysis Run Log
Volatile Organic Compounds by GC/MS SIM

Analysis Method:

Analysis Lot:704211
Instrument ID:K-MS-30

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS30\DATA\111920_SIM\111920F002.D	ZZZZZZZ	ZZZZZZZ	11/19/2020	14:01:00	
J:\MS30\DATA\111920_SIM\111920F004.D	Continuing Calibration Verification	KQ2018365-03	11/19/2020	15:04:00	
J:\MS30\DATA\111920_SIM\111920F005.D	Lab Control Sample	KQ2018365-04	11/19/2020	16:15:00	
J:\MS30\DATA\111920_SIM\111920F006.D	Duplicate Lab Control Sample	KQ2018365-05	11/19/2020	16:41:00	
J:\MS30\DATA\111920_SIM\111920F009.D	Method Blank	KQ2018365-07	11/19/2020	17:57:00	
J:\MS30\DATA\111920_SIM\111920F010.D	Trip Blank #1-1120	K2010392-001	11/19/2020	18:23:00	
J:\MS30\DATA\111920_SIM\111920F011.D	CTMW-15-1120	K2010392-002	11/19/2020	18:48:00	
J:\MS30\DATA\111920_SIM\111920F012.D	CTMW-25D-1120	K2010392-003	11/19/2020	19:14:00	
J:\MS30\DATA\111920_SIM\111920F013.D	CTMW-20-1120	K2010392-005	11/19/2020	19:39:00	
J:\MS30\DATA\111920_SIM\111920F014.D	CTMW-9-20-1120	K2010392-006	11/19/2020	20:05:00	
J:\MS30\DATA\111920_SIM\111920F015.D	Field Blank #1-1120	K2010392-007	11/19/2020	20:30:00	
J:\MS30\DATA\111920_SIM\111920F016.D	CTMW-20-1120 MS	KQ2018365-01	11/19/2020	20:56:00	
J:\MS30\DATA\111920_SIM\111920F017.D	CTMW-20-1120 DMS	KQ2018365-02	11/19/2020	21:22:00	



1,4-Dioxane by GC/MS

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 09:44
Date Received: 11/10/20 10:00

Sample Name: CTMW-15-1120
Lab Code: K2010392-002

Units: ug/L
Basis: NA

1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	0.51	0.40	0.16	1	11/12/20 19:27	11/12/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	83	48 - 118	11/12/20 19:27	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 11:05
Date Received: 11/10/20 10:00

Sample Name: CTMW-25D-1120
Lab Code: K2010392-003

Units: ug/L
Basis: NA

1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	55	2.0	0.80	5	11/14/20 14:16	11/12/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	91	48 - 118	11/14/20 14:16	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 11:05
Date Received: 11/10/20 10:00

Sample Name: CTMW-9-25D-1120
Lab Code: K2010392-004

Units: ug/L
Basis: NA

1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	55	2.0	0.80	5	11/14/20 14:32	11/12/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	92	48 - 118	11/14/20 14:32	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20 12:36
Date Received: 11/10/20 10:00

Sample Name: Field Blank #1-1120
Lab Code: K2010392-007

Units: ug/L
Basis: NA

1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	ND U	0.40	0.16	1	11/12/20 20:13	11/12/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	86	48 - 118	11/12/20 20:13	

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Analytical Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: KQ2017808-04

Units: ug/L
Basis: NA

1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	ND U	0.40	0.16	1	11/12/20 17:08	11/12/20	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	86	48 - 118	11/12/20 17:08	

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392

SURROGATE RECOVERY SUMMARY
1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Extraction Method: EPA 3535A

Sample Name	Lab Code	1,4-Dioxane-d8
		48-118
CTMW-15-1120	K2010392-002	83
CTMW-25D-1120	K2010392-003	91
CTMW-9-25D-1120	K2010392-004	92
Field Blank #1-1120	K2010392-007	86
Method Blank	KQ2017808-04	86
Lab Control Sample	KQ2017808-03	84
CTMW-25D-1120	KQ2017808-01	82
CTMW-25D-1120	KQ2017808-02	83

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request:K2010392
Date Analyzed:11/12/20 16:53

Internal Standard Area and RT SUMMARY
1,4-Dioxane by GC/MS

File ID: J:\MS26\DATA\111220\1112F004.D\
Instrument ID: K-MS-26
Analysis Method: 8270D SIM

Lab Code:KQ2017906-02
Analysis Lot:703267
Signal ID:1

	1,4-Dichlorobenzene-d4	
	Area	RT
Result ==>	18,497	5.14
Upper Limit ==>	36,994	5.64
Lower Limit ==>	9,249	4.64

Associated Analyses

Method Blank	KQ2017808-04	18772	5.14
Lab Control Sample	KQ2017808-03	17844	5.14
CTMW-25D-1120MS	KQ2017808-01	18959	5.15
CTMW-25D-1120DMS	KQ2017808-02	18527	5.14
CTMW-15-1120	K2010392-002	18046	5.15
Field Blank #1-1120	K2010392-007	18576	5.15

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QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392
Date Analyzed: 11/14/20 13:45

Internal Standard Area and RT SUMMARY
1,4-Dioxane by GC/MS

File ID: J:\MS26\DATA\111420\1114F004.D\
Instrument ID: K-MS-26
Analysis Method: 8270D SIM

Lab Code: KQ2018060-02
Analysis Lot: 703574
Signal ID: 1

	1,4-Dichlorobenzene-d4	
	Area	RT
Result ==>	18,384	5.14
Upper Limit ==>	36,768	5.64
Lower Limit ==>	9,192	4.64

Associated Analyses

CTMW-25D-1120	K2010392-003	17698	5.14
CTMW-9-25D-1120	K2010392-004	17796	5.14

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Collected: 11/09/20
Date Received: 11/10/20
Date Analyzed: 11/12/20
Date Extracted: 11/12/20

Duplicate Matrix Spike Summary
1,4-Dioxane by GC/MS

Sample Name: CTMW-25D-1120
Lab Code: K2010392-003
Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Units: ug/L
Basis: NA

Analyte Name	Sample Result	Result	Matrix Spike KQ2017808-01		Duplicate Matrix Spike KQ2017808-02		% Rec Limits	RPD	RPD Limit	
			Spike Amount	% Rec	Result	Spike Amount				% Rec
1,4-Dioxane	55	57.6 E	10.0	22 #	57.6 E	10.0	22 #	33-127	<1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Analyzed: 11/12/20
Date Extracted: 11/12/20

Lab Control Sample Summary
1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Units: ug/L
Basis: NA
Analysis Lot: 703267

Lab Control Sample
KQ2017808-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,4-Dioxane	8.51	10.0	85	52-111

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Analyzed: 11/12/20 17:08
Date Extracted: 11/12/20

Method Blank Summary
1,4-Dioxane by GC/MS

Sample Name: Method Blank
Lab Code: KQ2017808-04
Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Instrument ID: K-MS-26
File ID: J:\MS26\DATA\111220\1112F005.D\
Analysis Lot: 703267,703574
Extraction Lot: 369642

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ2017808-03	J:\MS26\DATA\111220\1112F006.D\	11/12/20 17:24
CTMW-25D-1120MS	KQ2017808-01	J:\MS26\DATA\111220\1112F007.D\	11/12/20 17:39
CTMW-25D-1120DMS	KQ2017808-02	J:\MS26\DATA\111220\1112F008.D\	11/12/20 17:55
CTMW-15-1120	K2010392-002	J:\MS26\DATA\111220\1112F014.D\	11/12/20 19:27
Field Blank #1-1120	K2010392-007	J:\MS26\DATA\111220\1112F017.D\	11/12/20 20:13
CTMW-25D-1120	K2010392-003	J:\MS26\DATA\111420\1114F006.D\	11/14/20 14:16
CTMW-9-25D-1120	K2010392-004	J:\MS26\DATA\111420\1114F007.D\	11/14/20 14:32

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392
Date Analyzed: 11/12/20 17:24
Date Extracted: 11/12/20

Lab Control Sample Summary
1,4-Dioxane by GC/MS

Sample Name: Lab Control Sample
Lab Code: KQ2017808-03
Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Instrument ID: K-MS-26
File ID: J:\MS26\DATA\111220\1112F006.D\
Analysis Lot: 703267,703574
Extraction Lot: 369642

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ2017808-04	J:\MS26\DATA\111220\1112F005.D\	11/12/20 17:08
CTMW-25D-1120MS	KQ2017808-01	J:\MS26\DATA\111220\1112F007.D\	11/12/20 17:39
CTMW-25D-1120DMS	KQ2017808-02	J:\MS26\DATA\111220\1112F008.D\	11/12/20 17:55
CTMW-15-1120	K2010392-002	J:\MS26\DATA\111220\1112F014.D\	11/12/20 19:27
Field Blank #1-1120	K2010392-007	J:\MS26\DATA\111220\1112F017.D\	11/12/20 20:13
CTMW-25D-1120	K2010392-003	J:\MS26\DATA\111420\1114F006.D\	11/14/20 14:16
CTMW-9-25D-1120	K2010392-004	J:\MS26\DATA\111420\1114F007.D\	11/14/20 14:32

ALS Group USA, Corp.
dba ALS Environmental

QC/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392
Date Analyzed: 11/12/20 16:38

Tune Summary
1,4-Dioxane by GC/MS

File ID: J:\MS26\DATA\111220\1112F003.D\
Instrument ID: K-MS-26

Analytical Method: 8270D SIM
Analysis Lot: 703267

Target Mass	Relative to Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	10	80	16.42	160432	Pass
68	69	0	2	1.84	3629	Pass
69	198	0	100	20.18	197242	Pass
70	69	0	2	0.50	993	Pass
127	198	10	80	35.50	346888	Pass
197	198	0	2	0.00	0	Pass
198	442	30	100	49.27	977258	Pass
199	198	5	9	6.55	64042	Pass
275	198	10	60	34.33	335445	Pass
365	442	1	50	2.25	44570	Pass
441	443	0.01	100	77.89	295445	Pass
442	442	100	100	100.00	1983488	Pass
443	442	15	24	19.12	379306	Pass

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ2017906-02	J:\MS26\DATA\111220\1112F004.D\	11/12/20 16:53	
Method Blank	KQ2017808-04	J:\MS26\DATA\111220\1112F005.D\	11/12/20 17:08	
Lab Control Sample	KQ2017808-03	J:\MS26\DATA\111220\1112F006.D\	11/12/20 17:24	
CTMW-25D-1120	KQ2017808-01	J:\MS26\DATA\111220\1112F007.D\	11/12/20 17:39	
CTMW-25D-1120	KQ2017808-02	J:\MS26\DATA\111220\1112F008.D\	11/12/20 17:55	
CTMW-15-1120	K2010392-002	J:\MS26\DATA\111220\1112F014.D\	11/12/20 19:27	
Field Blank #1-1120	K2010392-007	J:\MS26\DATA\111220\1112F017.D\	11/12/20 20:13	

ALS Group USA, Corp.
dba ALS Environmental

QC/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392
Date Analyzed: 11/14/20 13:30

Tune Summary
1,4-Dioxane by GC/MS

File ID: J:\MS26\DATA\111420\1114F003.D\
Instrument ID: K-MS-26

Analytical Method: 8270D SIM
Analysis Lot: 703574

Target Mass	Relative to Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	10	80	17.45	197717	Pass
68	69	0	2	1.86	4535	Pass
69	198	0	100	21.57	244309	Pass
70	69	0	2	0.47	1159	Pass
127	198	10	80	37.02	419413	Pass
197	198	0	2	0.33	3780	Pass
198	442	30	100	61.54	1132885	Pass
199	198	5	9	6.66	75418	Pass
275	198	10	60	32.40	367061	Pass
365	442	1	50	2.43	44762	Pass
441	443	0.01	100	77.47	274162	Pass
442	442	100	100	100.00	1840853	Pass
443	442	15	24	19.22	353877	Pass

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ2018060-02	J:\MS26\DATA\111420\1114F004.D\	11/14/20 13:45	
CTMW-25D-1120	K2010392-003	J:\MS26\DATA\111420\1114F006.D\	11/14/20 14:16	
CTMW-9-25D-1120	K2010392-004	J:\MS26\DATA\111420\1114F007.D\	11/14/20 14:32	

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 9/30/2020

Initial Calibration Summary
1,4-Dioxane by GC/MS

Calibration ID: KC2000522
Instrument ID: K-MS-26

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC2000522-01	1,4-Dx ICAL 2.0ppb SVM64-7A	J:\MS26\DATA\093020\0930F003.D	09/30/2020 10:26
02	KC2000522-02	1,4-Dx ICAL 4.0ppb SVM64-7B	J:\MS26\DATA\093020\0930F004.D	09/30/2020 10:42
03	KC2000522-03	1,4-Dx ICAL 10ppb SVM64-7C	J:\MS26\DATA\093020\0930F005.D	09/30/2020 10:57
04	KC2000522-04	1,4-Dx ICAL 20ppb SVM64-7D	J:\MS26\DATA\093020\0930F006.D	09/30/2020 11:13
05	KC2000522-05	1,4-Dx ICAL 50ppb SVM64-7E	J:\MS26\DATA\093020\0930F007.D	09/30/2020 11:29
06	KC2000522-06	1,4-Dx ICAL 100ppb SVM64-7F	J:\MS26\DATA\093020\0930F008.D	09/30/2020 11:44
07	KC2000522-07	1,4-Dx ICAL 200ppb SVM64-7G	J:\MS26\DATA\093020\0930F009.D	09/30/2020 12:00

Analyte

1,4-Dioxane											
#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	2.000	0.4104	02	4.000	0.377	03	10.000	0.3849	04	20.000	0.392
05	50.000	0.372	06	100.000	0.3928	07	200.000	0.3819			

1,4-Dioxane-d8											
#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	2.000	0.3781	02	4.000	0.3442	03	10.000	0.3753	04	20.000	0.3826
05	50.000	0.3677	06	100.000	0.3877	07	200.000	0.3718			

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 9/30/2020

Initial Calibration Summary
1,4-Dioxane by GC/MS

Calibration ID: KC2000522

Signal ID: 1

Instrument ID: K-MS-26

Analyte Name	Compound Type	Calibration Evaluation				Calibration Evaluation	
		Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
1,4-Dioxane	TRG	Average RF	% RSD	3.3	20	0.3873	0.01
1,4-Dioxane-d8	SURR	Average RF	% RSD	3.8	20	0.3725	0.01

Client: Burlington Environmental
Project: Tacoma 2Q20 Access

Service Request: K2010392
Calibration Date: 9/30/2020

Initial Calibration Verification Summary
1,4-Dioxane by GC/MS

Calibration ID: KC2000522
Instrument ID: K-MS-26

Signal ID: 1

#	Lab Code	Sample Name	File Location	Acquisition Date
08	KC2000522-08	1,4-Dx ICV 20ppb SVM64-7H	J:\MS26\DATA\093020\0930F010.D	09/30/2020 12:15

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
1,4-Dioxane	20.0	21.3	3.873E-1	4.126E-1	6.54	±30	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
1,4-Dioxane-d8	20.0	20.3	3.725E-1	3.782E-1	1.53	±30	Average RF

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392
Date Analyzed: 11/12/20 16:53

Continuing Calibration Verification (CCV) Summary
1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
File ID: J:\MS26\DATA\111220\1112F004.D\
Signal ID: 1

Calibration Date: 9/30/2020
Calibration ID: KC2000522
Analysis Lot: 703267
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,4-Dioxane	20.0	18.0	0.3873	0.3484	-10.0	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,4-Dioxane-d8	20.0	17.8	0.3725	0.3314	-11.0	NA	±20	Average RF

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request: K2010392
Date Analyzed: 11/14/20 13:45

Continuing Calibration Verification (CCV) Summary
1,4-Dioxane by GC/MS

Analysis Method: 8270D SIM
File ID: J:\MS26\DATA\111420\1114F004.D\
Signal ID: 1

Calibration Date: 9/30/2020
Calibration ID: KC2000522
Analysis Lot: 703574
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,4-Dioxane	20.0	17.3	0.3873	0.3353	-13.4	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,4-Dioxane-d8	20.0	17.4	0.3725	0.3239	-13.0	NA	±20	Average RF

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request:K2010392

Analysis Run Log
1,4-Dioxane by GC/MS

Analysis Method:

Analysis Lot:703267
Instrument ID:K-MS-26

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS26\DATA\111220\1112F003.D\	ZZZZZZZ	ZZZZZZZ	11/12/2020	16:38:00	
J:\MS26\DATA\111220\1112F004.D\	Continuing Calibration Verification	KQ2017906-02	11/12/2020	16:53:00	
J:\MS26\DATA\111220\1112F005.D\	Method Blank	KQ2017808-04	11/12/2020	17:08:00	
J:\MS26\DATA\111220\1112F006.D\	Lab Control Sample	KQ2017808-03	11/12/2020	17:24:00	
J:\MS26\DATA\111220\1112F007.D\	CTMW-25D-1120 MS	KQ2017808-01	11/12/2020	17:39:00	
J:\MS26\DATA\111220\1112F008.D\	CTMW-25D-1120 DMS	KQ2017808-02	11/12/2020	17:55:00	
J:\MS26\DATA\111220\1112F009.D\	ZZZZZZZ	ZZZZZZZ	11/12/2020	18:10:00	
J:\MS26\DATA\111220\1112F010.D\	ZZZZZZZ	ZZZZZZZ	11/12/2020	18:25:00	
J:\MS26\DATA\111220\1112F011.D\	ZZZZZZZ	ZZZZZZZ	11/12/2020	18:41:00	
J:\MS26\DATA\111220\1112F012.D\	ZZZZZZZ	ZZZZZZZ	11/12/2020	18:56:00	
J:\MS26\DATA\111220\1112F013.D\	ZZZZZZZ	ZZZZZZZ	11/12/2020	19:12:00	
J:\MS26\DATA\111220\1112F014.D\	CTMW-15-1120	K2010392-002	11/12/2020	19:27:00	
J:\MS26\DATA\111220\1112F017.D\	Field Blank #1-1120	K2010392-007	11/12/2020	20:13:00	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01

Service Request:K2010392

Analysis Run Log
1,4-Dioxane by GC/MS

Analysis Method:

Analysis Lot:703574
Instrument ID:K-MS-26

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS26\DATA\111420\1114F003.D\	ZZZZZZZ	ZZZZZZZ	11/14/2020	13:30:00	
J:\MS26\DATA\111420\1114F004.D\	Continuing Calibration Verification	KQ2018060-02	11/14/2020	13:45:00	
J:\MS26\DATA\111420\1114F006.D\	CTMW-25D-1120	K2010392-003	11/14/2020	14:16:00	
J:\MS26\DATA\111420\1114F007.D\	CTMW-9-25D-1120	K2010392-004	11/14/2020	14:32:00	

ALS Group USA, Corp.
dba ALS Environmental

Prep Summary Report

Client: Burlington Environmental
Project: Tacoma 2Q20 Access/376.01
Sample Matrix: Water

Service Request: K2010392

1,4-Dioxane by GC/MS

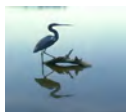
Prep Method: EPA 3535A
Analytical Method: 8270D SIM

Extraction Lot: 369642
Extraction Date: 11/12/20 10:50

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
CTMW-15-1120	K2010392-002	11/9/20	11/10/20	10 mL	2 mL	
CTMW-25D-1120	K2010392-003	11/9/20	11/10/20	10 mL	2 mL	
CTMW-9-25D-1120	K2010392-004	11/9/20	11/10/20	10 mL	2 mL	
Field Blank #1-1120	K2010392-007	11/9/20	11/10/20	10 mL	2 mL	
Matrix Spike	KQ2017808-01MS	11/9/20	11/10/20	10 mL	2 mL	
Duplicate Matrix Spike	KQ2017808-02DMS	11/9/20	11/10/20	10 mL	2 mL	
Lab Control Sample	KQ2017808-03LCS	NA	NA	10 mL	2 mL	
Method Blank	KQ2017808-04MB	NA	NA	10 mL	2 mL	

ATTACHMENT C

QA/QC SOLUTIONS, LLC



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October 7, 2020

Laura Dell'Olio, Greg Fink, and Duane Beery
Clean Earth Environmental Solutions
20245 77th Ave S.
Kent, Washington 98032

Subject: Tacoma 2nd Quarter 2020 Data Validation Review
Client Project No.: 376.10
QA/QC Solutions, LLC Project No.: 070120.1

Dear Laura, Greg, and Duane:

This letter documents the results of the data validation review of the chemical analyses of organic and inorganic compounds completed on groundwater samples associated with Clean Earth Environmental Solutions Tacoma 2nd Quarter 2020 sampling event.

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

Overall Assessment of Data Quality

Overall, the data reported are of good quality and the results for the applicable QA/QC measurements that were used by the laboratory during the analysis of the samples were generally acceptable. Some sample results required qualification during data validation because method-specific QA/QC criteria were not met; results maybe qualified for more than one reason. During data validation the following actions were taken:

- A total of 41 results reported as detected were qualified as estimated (assigned a *J* qualifier).
- A total of 5 results reported as detected were restated as undetected and qualified as estimated (assigned a *UJ* qualifier).
- A total of 32 results reported as detected required restatement as undetected (assigned a *U* qualifier).
- No results required rejection (*R*).

Analytical data that did not meet method- and/or laboratory-established control limits for applicable quality control measurements were qualified as estimated (*J*) by the laboratory or during data validation. These qualified data are usable and represent data of good quality and reasonable confidence and have an acceptable degree of uncertainty (i.e., may be less precise or less accurate than unqualified data). Analytical

data that were reported as undetected (*U*) by the laboratory or that were restated as undetected and estimated (*UJ*) during data validation are usable.

****Data users must note that results may be qualified for more than one reason.***

Data Set

The data set consisted of 16 water samples (i.e., 11 groundwater samples, 2 field duplicates, 2 trip blanks, and 1 field blank) that were collected in June 2020. A summary of the samples collected and the analyses completed is presented in Table 1.

Data users must note the field duplicate sample CTMW-9-18-0620 was not analyzed Gasoline-range petroleum hydrocarbons by the laboratory. No explanation was provided in the case narrative for this omission.

All organic and inorganic chemical analyses were completed by ALS Group USA Corp. dba ALS Environmental (ALS) located in Kelso, Washington. ALS submitted two (2) complete hardcopy data validation deliverables and six (6) electronic data deliverables (EDDs).

Analytical Methods

The analytical methods used by the laboratories to complete the chemical analyses included the following:

- Total metals (i.e., arsenic, cadmium, chromium, copper, lead, nickel, and zinc) by digestion with 1% nitric acid and 0.2% hydrochloric acid and analysis by inductively coupled plasma-mass spectrometry (ICP-MS) using U.S. EPA SW-846 Method 6020A (U.S. EPA 2020).
- Dissolved metals (i.e., arsenic, cadmium, chromium, copper, lead, nickel, and zinc) by field filtration through 0.45 µm filter, digestion with 1% nitric acid and 0.2% hydrochloric acid, and analysis by ICP-MS using U.S. SW-846 Method 6020A (U.S. EPA 2020).
- Total mercury by digestion with hydrogen peroxide and nitric acid, addition of nickel nitrate solution, and analysis by cold vapor atomic absorption (CVAA) using U.S. EPA SW-846 Method 7470A (U.S. EPA 2020).
- Dissolved mercury by metals by field filtration through 0.45 µm filter, digestion with hydrogen peroxide and nitric acid, addition of nickel nitrate solution, and analysis by cold vapor atomic absorption (CVAA) using U.S. EPA SW-846 Method 7470A (U.S. EPA 2020).
- Gasoline-range petroleum hydrocarbons by purge and trap and analysis by gas chromatography/flame ionization detection (GC/FID) using the Washington Department of Ecology NWTPH-Gx method (Ecology 1997).
- Diesel- and oil-range petroleum hydrocarbons by extraction and analysis by gas chromatography/flame ionization (GC/FID) using the Washington Department of Ecology NWTPH-Dx (extended) method (Ecology 1997).
- Volatile organic compounds (VOCs) (50 target analytes with co-elutions included) by purge and trap and analysis by gas chromatography/mass spectrometry (GC/MS) operated in the full scan mode using U.S. EPA SW-846 Methods 5030B and 8260C, respectively (U.S. EPA 2020).

- VOCs (5 target analytes) by purge and trap and analysis by GC/MS operated in the selected ion monitoring (SIM) mode to achieve lower reporting limits using U.S. EPA SW-846 Methods 5030B and 8260C, respectively (U.S. EPA 2020). These VOC results were reported in units of ng/L.
- 1,4-Dioxane by solid-phase extraction and analysis by GC/MS operated in the SIM mode using U.S. EPA SW-846 Methods 3535A and 8270D-SIM, respectively (U.S. EPA 2020).

Data Validation Procedures

Data validation procedures included evaluating a summary of the sample results and applicable quality control results reported by the laboratory; this level of validation is also referred to as an abbreviated data review (equivalent to “Stage 2B” review per U.S. EPA 2009, which is equivalent to “Level EPA2B” for use with the Washington Department of Ecology EIMS database). The analytical data were validated generally following the applicable guidance and requirements:

- Method-specific and laboratory-established quality control requirements, as applicable.
- Guidance on Environmental Data Verification and Validation (U.S. EPA 2002)
- Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use. OSWER No. 9200.1-85. EPA 540-R-08-005. (U.S. EPA 2009).
- National Functional Guidelines for Organic Superfund Methods Data Review. Final. OLEM 9355.0-136. USEPA-540-R-2017-002. June 2017. U.S. Environmental Protection Agency (EPA), Office of Superfund Remediation and Technology Innovation (OSRTI), Washington, DC. (U.S. EPA 2017a).
- National Functional Guidelines for Inorganic Data Superfund Data Review. Final. OLEM 9355.0-135. EPA-540-R-2017-001. January 2017. U.S. Environmental Protection Agency (EPA), Office of Superfund Remediation and Technology Innovation (OSRTI), Washington, DC. (U.S. EPA 2017b).

Data validation procedures were modified to accommodate QA/QC requirements for methods that are not specifically addressed by the USEPA functional guidelines. Method-specific and laboratory-established control limits were used, as necessary, to determine if qualification of the data was necessary. The laboratory data deliverables that were validated if reported and available for review included the following:

- Case narratives discussing analytical problems (if any) and procedures.
- Chain-of-custody documentation to verify completeness of the data set.
- Sample preparation logs or laboratory summary result forms to verify analytical holding times were met.
- Results for applicable instrument tuning, initial calibration, and continuing calibration verification (CCV) results to assess instrument performance.
- Results for applicable instrument blanks (i.e., method blanks, trip blanks, and field blanks to determine whether an analyte that was reported as detected in any sample was the result of possible contamination introduced at the laboratory, during transport of samples, or during field sampling, respectively).

- Results for applicable internal standards performance (VOC and 1,4-Dioxane analyses) to verify that instrument sensitivity and response was stable during the analysis of the samples.
- Results for applicable method-specific quality control measurements for metals (i.e., serial dilutions and interference check samples for metals analyses) to assess potential matrix interference effects.
- Results for applicable surrogate compound (or system monitoring compound for VOC analyses), laboratory control sample (LCS) (i.e., blank spike), duplicate LCS, matrix spike (MS), and matrix spike duplicate (MSD) recoveries to assess analytical accuracy.
- Results for applicable laboratory duplicate sample, duplicate LCS, and MSD analyses to assess analytical precision.
- Results for the field duplicate samples to provide additional information in support of the quality assurance review.
- Laboratory summaries of analytical results.

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

Performance based control limits established by the laboratory, applicable control limits specified in the analytical methods, and best professional judgement were used to evaluate data quality and to determine if specific data required qualification. Data qualifiers were assigned during data validation following guidance specified by U.S. EPA (2002, 2017a, and 2017b) to the EDD when applicable QC measurement criteria were not met and qualification of the data was warranted.

Reasons for Data Qualification

The data and reasons for qualification are summarized below. A summary of the qualified data and the reasons for qualification are summarized in Table 2; results may be qualified for more than one reason.

Total Metals and VOC Analyses

- A total of 40 results reported as detected at a concentration above the method detection limit (MDL), but less than the method reporting limit (MRL) were qualified as estimated (*J*). These qualified results may exhibit a greater degree of uncertainty than a concentration that is reported above the MRL.

Metals Analyses

- A total of nine (9) results reported as detected were restated as undetected (*U*) because the concentrations were less than 5 times the concentration found in the associated method and/or field blank. These results were restated as undetected at

the concentration reported or reported as undetected at the concentration found in the associated blank.

VOC Analyses by GC/MS operated in full scan mode

- Six results reported as detected for carbon disulfide were restated as undetected (*U*) because the concentrations were less than 5 times the concentration found in the associated method or trip blank. These results were restated as undetected at the concentration reported in the sample or was elevated to the concentration found in the applicable blank.
- Four results reported as detected for acetone were qualified as estimated (*J*) because the recovery of this VOC in the LCS was above the upper control limit.

VOC Analyses by GC/MS operated in SIM mode

- A total of 22 results reported as detected for one, or more, of the five target VOCs were restated as undetected (*U*) because the concentrations 5 times the concentration found in the associated method or trip blank. These results were restated as undetected at the concentration reported in the sample or was elevated to the concentration found in the applicable blank.
- A total of five (5) results were qualified as estimated (*J*) because the recovery of one of the three surrogate compounds was below the lower control limit.

General Comments:

- During data validation, it was determined that selected data-validation-specific and/or method-specific QA/QC measurement criteria were not met. Additional information may be found in the laboratory case narratives and sample login summaries. Qualification of the sample results was not required because the overall quality of the data reported was not affected and, therefore, are not summarized herein.
- There was a positive bias for the recovery of the surrogate compound dibromofluoromethane in 14 of 22 total sample and QC samples analyzed by GC/MS operated in the SIM mode. No results required qualification because the affected VOCs in the affected samples were either not detected or were already qualified estimated because the VOC was reported as detected at a concentration was >MDL but < MRL was already qualified as estimated.
- Insufficient sample was volume was apparently available to complete an MS/MSD for 1,4-Dioxane analyses. In these instances, accuracy and precision was assessed based the results of the LCS and duplicate LCS analyses. In some instances, only an LCS were analyzed; therefore, no assessment of precision could be made.

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

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

Laura Dell'Olio, Greg Fink and Duane Beery
October 7, 2020
Page 6

**Confidential & Privileged Client
Communication and Work**

Cordially,



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

cc: Natasya Gray, L.G., Dalton, Olmsted & Fuglevand, Inc.

Attachments

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U.S. EPA 2002. Guidance on Environmental Data Verification and Data Validation. EPA QA/G-8. EPA/240/R-02/004. November 2002. U.S. Environmental Protection Agency, Office of Environmental Information, Washington DC.

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U.S. EPA 2020. SW-846 on-line. Test methods for evaluating solid wastes, physical/chemical methods. <https://www.epa.gov/hw-sw846/sw-846-compendium> (last updated on July 31, 2020). U.S. Environmental Protection Agency, Office of Solid Waste, Washington, DC.

Table 1. Summary of Samples Collected and Analyses Completed for Tacoma Second Quarter 2020 Groundwater Sampling Event

Sample Number	Laboratory Sample Number	Sample Date	Sample Time	Sample Depth	Total Metals by 6020A	Dissolved Metals by 6020A	Total Mercury by 7470A	Dissolved Mercury by 7470A	NWTPH-Gx by WDOE Method	NWTPH-Dx by WDOE Method	VOCs by 8260C	VOCS by 8260C SIM	1,4-Dioxane by 8270D SIM	
TRIPBLANK#1-0620	K2004781-001	6/9/20	09:15	0							✓	✓		
CTMW-14-0620	K2004781-002	6/9/20	10:02	8	✓	✓	✓	✓		✓	✓	✓		
CTMW-9-0620	K2004781-003	6/9/20	10:57	24	✓		✓			✓	✓	✓	✓	
CTMW-8-0620	K2004781-004	6/9/20	11:41	8.7	✓		✓			✓	✓	✓	✓	
CTMW-17-0620	K2004781-005	6/9/20	12:54	13.7	✓		✓			✓	✓	✓		
CTMW-17D-0620	K2004781-006	6/9/20	13:34	28	✓		✓			✓	✓	✓		
FIELDBLANK#1-0620	K2004781-007	6/9/20	13:50	9.95	✓		✓			✓	✓	✓	✓	
TRIPBLANK#2-0620	K2004781-008	6/10/20	08:15	0					✓		✓	✓		
CTMW-5-0620	K2004781-009	6/10/20	09:08	9.95	✓		✓			✓	✓	✓	✓	
CTMW-12-0620	K2004781-010	6/10/20	09:47	26	✓		✓			✓	✓	✓		
CTMW-24-0620	K2004781-011	6/10/20	10:34	10.5	✓		✓			✓	✓	✓	✓	
CTMW-24D-0620	K2004781-012	6/10/20	11:09	24	✓		✓			✓	✓	✓	✓	
CTMW-7-0620	K2004781-013	6/10/20	11:52	25			✓			✓	✓	✓	✓	
CTMW-9-7-0620	K2004781-014	6/10/20	11:52	25			✓			✓	✓	✓	✓	
CTMW-18-0620	K2004781-015	6/10/20	12:55	12.4	✓		✓		✓	✓	✓		✓	
CTMW-9-18-0620 *	K2004781-016	6/10/20	12:55	12.4					✓					
CTMW-7-0620	K2005612-001	6/10/20	11:52	25	✓									
CTMW-9-7-0620	K2005612-002	6/10/20	11:52	25	✓									
Notes					Total Number of Samples:	13	1	13	1	3	13	15	14	9

Dx - diesel-range and oil-range hydrocarbons
Gx - gasoline-range hydrocarbons
NWTPH - Northwest Total Petroleum Hydrocarbons
SIM - selected ion monitoring
VOC - volatile organic compound
WDOE - Washington Department of Ecology

* - sample was requested for analysis but was not completed; no explanation was provided; sample holding time exceeded so no further action could be taken

Table 2. Summary of Qualified Data for Tacoma Second Quarter 2020 Groundwater Sampling Event^a

Sample Number	Laboratory Sample Number	Chemical	Concentration	Units	MRL	MDL	Data		Quality Control Reason	Quality Control Result	Possible Bias ^{b,c,d}
							Data Flag	Validation Qualifier			
Metals											
CTMW-9-0620	K2004781-003	Lead	0.000020	mg/L	0.000020	0.000006		U	Detected in method bank	Detected at 0.000006 mg/L	False positive
		Zinc	0.0008	mg/L	0.0020	0.0005	J	U	Detected in method bank	Detected at 0.0008 mg/L	False positive
CTMW-8-0620	K2004781-004	Cadmium	0.000015	mg/L	0.000020	0.000008	J	J	Concentration >MDL, <MRL	NA	Low or high
		Chromium	0.00015	mg/L	0.00020	0.00003	J	U	Detected in field bank	Detected at 0.00009 mg/L	False positive
		Zinc	0.0010	mg/L	0.0020	0.0005	J	U	Detected in method bank	Detected at 0.0008 mg/L	False positive
CTMW-17D-0620	K2004781-006	Arsenic	0.00040	mg/L	0.00050	0.00009	J	J	Concentration >MDL, <MRL	NA	Low or high
FIELDBLANK#1-0620	K2004781-007	Chromium	0.00009	mg/L	0.00020	0.00003	J	J	Concentration >MDL, <MRL	NA	Low or high
		Nickel	0.00006	mg/L	0.00020	0.00004	J	J	Concentration >MDL, <MRL	NA	Low or high
CTMW-9-0620	K2004781-003	Mercury	0.00002	mg/L	0.00020	0.00002	J	J	Concentration >MDL, <MRL	NA	Low or high
CTMW-12-0620	K2004781-010	Arsenic	0.00023	mg/L	0.00050	0.00009	J	J	Concentration >MDL, <MRL	NA	Low or high
		Lead	0.000016	mg/L	0.000020	0.000006	J	U	Detected in method bank	Detected at 0.000006 mg/L	False positive
		Zinc	0.0008	mg/L	0.0020	0.0005	J	U	Detected in method bank	Detected at 0.0008 mg/L	False positive
CTMW-24-0620	K2004781-011	Chromium	0.00033	mg/L	0.00020	0.00003		U	Detected in field bank	Detected at 0.00009 mg/L	False positive
		Zinc	0.0013	mg/L	0.0020	0.0005	J	U	Detected in method bank	Detected at 0.0008 mg/L	False positive
CTMW-24D-0620	K2004781-012	Zinc	0.0008	mg/L	0.0020	0.0005	J	U	Detected in method bank	Detected at 0.0008 mg/L	False positive
CTMW-7-0620	K2005612-001	Arsenic	0.00037	mg/L	0.00050	0.00009	J	J	Concentration >MDL, <MRL	NA	Low or high
		Cadmium	0.000012	mg/L	0.000020	0.000008	J	J	Concentration >MDL, <MRL	NA	Low or high
		Copper	0.00007	mg/L	0.00010	0.00005	J	J	Concentration >MDL, <MRL	NA	Low or high
		Zinc	0.0019	mg/L	0.0020	0.0005	J	J	Concentration >MDL, <MRL	NA	Low or high
CTMW-9-7-0620	K2005612-002	Arsenic	0.00038	mg/L	0.00050	0.00009	J	J	Concentration >MDL, <MRL	NA	Low or high
		Cadmium	0.000010	mg/L	0.000020	0.000008	J	J	Concentration >MDL, <MRL	NA	Low or high
VOCs by GC/MS operated in full scan mode											
TRIPBLANK#1-0620	K2004781-001	Carbon Disulfide	0.10	ug/L	0.50	0.069	J	J	Concentration >MDL, <MRL	NA	Low or high
CTMW-14-0620	K2004781-002	Carbon Disulfide	0.11	ug/L	0.50	0.069	J	U	Detected in method and trip blank	Detected at 0.11 ug/L (highest concentration)	False positive
CTMW-9-0620	K2004781-003	Carbon Disulfide	0.11	ug/L	0.50	0.069	J	U	Detected in method and trip blank	Detected at 0.11 ug/L (highest concentration)	False positive
CTMW-8-0620	K2004781-004	2-Butanone	5.3	ug/L	20	1.9	J	J	Concentration >MDL, <MRL	NA	Low or high
		Acetone	68	ug/L	20	3.3	J	J	Recovery in LCS above upper control limit	LCS recovery of 136%	High
		Benzene	0.14	ug/L	0.50	0.062	J	J	Concentration >MDL, <MRL	NA	Low or high
		Chloroform	0.21	ug/L	0.50	0.072	J	J	Concentration >MDL, <MRL	NA	Low or high
		Carbon Disulfide	0.11	ug/L	0.50	0.069	J	U	Detected in method and trip blank	Detected at 0.11 ug/L (highest concentration)	False positive
CTMW-17-0620	K2004781-005	Acetone	3.4	ug/L	20	3.3	J	J	Concentration >MDL, <MRL; Recovery in LCS above upper control limit	NA; LCS recovery of 136%	Low or high
		Trichloroethene	0.14	ug/L	0.50	0.10	J	J	Concentration >MDL, <MRL	NA	Low or high
		Carbon Disulfide	0.11	ug/L	0.50	0.069	J	U	Detected in method and trip blank	Detected at 0.11 ug/L (highest concentration)	False positive
FIELDBLANK#1-0620	K2004781-007	Methylene Chloride	0.13	ug/L	2.0	0.10	J	J	Concentration >MDL, <MRL	NA	Low or high
TRIPBLANK#2-0620	K2004781-008	Methylene Chloride	0.11	ug/L	2.0	0.10	J	J	Concentration >MDL, <MRL	NA	Low or high
CTMW-5-0620	K2004781-009	Benzene	0.10	ug/L	0.50	0.062	J	J	Concentration >MDL, <MRL	NA	Low or high
		Toluene	0.25	ug/L	0.50	0.054	J	J	Concentration >MDL, <MRL	NA	Low or high
CTMW-12-0620	K2004781-010	Carbon Disulfide	0.11	ug/L	0.50	0.069	J	U	Detected in method and trip blank	Detected at 0.11 ug/L (highest concentration)	False positive
CTMW-24-0620	K2004781-011	Carbon Disulfide	0.11	ug/L	0.50	0.069	J	U	Detected in method and trip blank	Detected at 0.11 ug/L (highest concentration)	False positive
CTMW-7-0620	K2004781-013	Acetone	4.3	ug/L	20	3.3	J	J	Concentration >MDL, <MRL; Recovery in LCS above upper control limit	NA; LCS recovery of 136%	Low or high
CTMW-9-7-0620	K2004781-014	Acetone	4.0	ug/L	20	3.3	J	J	Concentration >MDL, <MRL; Recovery in LCS above upper control limit	NA; LCS recovery of 136%	Low or high

Table 2, continued

Sample Number	Laboratory Sample Number	Chemical	Concentration	Units	MRL	MDL	Data		Quality Control Reason	Quality Control Result	Possible Bias ^{b,c,d}
							Data Flag	Validation Qualifier			
CTMW-18-0620	K2004781-015	2-Butanone	8.7	ug/L	20	1.9	J	J	Concentration >MDL, <MRL	NA	Low or high
		Benzene	0.29	ug/L	0.50	0.062	J	J	Concentration >MDL, <MRL	NA	Low or high
		Chloroform	0.27	ug/L	0.50	0.072	J	J	Concentration >MDL, <MRL	NA	Low or high
		Ethylbenzene	0.17	ug/L	0.50	0.050	J	J	Concentration >MDL, <MRL	NA	Low or high
		Methylene Chloride	0.41	ug/L	2.0	0.10	J	J	Concentration >MDL, <MRL	NA	Low or high
		o-Xylene	0.16	ug/L	0.50	0.074	J	J	Concentration >MDL, <MRL	NA	Low or high
		Toluene	0.24	ug/L	0.50	0.054	J	J	Concentration >MDL, <MRL	NA	Low or high
		m,p-Xylene	0.13	ug/L	0.50	0.11	J	J	Concentration >MDL, <MRL	NA	Low or high
VOCs by GC/MS operated in SIM mode											
TRIPBLANK#1-0620	K2004781-001	1,1-Dichloroethene	6.1	ng/L	20	5.9	J	J	Concentration >MDL, <MRL	NA	Low or high
		1,2-Dichloroethane	7.4	ng/L	20	5.8	J	J	Concentration >MDL, <MRL	NA	Low or high
		Vinyl Chloride	26	ng/L	50	4.6	J	J	Concentration >MDL, <MRL	NA	Low or high
CTMW-14-0620	K2004781-002	Vinyl Chloride	26	ng/L	50	4.6	J	U	Detected in method blank and trip blanks	Detected at 26 ng/L	False positive
CTMW-9-0620	K2004781-003	Vinyl Chloride	26	ng/L	50	4.6	J	U	Detected in method blank and trip blanks	Detected at 26 ng/L	False positive
CTMW-8-0620	K2004781-004	1,1-Dichloroethene	8.1	ng/L	20	5.9	J	UJ	Detected in method blank and trip blanks; Recovery of 1 of 3 surrogate compounds below lower control limit	Detected at 6.3 ng/L; Recovery of dibromofluoromethane at 0%	False positive
		1,1,2,2-Tetrachloroethane		ng/L	20	8.7	U	UJ	Recovery of 1 of 3 surrogate compounds below lower control limit	Recovery of dibromofluoromethane at 0%	Low
		1,2-Dichloroethane	7.4	ng/L	20	5.8	J	UJ	Detected in method blank and trip blanks; Recovery of 1 of 3 surrogate compounds below lower control limit	Detected at 7.4 ng/L; Recovery of dibromofluoromethane at 0%	False positive
		Carbon Tetrachloride		ng/L	20	7.2	U	UJ	Recovery of 1 of 3 surrogate compounds below lower control limit	Recovery of dibromofluoromethane at 0%; Recovery of dibromofluoromethane at 0%	Low
		Vinyl Chloride	28	ng/L	50	4.6	J	UJ	Detected in method blank and trip blanks; Recovery of 1 of 3 surrogate compounds below lower control limit	Detected at 26 ng/L; Recovery of dibromofluoromethane at 0%	False positive
CTMW-17-0620	K2004781-005	1,1-Dichloroethene	6.6	ng/L	20	5.9	J	U	Detected in method blank and trip blanks	Detected at 6.3 ng/L	False positive
		Vinyl Chloride	42	ng/L	50	4.6	J	U	Detected in method blank and trip blanks	Detected at 26 ng/L	False positive
CTMW-17D-0620	K2004781-006	1,2-Dichloroethane	7.4	ng/L	20	5.8	J	U	Detected in method blank and trip blanks	Detected at 7.4 ng/L	False positive
		Vinyl Chloride	27	ng/L	50	4.6	J	U	Detected in method blank and trip blanks	Detected at 26 ng/L	False positive
FIELDBLANK#1-0620	K2004781-007	1,1-Dichloroethene	6.1	ng/L	20	5.9	J	J	Concentration >MDL, <MRL	NA	Low or high
		1,2-Dichloroethane	7.1	ng/L	20	5.8	J	J	Concentration >MDL, <MRL	NA	Low or high
		Vinyl Chloride	26	ng/L	50	4.6	J	J	Concentration >MDL, <MRL	NA	Low or high
TRIPBLANK#2-0620	K2004781-008	1,2-Dichloroethane	6.3	ng/L	20	5.8	J	J	Concentration >MDL, <MRL	NA	Low or high
		Vinyl Chloride	25	ng/L	50	4.6	J	J	Concentration >MDL, <MRL	NA	Low or high
CTMW-5-0620	K2004781-009	1,1-Dichloroethene	6.6	ng/L	20	5.9	J	U	Detected in method blank and trip blanks	Detected at 6.3 ng/L	False positive
		1,2-Dichloroethane	7.4	ng/L	20	5.8	J	U	Detected in method blank and trip blanks	Detected at 7.4 ng/L	False positive
		Vinyl Chloride	29	ng/L	50	4.6	J	U	Detected in method blank and trip blanks	Detected at 26 ng/L	False positive
CTMW-12-0620	K2004781-010	Vinyl Chloride	25	ng/L	50	4.6	J	U	Detected in method blank and trip blanks	Detected at 26 ng/L	False positive
CTMW-24-0620	K2004781-011	Vinyl Chloride	26	ng/L	50	4.6	J	U	Detected in method blank and trip blanks	Detected at 26 ng/L	False positive
CTMW-24D-0620	K2004781-012	Vinyl Chloride	26	ng/L	50	4.6	J	U	Detected in method blank and trip blanks	Detected at 26 ng/L	False positive
CTMW-7-0620	K2004781-013	Vinyl Chloride	28	ng/L	50	4.6	J	U	Detected in method blank and trip blanks	Detected at 26 ng/L	False positive
CTMW-9-7-0620	K2004781-014	Vinyl Chloride	26	ng/L	50	4.6	J	U	Detected in method blank and trip blanks	Detected at 26 ng/L	False positive
CTMW-18-0620	K2004781-015	1,1-Dichloroethene	7.4	ng/L	20	5.9	J	U	Detected in method blank and trip blanks	Detected at 6.3 ng/L	False positive
		1,2-Dichloroethane	17	ng/L	20	5.8	J	U	Detected in method blank and trip blanks	Detected at 7.4 ng/L	False positive
		Vinyl Chloride	34	ng/L	50	4.6	J	U	Detected in method blank and trip blanks	Detected at 26 ng/L	False positive

Notes on next page

Total results qualified "J" =	41
Total results qualified "U" =	32
Total results qualified "UJ" =	5
Total results qualified "R" =	0

Notes:

GC/MS - gas chromatography/mass spectrometry

J - estimated

LCS- laboratory control sample

MDL - method detection limit

MRL - method reporting limit

NA - not applicable

ND - not detected

SIM - selected ion monitoring

U - undetected at detection limit shown

VOC - volatile organic compound

^a Summary of qualified data is for natural and field quality control samples only

^b Low bias - concentration reported is exhibits low bias and the actual reporting limit or concentration may be greater than reported

^c High bias - result reported exhibits high bias and the actual reporting limit or concentration may be lower than reported

^d False positive - compound is likely not present



DATA VALIDATION REPORT

Tacoma Facility Additional Samples, November 2020

Prepared for:

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And

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February 24, 2021

1.0 Introduction

Data set: Data were received for validation under one laboratory sample delivery group (SDG). Data submissions included both the laboratory report and electronic data deliverables (EDD) as shown below:

SDG	EDD File Name	Report File Name	Report Date	Lab Code
K2010392	K21013922.mdb	K2010392-Summary.pdf	12/02/2020	CAS

Analyses were submitted by ALS Environmental Group (formerly Columbia Analytical Services), in Kelso, Washington (CAS).

Analytical methods: Analyses were performed by the following methods:

Analyses	Analytical Method(s)
Volatile Organics Analysis (VOC)	SW8260C, SW8260CSIM
1,4-Dioxane Analysis (1,4-D)	SW8270DSIM/3535A
Gasoline Range Petroleum Hydrocarbons Analysis (GRO)	NWTPH-Gx
Diesel Range Petroleum Hydrocarbons Analysis (DRO)	NWTPH-Dx/ 3510C/SW3630C
ICPMS Metals Analysis (ICPMS)	SW6020A
Mercury Analysis (Hg)	SW7470A

Analytical Schedule: The following samples and analyses were included in this review:

Sample ID	Sample Date/Time	Lab ID	Analyses
TRIP BLANK #1-1120	11/09/2020 08:45	K2010392-001	VOC, GRO
CTMW-15-1120	11/09/2020 09:44	K2010392-002	VOC, SV, DRO, ICPMS, Hg
CTMW-25D-1120	11/09/2020 11:05	K2010392-003	VOC, 1,4-D, DRO, ICPMS, Hg

Sample ID	Sample Date/Time	Lab ID	Analyses
CTMW-9-25D-1120	11/09/2020 11:05	K2010392-004	1,4-D
CTMW-20-1120	11/09/2020 12:04	K2010392-005	VOC, GRO, DRO, ICPMS, Hg
CTMW-9-20-1120	11/09/2020 12:04	K2010392-006	VOC, GRO, DRO, ICPMS, Hg
FIELD BLANK #1-1120	11/09/2020 12:36	K2010392-007	VOC, 1,4-D, DRO, ICPMS, Hg

2.0 Validation

Results were evaluated based on criteria from the analytical methods, project permit documents, and current EPA guidance documents. References for these documents are listed in section 6.0 of this report. The criteria gathered from the above documents are briefly summarized in the Appendix "Data Validation Criteria" at the end of this report.

A stage 2B validation was performed on groundwater results including both the laboratory report and electronic data deliverable (EDD), earning EPA OSWER validation label code S2BVEM. All validation was performed by Cari Saylor.

Data qualifiers, if assigned, are summarized in section 4.0 of this report and added to the validated EDD, in accordance with the EDD field definitions and agreed upon conventions.

3.0 Validation Findings

Data validation criteria specified in the appendix were met except as noted below:

Issues resulting in data qualification:

VOLATILES:

- VOA continuing calibration verification % differences exceeded the ± 20 control limit as follows:

QC Type	Analysis Date/Time	Analyte	% Difference	Control Limits
CCV	11/11/20 11:04	2-Chloroethyl Vinyl Ether	-37.7	< ± 20
CCV	11/11/20 11:04	Carbon Tetrachloride	-22.6	< ± 20
CCV	11/11/20 11:04	Dibromochloromethane	24.2	< ± 20
CCV	11/11/20 11:04	Dichlorodifluoromethane	34.2	< ± 20
CCV	11/11/20 11:04	Iodomethane	-63.5	< ± 20
CCV	11/11/20 11:04	Vinyl Acetate	-24.3	< ± 20

Negative % differences represent lowered instrument responses. Both non-detect and detected results in the associated samples are qualified as estimated.

Positive % differences represent increased instrument responses. Dibromochloromethane and dichlorodifluoromethane were not detected in the associated sample, and no qualifiers are required.

- Target analytes were detected in the volatile method blank at levels below the reporting limit. Specific exceedances are as follows:

Blank ID	Analyte	Concentration (ug/L)	RL (ug/L)
KQ2017754-07	2-Butanone	2.6J	20

Blank ID	Analyte	Concentration (ug/L)	RL (ug/L)
KQ2017754-07	Carbon Disulfide	0.08J	0.5
KQ2017754-07	Iodomethane	0.14J	5
KQ2017754-07	Methylene Chloride	0.11J	2
FIELD BLANK #1-1120	Methylene Chloride	0.14J	2
TRIP BLANK #1-1120	Methylene Chloride	0.1J	2

Carbon Disulfide and Iodomethane results in field duplicate CTMW-9-20-1120 are qualified U and should be considered not detected at the laboratory reporting limit. The remaining analytes were not detected in the associated samples, and no further qualifiers are required.

- Both full scan analyses and SIM analyses were performed on the VOA analytes requiring low reporting limits. The SIM results should be used. The full scan results for these analytes are rejected as replaced by another result, and are qualified R2.

METALS:

- Target analytes were detected in metals calibration blanks and in the field blank. Detections are shown below:

Blank ID	Analyte	Concentration (mg/L)	MDL (mg/L)	RL (mg/L)
FIELD BLANK #1-1120	Chromium	0.000400	0.000008	0.000200
FIELD BLANK #1-1120	Copper	0.000620	0.000050	0.000100
FIELD BLANK #1-1120	Lead	0.000021	0.000006	0.000020
ICB 11/24/20 12:22	Cadmium	0.000016 J	0.000008	0.000020
CCB 11/24/20 12:58	Cadmium	0.000013 J	0.000008	0.000020
CCB 11/24/20 15:02	Lead	0.000018 J	0.000006	0.000020
CCB 11/24/20 15:30	Lead	0.000016 J	0.000006	0.000020
CCB 11/24/20 13:47	Cadmium	0.000013 J	0.000008	0.000020

Results in the associated samples with concentrations below 5 times these levels and also below the reporting limit, should be considered not detected at the level of the reporting limit. Results below 5 times these levels and above the reporting limit should be considered not detected at the reported concentration. Results in the associated samples with concentrations between 5 and 10 times these levels are qualified as estimated.

Issues not resulting in qualification:

- One volatile matrix spike duplicate recovery was slightly high. The analyte was not detected in the associated samples, and no qualifiers are required. The specific exceedance is shown below:

QC ID	Analyte	% Recovery	Lab Control Limit
K2010392 MSD	Dichlorodifluoromethane	136	29 – 133

- 1,4-Dioxane recoveries in the MS and MSD were below the laboratory control limit. However, the concentrations exceeded the calibration range, and control limits do not apply. The specific exceedances are shown below:

QC ID	Analyte	% Recovery	Lab Control Limit
K2010392 MS	1,4-Dioxane	22	33-127
K2010392 MSD	1,4-Dioxane	22	33-127

- Various results for chromium, copper and lead were elevated above the laboratory default reporting limit due to blank qualification. One sample and the field blank had a slightly elevated report limit for diesel range organics. No qualifiers are assigned on the basis of elevated report limits. Specific exceedances are as follows:

Sample ID	Analyte	RL Achieved (mg/L)	Target RL (mg/L)
CTMW-15-1120	Chromium	0.00032	0.0002
CTMW-20-1120	Chromium	0.00055	0.0002
CTMW-9-20-1120	Chromium	0.00056	0.0002
CTMW-15-1120	Copper	0.00024	0.0001
CTMW-25D-1120	Copper	0.0012	0.0001
CTMW-20-1120	Copper	0.00065	0.0001
CTMW-9-20-1120	Copper	0.0006	0.0001
CTMW-9-20-1120	Lead	0.000029	0.00002
Sample ID	Analyte	RL Achieved (ug/L)	Target RL (ug/L)
CTMW-15-1120	C12 - C25 DRO	260	250
FIELD BLANK #1-1120	C12 - C25 DRO	260	250

4.0 Validation Qualifiers

Client ID	Analyte(s)	Qualifier	Reason
Volatile Organics Analyses – Full Scan			
CTMW-15-1120	1,1,2,2-Tetrachloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, Carbon Tetrachloride, Vinyl Chloride	R2	SIM result available
CTMW-15-1120	2-Chloroethyl Vinyl Ether, Iodomethane, Vinyl Acetate	UJ	Low continuing calibration %D
CTMW-20-1120	1,1,2,2-Tetrachloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, Carbon Tetrachloride, Vinyl Chloride	R2	SIM result available
CTMW-20-1120	2-Chloroethyl Vinyl Ether, Iodomethane, Vinyl Acetate	UJ	Low continuing calibration %D
CTMW-25D-1120	1,1,2,2-Tetrachloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, Carbon Tetrachloride, Vinyl Chloride	R2	SIM result available
CTMW-25D-1120	2-Chloroethyl Vinyl Ether, Iodomethane, Vinyl Acetate	UJ	Low continuing calibration %D
CTMW-9-20-1120	1,1,2,2-Tetrachloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, Carbon Tetrachloride, Vinyl Chloride	R2	SIM result available
CTMW-9-20-1120	Carbon Disulfide	U	Lab blank contamination
CTMW-9-20-1120	Iodomethane	UJ	Lab blank contamination, Low continuing calibration %D
CTMW-9-20-1120	2-Chloroethyl Vinyl Ether, Vinyl Acetate	UJ	Low continuing calibration %D

Client ID	Analyte(s)	Qualifier	Reason
Volatile Organics Analyses – Full Scan			
FIELD BLANK #1-1120	1,1,2,2-Tetrachloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, Carbon Tetrachloride, Vinyl Chloride	R2	SIM result available
FIELD BLANK #1-1120	2-Chloroethyl Vinyl Ether, Iodomethane, Vinyl Acetate	UJ	Low continuing calibration %D
TRIP BLANK #1-1120	1,1,2,2-Tetrachloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, Carbon Tetrachloride, Vinyl Chloride	R2	SIM result available
TRIP BLANK #1-1120	2-Chloroethyl Vinyl Ether, Iodomethane, Vinyl Acetate	UJ	Low continuing calibration %D
Metals Analyses			
CTMW-15-1120	Chromium, Copper, Lead	U	Field blank contamination
CTMW-20-1120	Chromium, Copper	U	Field blank contamination
CTMW-25D-1120	Lead	J	Field blank contamination
CTMW-25D-1120	Copper	U	Field blank contamination
CTMW-9-20-1120	Chromium, Copper, Lead	U	Field blank contamination

5.0 Common Abbreviations and Definitions

<u>DV Qualifier</u>	<u>Definition</u>
U	The material was analyzed for, but was not detected above the level of the associated value.
UY	The reporting limit was elevated due to chromatographic overlap with related compounds. The material was analyzed for, but was not detected above the level of the associated value.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.
R1	This sample result has been rejected in favor of a more accurate, precise or conservative result. The other result should be used.
R2	This sample result has been rejected in favor of a more accurate, precise or conservative result from another analytical method. The other result should be used.

<u>QC Element</u>	<u>Definition</u>
ICAL	Initial calibration
ICV	Initial calibration verification
CCV	Continuing calibration verification
LCS	Laboratory control sample
LCSD	Laboratory control sample
MS	Matrix spike
MSD	Matrix spike duplicate
SRM	Standard reference material
RRM	Regional reference material
FD	Field duplicate
FB	Field blank

<u>QC Element</u>	<u>Definition</u>
RB	Rinse blank
TB	Trip blank
IS	Internal standard
RT	Retention time
RRT	Relative retention time
RPD	Relative percent difference

<u>Abbreviation</u>	<u>Definition</u>
CRDL	Contract required detection limit
DV	Data validation
EDL	Estimated detection limit
EMPC	Estimated maximum possible concentration
MDL	Method detection limit
NA	Not applicable
QAPP	Quality Assurance Project Plan
RL	Reporting limit
RSD	Relative standard deviations
SDG	Sample delivery group
SIM	Selective ion monitoring
SRM	Selective reaction monitoring

6.0 References

USEPA National Functional Guidelines for Organic Superfund Methods Data Review, Office of Superfund Remediation and Technology Innovation, U.S. Environmental Protection Agency. January 2017, EPA-540-R-2017-002.

USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review, Office of Superfund Remediation and Technology Innovation, U.S. Environmental Protection Agency, January 2017, EPA-540-R-2017-001.

USEPA National Functional Guidelines for High Resolution Superfund Methods Data Review, Office of Superfund Remediation and Technology Innovation (OSRTI) U.S. Environmental Protection Agency, April 2016, EPA 542-B-16-001.

R10 Data Validation and Review Guidelines for Polychlorinated Dibenzo-p-Dioxin and Polychlorinated Dibenzofuran Data (PCDD/PCDF) Using Method 1613B and SW846 Method 8290A, Region 10 Office of Environmental Assessment, U.S. Environmental Protection Agency, May 2014, EPA-910-R-14-003.

USEPA Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, January 2009, EPA 540-R-08-005.

Method 8000D: *Determinative Chromatographic Separations, SW-846*, US Environmental Protection Agency, Office of Solid Waste, Revision 5 March 2018.

Method 8260D: *Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), SW-846*. US Environmental Protection Agency, Office of Solid Waste, Revision 4 June 2018.

Method 8270E: *Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)*, SW-846. US Environmental Protection Agency, Office of Solid Waste, Revision 6 June 2018.

Method 6020B: *Inductively Coupled Plasma – Mass Spectrometry*, SW-846, US Environmental Protection Agency, Office of Solid Waste, Revision 2 July 2014.

Method 7470A: *Mercury in Liquid Waste (Manual Cold-Vapor Technique)*, SW-846, US Environmental Protection Agency, Office of Solid Waste, Revision 1, September 1994.

Method NWTPH-Gx: *Volatile Petroleum Products Method for Soil and Water*, Analytical Methods for Petroleum Hydrocarbons, WA State Department of Ecology ECY 97-0-02, June 1997.

Method NWTPH-Dx: *Semi-Volatile Petroleum Products Method for Soil and Water*, Analytical Methods for Petroleum Hydrocarbons, WA State Department of Ecology ECY 97-0-02, June 1997.

QAPP: *Quality Assurance Project Plan, PSC Tacoma Facility, Tacoma Washington*. Prepared for Burlington Environmental LLC, a wholly owned subsidiary of PSC Environmental Services LLC, Kent Washington. Prepared by AMEC, Seattle Washington. November 2011.

APPENDIX – DATA VALIDATION CRITERIA

Data Package Completeness and Sample Integrity

QC Element	Criteria
Completeness	Laboratory report includes the appropriate level of detail as described in the EPA Guidance documents (USEPA, January 2009)
Sample ID transcription	Chain of custodies and/or sample log-in documentation are present for all samples reported and match sample IDs used in the laboratory report and electronic data deliverable (EDD).
Sample receipt condition	Sample containers are intact upon receipt at the laboratory and preservation and storage requirements meet method specific guidelines.
Requested methods	Table B-2 of the QAPP specifies the following methods: EPA 6020, EPA 7470A, NWTPH-Dx, NWTPH-Gx, EPA 8270C-SIM, EPA 8260B and EPA826B-SIM.
Requested analyte list and reporting limits	Table B-3 of the QAPP specifies the required analytes and default laboratory reporting limits.
Laboratory Narrative	The laboratory narrative, data flags and corrective action documentation detailing any preparation or analytical anomalies are evaluated for impact on data usability.

Notes

- Newer versions of published analytical methods are considered acceptable substitutions.
- Method substitutions utilizing different instrumentation are also considered acceptable, e.g. method 200.8 (ICP-MS) for method 200.7 (ICP-AES).
- Data referencing older versions of published analytical methods may be assessed based on numerical criteria present in newer versions.

Field Quality Control Samples

QC Element	Frequency	Criteria
Field Duplicate	1 per 20 samples	Relative % difference (RPD) $\leq 30\%$ or absolute difference $\leq \pm 1$ RL where concentrations are below 5x the RL.
Rinse Blank	1 per 20 samples if sampling equipment non-dedicated or non-disposable.	Not specified. Professional judgement (PJ) criteria of $< 10\%$ of concentration in field samples.
Field Blank	1 per 20 samples	PJ criteria of $< 10\%$ of concentration in field samples.
Trip Blank	1 per cooler for VOC and GRO only.	PJ criteria of $< 10\%$ of concentration in field samples.

Volatile Analyses, Stage 2B Validation – Method 8260 – Full Scan And SIM

QC Element	Frequency	Criteria
Holding times	Each sample	Water samples must analyzed within 14 days if preserved with hydrogen chloride and within 7 days if unpreserved. Transportation and storage temperatures should be below 6°C.
Instrument performance	Prior to initial calibration	Ion abundance ratios in bromofluorobenzene (BFB) or instrument manufacturer criteria.
Initial calibration (ICAL)	Prior to analyzing samples, and after CCV criteria exceeded.	<ul style="list-style-type: none"> • Utilizes ≥ 5 points for average response factor (RF) model and ≥ 6 points for regression models. • RF Relative standard deviation (RSD) $\leq 20\%$ if average RF model. • Coefficient of determination (R^2) ≥ 0.99 if regression model.
Initial calibration verification (ICV)	After each ICAL prior to samples	<ul style="list-style-type: none"> • Utilizes second source of standards. • Recoveries within 70-130%.
Continuing calibration (CCV)	Once every 12 hours	% difference or % drift $\leq \pm 20\%$
Laboratory blank (LB)	One per preparation (prep) batch of ≤ 20 samples	Target analyte concentrations $< \text{MDL}$, or $< 10\%$ of concentration in field samples.
Laboratory control sample (LCS)	One per prep batch of ≤ 20 samples. LCS duplicate if no sample or MS duplicate	Meets performance-based control limits for % recovery and relative % difference (RPD) if applicable.
Matrix spike (MS)	One per batch of ≤ 20 samples.	Meets performance-based control limits for % recovery.
Duplicates	MS dup (MSD) or sample dup per batch of ≤ 20 samples.	Meets performance-based control limits for RPD. Not required if insufficient sample volume provided.
Surrogates	Each sample and QC sample	Meets performance-based control limits for % recovery.

Volatile Analyses, Stage 2B Validation – Method 8260 – Full Scan And SIM

QC Element	Frequency	Criteria
Internal standards (IS)	Each sample and QC sample	<ul style="list-style-type: none"> IS response within 50-200% of CCV IS RT with ± 10 seconds of CCV

Notes:

- Method 8260D allows for sample analysis when $\geq 90\%$ of target compounds meet ICAL criteria..
- Functional Guidelines allows ICAL maximum RSDs between 20 and 40% and ICV/CCV maximum % drift or % differences between ± 20 and $\pm 40\%$ for poorer performing compounds without qualification.

1,4-Dioxane Analyses, Stage 2B Validation – Method 8270

QC Element	Frequency	Criteria
Holding times	Each sample	Samples must be extracted within 7 days and analyzed within 40 days of extraction. Transportation and storage temperatures should be below 6°C.
Instrument performance	Prior to initial calibration	Ion abundance ratios in decafluorotriphenylphosphate (DFTPP) or instrument manufacturer criteria
Initial calibration (ICAL)	Prior to analyzing samples, and after CCV criteria exceeded.	<ul style="list-style-type: none"> Utilizes ≥ 5 points for average response factor (RF) model and ≥ 6 points for regression models. RF Relative standard deviation (RSD) $\leq 20\%$ if average RF model. Coefficient of Determination (R^2) ≥ 0.99 if regression model.
Initial calibration verification (ICV)	After each ICAL prior to samples	Recoveries within 70-130%.
Continuing calibration verification (CCV)	Once every 12 hours	% difference or % drift $< \pm 20\%$
Laboratory blank (LB)	One per preparation (prep) batch of ≤ 20 samples	Target analyte concentrations $< MDL$, or $< 10\%$ of concentration in field samples.
Laboratory control sample (LCS)	One per prep batch of ≤ 20 samples. LCS duplicate if no matrix duplicate	Meets performance-based control limits for % recovery and relative % difference (RPD) if applicable.
Matrix spike (MS)	One per batch of ≤ 20 samples.	Meets performance-based control limits for % recovery. Not required if insufficient sample volume provided.
Duplicates	MS dup (MSD) or sample dup per batch of ≤ 20 samples.	Meets performance-based control limits for RPD. Not required if insufficient sample volume provided.
Surrogates	Each sample and QC sample	Meets performance-based control limits for % recovery.
Internal standards (IS)	Each sample and QC sample	<ul style="list-style-type: none"> IS response within 50-200% of CCV IS RT with ± 10 seconds of CCV

Gasoline Range Hydrocarbon Analyses, Stage 2B Validation – Method NWTPH-Gx

QC Element	Frequency	Criteria
Holding times	Each sample	Water samples must analyzed within 14 days if preserved with hydrogen chloride and within 7 days if unpreserved. Transportation and storage temperatures should be below 6°C.
Initial calibration (ICAL)	Prior to analyzing samples, and after CCV criteria exceeded.	<ul style="list-style-type: none"> Utilizes ≥ 5 points for average response factor (RF) model and ≥ 6 points for regression models. RF Relative standard deviation (RSD) $\leq 20\%$ if average RF model. Coefficient of Determination (R^2) ≥ 0.99 if regression model.
Initial calibration verification (ICV)	After each ICAL prior to samples	% difference or % drift $< \pm 20\%$
Continuing calibration (CCV)	Daily	% difference or % drift $< \pm 20\%$
Laboratory blank (LB)	One per preparation (prep) batch of ≤ 20 samples	Target analyte concentrations $< MDL$, or $< 10\%$ of concentration in field samples.
Laboratory control sample (LCS)	One per prep batch of ≤ 20 samples. LCS duplicate if no sample duplicate	Meets performance-based control limits for % recovery and relative % difference (RPD) if applicable.
Duplicates	Sample dup once per 10 samples.	Meets performance-based control limits for RPD. Not required if insufficient sample volume provided.
Surrogates	Each sample and QC sample	Meets performance-based control limits for % recovery.

Diesel Range Hydrocarbon Analyses, Stage 2B Validation – Method NWTPH-Dx

QC Element	Frequency	Criteria
Holding times	Each sample	Samples must be extracted within 7 days and analyzed within 40 days of extraction. Transportation and storage temperatures should be below 6°C.
Initial calibration (ICAL)	Prior to analyzing samples, and after CCV criteria exceeded.	<ul style="list-style-type: none"> Utilizes ≥5 points for average response factor (RF) model and ≥6 points for regression models. RF Relative standard deviation (RSD) ≤20% if average RF model. Coefficient of Determination (R²) ≥0.99 if regression model.
Initial calibration verification (ICV)	After each ICAL prior to samples	% Difference <±15%
Continuing calibration (CCV)	Daily	% Difference <±15%
Laboratory blank (LB)	One per preparation (prep) batch of ≤20 samples	Target analyte concentrations <MDL, or < 10% of concentration in field samples.
Laboratory control sample (LCS)	One per prep batch of ≤20 samples. LCS duplicate if no sample duplicate	Meets performance-based control limits for % recovery and relative % difference (RPD) if applicable.
Duplicates	Sample dup once per 10 samples.	Meets performance-based control limits for RPD. Not required if insufficient sample volume provided.
Surrogates	Each sample and QC sample	Meets performance-based control limits for % recovery.

ICPMS Metals Analyses, Stage 2B Validation – EPA Method 6020

QC Element	Frequency	Criteria
Holding times	Each sample	Samples must analyzed within 6 months and preserved with nitric acid. Transportation and storage temperatures should be below 6°C.
Initial calibration verification (ICV)	After each ICAL prior to samples	• Recoveries within 70-130%.
Reporting Limit Standard (RL Std)	Daily	Recoveries within 70-130%
Continuing calibration (CCV)	Every 10 samples	• % difference or % drift <±20%
Calibration blank (ICB/CCB)	After each ICV or CCV	Concentration < MDL or < 10% of concentrations in field samples.
Interference Check Sample (ICS)	Daily	Recoveries within 80-120%
Laboratory blank (LB)	One per preparation (prep) batch of ≤20 samples	Target analyte concentrations < 1/2 RL, or < 10% of concentration in field samples.
Laboratory control sample (LCS)	One per prep batch of ≤20 samples. LCS duplicate if no matrix duplicate	Meets performance-based control limits for % recovery and relative % difference (RPD) if applicable.
Matrix spike (MS)	One per prep batch of ≤20 samples	Meets performance-based control limits for % recovery.
Duplicates	MS dup (MSD) or sample dup per batch of ≤20 samples.	Meets performance-based control limits for RPD. Not required if insufficient sample volume provided.
Post Spike (PS)	If MS recoveries out of limits	Recoveries within 80-120%
Serial Dilution (SRD)	If MS recoveries out of limits and concentrations > 25 x RL	% Difference <20%
Internal standards (IS)	Each sample and QC sample	IS response within 60-125% of CCV

Mercury Analyses, Stage 2B Validation – Method 74070

QC Element	Frequency	Criteria
Holding times	Each sample	Samples must analyzed within 28 days . Transportation and storage temperatures should be below 6°C.
Initial calibration verification (ICV)	After each ICAL prior to samples	Recoveries within 90-110%.
Reporting Limit Standard (RL Std)	Daily	Recoveries within 50-150%

Mercury Analyses, Stage 2B Validation – Method 74070

QC Element	Frequency	Criteria
Continuing calibration (CCV)	After each 10 samples	Recoveries within 90-110%.
Continuing calibration blank (CCB)	After each CCV	Concentrations < MDL or < 10% of concentration in field samples.
Laboratory blank (LB)	One per preparation (prep) batch of ≤20 samples	Concentrations < MDL or < 10% of concentration in field samples.
Laboratory control sample (LCS)	One per prep batch of ≤20 samples. LCS duplicate if no matrix duplicate	Meets performance-based control limits for % recovery and relative % difference (RPD) if applicable.
Matrix spike (MS)	One per prep batch of ≤20 samples	Meets performance-based control limits for % recovery.
Duplicates	MS dup (MSD) or sample dup per batch of ≤20 samples.	Meets performance-based control limits for RPD. Not required if insufficient sample volume provided.
Post Spike (PS)	If MS recoveries out of limits	Recoveries within 80-120%

ATTACHMENT D

Semi-Annual Well Integrity Inspection/ Well Repair Record

Facility: Tacoma 1Q20

Address: 1701 Alexander Ave. Tacoma, WA 98421

Frequency Of Sampling: Annual (2nd Qtr.)

Technician: James McKechnie/ Slavik karashchuk

Instructions: All fields below must be filled out with Y = (Yes) / N = (No) / N/A = (Not Applicable)

Well	Date	Type Of Well? (Stick Up = SU) (Flush Mount = FM)	Well Onsite Or Offsite?	Well Found?	Well ID Visible and Accurate?	Security Bolts/ Padlock In Place?	Security Bolts/ Padlock Free From Damage Or Tampering?	Well Free From Vegetation?	Well Monument/ Stick Up Secure?	Well Lid Removed W/O Obstruction?	Well Dust Cap/Pressure Cap In Place?	Well Dust Cap/Pressure Cap In Good Condition?	Riser Secure?	Well Lid In Good Condition?	Concrete Surrounding Monument Free From Damage?	Wing Holes/ Lid Cap In Good Condition?	Well Gasket/ Concrete Seals In Good Condition?	Inside Monument Free From Stinging Insects?	Bladder Pump Connections/ Tubing In Good Condition?	Water In Monument?	Water In Monument Removed?	Other? (See Comments Below)	Well Repairs Needed?
CTMW-1	2-7-2020	FM	Onsite	Y														→ N/A	N	N/A	~	~	
CTMW-5		SU	Onsite	Y														→ Y	N	N/A	?	N	
CTMW-7		SU	Onsite	Y														→ N/A	N	N/A		~	
CTMW-8		SU	Onsite	Y														→ N/A	N	N/A		~	
CTMW-9		SU	Onsite	Y														→ N/A	N	N/A		~	
CTMW-10		SU	Onsite	Y														→ N/A	N	N/A		~	
CTMW-12		FM	Onsite	Y														→ N/A	N	N/A		~	
CTMW-14		SU	Onsite	X														→ N/A	N	N/A		~	
CTMW-15		SU	Offsite	Y														→ N/A	N	N/A		~	
CTMW-17		SU	Onsite	Y														→ N/A	N	N/A		~	
CTMW-17D		FM	Onsite	Y														→ Y	N/A	Y	Y	~	
CTMW-18		SU	Onsite	Y														→ N/A	N	N/A		~	
CTMW-20		FM	Onsite	Y														→ N/A	N	N/A		~	
CTMW-24		SU	Onsite	Y														→ N/A	N	N/A		~	
CTMW-24D		SU	Onsite	Y														→ N/A	N	N/A		~	
CTMW-25D		SU	Offsite	Y														→ N/A	N	N/A		~	
PZ-1		FM	Onsite	Y														→ N/A	N	N/A	↓	~	

Well	Date	Type Of Well? (Stick Up = SU) (Flush Mount = FM)	Well Onsite Or Offsite?	Well Found?	Well ID Visible and Accurate?	Security Bolts in Place?	Security Bolts/ Padlock Free From Damage Or Tampering?	Well Free From Vegetation?	Well Monument Secure?	Well Lid Removed W/O Obstruction?	Well Dust Cap/Pressure Cap In Place?	Well Dust Cap/Pressure Cap In Good Condition?	Riser Secure?	Well Lid In Good Condition?	Concrete Surrounding Monument Free From Damage?	Wing Holes In Good Condition?	Well Gasket In Good Condition?	Inside Monument Free From Stinging Insects?	Bladder Pump Connections In Good Condition?	Water In Monument?	Water In Monument Removed?	Other? (See Comments Below)	Well Repairs Needed?
PZ-5	2-7-2020	FM	Onsite	Y														→	N/A	N	N/A	N	N
PZ-7		SU	Onsite	Y														→		N	N/A		N
PZ-8		SU	Onsite	Y														→		N	N/A		N
PZ-9		SU	Onsite	Y														→		N	N/A		N
MW-1		FM	Onsite	Y														→		N	N/A		N
TP-6		FM	Offsite	Y														→		N	N/A		N
TP-7		FM	Offsite	Y														→		N	N/A		N
TP-8		FM	Offsite	Y														→		N	N/A		N
TP-9		FM	Offsite	Y														→		N	N/A		N
TP-10		FM	Offsite	Y														→		N	N/A		N
SB-1A		SU	Offsite	Y														→		N	N/A		N
SB-2A		SU	Offsite	Y														→		N	N/A		N
SB-3A		SU	Offsite	Y														→		N	N/A		N
CCW-2A		FM	Offsite	Y														→		Y	Y		N
CCW-2B		FM	Offsite	Y														→		Y	Y		N
CCW-2C		FM	Offsite	Y														→		Y	Y		N
CCW-3A		SU	Offsite	Y														→		N	N/A		N
CCW-3B		SU	Offsite	Y														→		N	N/A		N
CCW-3C		SU	Offsite	Y														→		N	N/A	↓	N
CCW-5B		FM	Offsite	N																N/A	N/A	N/A	N/A
CCW-5C		FM	Offsite	N																N/A	N/A	N/A	N/A
Well Repairs																							
Description Of Repair Needed:																		Complete By/ Date		Confirmed Date			

Well	Date	Type Of Well? (Stick Up = SU) (Flush Mount = FM)	Well Onsite Or Offsite?	Well Found?	Well ID Visible and Accurate?	Security Bolts in Place?	Security Bolts/ Padlock Free From Damage Or Tampering?	Well Free From Vegetation?	Well Monument Secure?	Well Lid Removed W/O Obstruction?	Well Dust Cap/Pressure Cap In Place?	Well Dust Cap/Pressure Cap In Good Condition?	Riser Secure?	Well Lid in Good Condition?	Concrete Surrounding Monument Free From Damage?	Wing Holes in Good Condition?	Well Gasket in Good Condition?	Inside Monument Free From Stinging Insects?	Bladder Pump Connections in Good Condition?	Water in Monument?	Water in Monument Removed?	Other? (See Comments Below)	Well Repairs Needed?
PZ-5	5-18-2020	FM	Onsite	Y														→	N/A	N	N/A	N	N
PZ-7		SU	Onsite	Y														→					
PZ-8		SU	Onsite	Y														→					
PZ-9		SU	Onsite	Y														→					
MW-1		FM	Onsite	Y														→					
TP-6		FM	Offsite	Y														→					
TP-7		FM	Offsite	Y														→					
TP-8		FM	Offsite	Y														→					
TP-9		FM	Offsite	Y														→					
TP-10		FM	Offsite	Y														→					
SB-1A		SU	Offsite	Y														→					
SB-2A		SU	Offsite	Y														→					
SB-3A		SU	Offsite	Y														→					
CCW-2A		FM	Offsite	Y														→					
CCW-2B		FM	Offsite	Y														→		√	√		
CCW-2C		FM	Offsite	Y														→		Y	Y		
CCW-3A		SU	Offsite	Y														→		N	N/A		
CCW-3B		SU	Offsite	Y														→		N	N/A		
CCW-3C		SU	Offsite	Y														→		N	N/A	√	√
CCW-5B		FM	Offsite	N/A			Unable to access	due to	blackberry	bushes										N/A	N/A	N/A	N/A
CCW-5C	√	FM	Offsite	N/A			Unable to access	due to	black berry	bushes								√		N/A	N/A	N/A	N/A

Well Repairs

Description Of Repair Needed:	Complete By/ Date	Confirmed Date
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Semi-Annual Well Integrity Inspection/ Well Repair Record

Facility: Tacoma 3Q20

Address: 1701 Alexander Ave. Tacoma, WA 98421

Frequency Of Sampling: Annual (2nd Qtr.)

Technician: James McKechnie/ Slavik karashchuk

Instructions: All fields below must be filled out with Y = (Yes) / N = (No) / N/A = (Not Applicable)

Well	Date	Type Of Well? (Stick Up = SU) (Flush Mount = FM)	Well Onsite Or Offsite?	Well Found?	Well ID Visible and Accurate?	Security Bolts/ Padlock In Place?	Security Bolts/ Padlock Free From Damage Or Tampering?	Well Free From Vegetation?	Well Monument/ Stick Up Secure?	Well Lid Removed W/O Obstruction?	Well Dust Cap/Pressure Cap In Place?	Well Dust Cap/Pressure Cap In Good Condition?	Riser Secure?	Well Lid In Good Condition?	Concrete Surrounding Monument Free From Damage?	Wing Holes/ Lid Cap In Good Condition?	Well Gasket/ Concrete Seals In Good Condition?	Inside Monument Free From Stinging Insects?	Bladder Pump Connections/ Tubing In Good Condition?	Water In Monument?	Water In Monument Removed?	Other? (See Comments Below)	Well Repairs Needed?
CTMW-1	7-1-2020	FM	Onsite	Y															N/A	N	N/A	N	N
CTMW-5		SU	Onsite	Y															Y				
CTMW-7		SU	Onsite	Y															N/A				
CTMW-8		SU	Onsite	Y															N/A				
CTMW-9		SU	Onsite	Y															N/A				
CTMW-10		SU	Onsite	Y															N/A				
CTMW-12		FM	Onsite	Y															N/A				
CTMW-14		SU	Onsite	Y															N/A				
CTMW-15		SU	Offsite	X															N/A				
CTMW-17		SU	Onsite	Y															N/A				
CTMW-17D		FM	Onsite	Y															N/A				
CTMW-18		SU	Onsite	Y															N/A				
CTMW-20		FM	Onsite	Y															N/A				
CTMW-24		SU	Onsite	Y															N/A				
CTMW-24D		SU	Onsite	Y															N/A				
CTMW-25D		SU	Offsite	Y															N/A				
PZ-1		FM	Onsite	Y															N/A	✓	✓	✓	✓

Well	Date	Type Of Well? (Stick Up = SU) (Flush Mount = FM)	Well Onsite Or Offsite?	Well Found?	Well ID Visible and Accurate?	Security Bolts In Place?	Security Bolts/ Padlock Free From Damage Or Tampering?	Well Free From Vegetation?	Well Monument Secure?	Well Lid Removed W/O Obstruction?	Well Dust Cap/Pressure Cap In Place?	Well Dust Cap/Pressure Cap In Good Condition?	Riser Secure?	Well Lid In Good Condition?	Concrete Surrounding Monument Free From Damage?	Wing Holes In Good Condition?	Well Gasket In Good Condition?	Inside Monument Free From Stinging Insects?	Bladder Pump Connections In Good Condition?	Water In Monument?	Water In Monument Removed?	Other? (See Comments Below)	Well Repairs Needed?
PZ-5	7-1-2020	FM	Onsite	Y														→	N/A	~	N/A	N	N
PZ-7		SU	Onsite	Y														→					
PZ-8		SU	Onsite	Y														→					
PZ-9		SU	Onsite	Y														→					
MW-1		FM	Onsite	Y														→					
TP-6		FM	Offsite	Y														→					
TP-7		FM	Offsite	Y														→					
TP-8		FM	Offsite	Y														→					
TP-9		FM	Offsite	Y														→					
TP-10		FM	Offsite	Y														→					
SB-1A		SU	Offsite	Y														→					
SB-2A		SU	Offsite	Y														→					
SB-3A		SU	Offsite	Y														→					
CCW-2A		FM	Offsite	Y														→					
CCW-2B		FM	Offsite	Y														→					
CCW-2C		FM	Offsite	Y														→					
CCW-3A		SU	Offsite	Y														→					
CCW-3B		SU	Offsite	Y														→					
CCW-3C		SU	Offsite	Y														→					
CCW-5B		FM	Offsite	N/A																↓	↓	↓	↓
CCW-5C	↓	FM	Offsite	N/A																↓	↓	↓	↓
Well Repairs																							
Description Of Repair Needed:																		Complete By/ Date		Confirmed Date			

Semi-Annual Well Integrity Inspection/ Well Repair Record

Facility: Tacoma 4Q20

Address: 1701 Alexander Ave. Tacoma, WA 98421

Frequency Of Sampling: Annual (2nd Qtr.)

Technician: James McKechnie/ Slavik karashchuk

Instructions: All fields below must be filled out with Y = (Yes) / N = (No) / N/A = (Not Applicable)

Well	Date	Type Of Well? (Stick Up = SU) (Flush Mount = FM)	Well Onsite Or Offsite?	Well Found?	Well ID Visible and Accurate?	Security Bolts/ Padlock In Place?	Security Bolts/ Padlock Free From Damage Or Tampering?	Well Free From Vegetation?	Well Monument/ Stick Up Secure?	Well Lid Removed W/O Obstruction?	Well Dust Cap/Pressure Cap In Place?	Well Dust Cap/Pressure Cap In Good Condition?	Riser Secure?	Well Lid In Good Condition?	Concrete Surrounding Monument Free From Damage?	Wing Holes/ Lid Cap In Good Condition?	Well Gasket/ Concrete Seals In Good Condition?	Inside Monument Free From Stinging Insects?	Bladder Pump Connections/ Tubing In Good Condition?	Water In Monument?	Water In Monument Removed?	Other? (See Comments Below)	Well Repairs Needed?
CTMW-1	10-20-20	FM	Onsite	Y														→ N/A	N	N/A	N	N	
CTMW-5		SU	Onsite	Y														→ Y					
CTMW-7		SU	Onsite	Y														→ N/A					
CTMW-8		SU	Onsite	Y														→ N/A					
CTMW-9		SU	Onsite	Y														→ N/A					
CTMW-10		SU	Onsite	Y														→ N/A					
CTMW-12		FM	Onsite	Y														→ N/A					
CTMW-14		SU	Onsite	Y														→ N/A					
CTMW-15		SU	Offsite	Y														→ N/A					
CTMW-17		SU	Onsite	Y														→ N/A	√	√			
CTMW-17D		FM	Onsite	Y														→ N/A	Y	Y			
CTMW-18		SU	Onsite	Y														→ N/A	N	N/A			
CTMW-20		FM	Onsite	Y														→ N/A					
CTMW-24		SU	Onsite	Y														→ N/A					
CTMW-24D		SU	Onsite	Y														→ N/A					
CTMW-25D		SU	Offsite	Y														→ N/A					
PZ-1		FM	Onsite	Y														→ N/A	√	√	√	√	

Well	Date	Type Of Well? (Stick Up = SU) (Flush Mount = FM)	Well Onsite Or Offsite?	Well Found?	Well ID Visible and Accurate?	Security Bolts In Place?	Security Bolts / Padlock Free From Damage Or Tampering?	Well Free From Vegetation?	Well Monument Secure?	Well Lid Removed W/O Obstruction?	Well Dust Cap/Pressure Cap In Place?	Well Dust Cap/Pressure Cap In Good Condition?	Riser Secure?	Well Lid In Good Condition?	Concrete Surrounding Monument Free From Damage?	Wing Holes In Good Condition?	Well Gasket In Good Condition?	Inside Monument Free From Stinging Insects?	Bladder Pump Connections In Good Condition?	Water In Monument?	Water In Monument Removed?	Other? (See Comments Below)	Well Repairs Needed?
PZ-5	10-2020	FM	Onsite	Y															N/A	N	N/A	N	N
PZ-7		SU	Onsite	Y																			
PZ-8		SU	Onsite	Y																			
PZ-9		SU	Onsite	Y																			
MW-1		FM	Onsite	N			Unable to access due to scrap metal over the well																
TP-6		FM	Offsite	Y																			
TP-7		FM	Offsite	N			well under water / trailer parked over well																
TP-8		FM	Offsite	Y																			
TP-9		FM	Offsite	Y																			
TP-10		FM	Offsite	Y																			
SB-1A		SU	Offsite	Y																			
SB-2A		SU	Offsite	Y																			
SB-3A		SU	Offsite	Y																			
CCW-2A		FM	Offsite	Y																			
CCW-2B		FM	Offsite	Y																			
CCW-2C		FM	Offsite	Y																			
CCW-3A		SU	Offsite	Y																			
CCW-3B		SU	Offsite	Y																			
CCW-3C		SU	Offsite	Y																			
CCW-5B		FM	Offsite	N/A			Unable to access due to blackberry bushes																
CCW-5C		FM	Offsite	N/A			Unable to access due to blackberry bushes																
Well Repairs																							
Description Of Repair Needed:																		Complete By/ Date		Confirmed Date			